



NEWSLETTER 103

October 2006

CONFERENCE SPECIAL

**9TH INTERNATIONAL SEABIRD
GROUP CONFERENCE, ABERDEEN.
1-3 SEPTEMBER 2006**

“SEABIRDS UNDER PRESSURE”

Welcome to the conference

After a reception buffet at Crombie Hall, delegates gathered in the King’s Conference Centre auditorium for the welcome speech from Mark Tasker, Chairman of the Seabird Group. Mark welcomed the 163 delegates from 16 countries attending the full two-day programme which included 68 presentations. This year’s conference covered a range of pressures that seabirds experience such as fisheries interaction, climate change, mammal predation, wind farm interaction, disturbance and other effects and contaminants.

Kees Camphuysen from the Royal Netherlands Institute for Sea Research followed with his talk on distributional shifts of seabirds and marine mammals in the southern Bight. He pointed out that during the 1970’s, industrial fishing used to be blamed for declines in seabird and cetaceans. Today land reclamation, human overpopulation and climate change are the driving factors that

influence food availability and are manifested as changes in species composition, overall abundance and distribution.

The evening continued with a BBC film screening - ‘South Georgia – An Island all alone’. This was based on a film crew following the seabirds and marine mammals of the island throughout the yearly cycle. Many of us admired the scenery but also realised about the tough wintering conditions these species are exposed to. The Zeste Restaurant became the last stop of the evening where delegates enjoyed socialising, drinking and pondering about their next field season.



Delegates seated in the King’s College Conference Centre (Juan Brown)

Theme 1: Fisheries Interaction

The first session of Saturday was opened by Chris Robertson who reported that in New Zealand a small number (<20%) of 240 observed vessels killed >80% of the incidental by-catch in seabirds. A necropsy programme on the diet of dead birds in New Zealand waters found that Polish boats in particular, by using old fishing gear and poorly cleaned surfaces, have not made an effort to avoid interaction risks with albatrosses and petrels.

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Maria Mateos followed with a presentation which showed that discard and offal is an important food source for seabirds migrating along the Gulf of Cadiz, in south-west Spain. Her study was based on observations and bird counts from a research trawler. They found that large numbers of threatened species such as Balearic and Cory's Shearwater were occurring and highlighted that this issue needed conservation attention.

Michelle Sims demonstrated the challenge of modelling estimates of bycatch rates by comparing data from 1992 to 2004 of the US sink gillnet fisheries with that of the pelagic longline fisheries in the western North Atlantic. She demonstrated spatial modelling of multi-taxa bycatch rates where 95% of the sets showed no bycatch and the difficulties occurring when dealing with zero estimates.

In the final presentation of the first session, Richard Phillips focused on population declines in albatrosses and petrels from South Georgia. He demonstrated that fisheries bycatch is still a current problem in the Southern Ocean. Quality tracking and demographic data showed that during the non-breeding period all species are vulnerable. Richard pointed out that Black-browed Albatrosses are most at risk during incubation, whereas Wandering Albatrosses and White-capped Albatrosses are most vulnerable during pre-laying and incubation.

Theme 2: Climate Change

After a 20-minute coffee break, the second session was opened with a presentation by André Breton who kindly filled in for George Divoky. André spoke about his project on shared characteristics of Black-legged Kittiwakes by analysing data collected from automated telemetry stations based on Kodiak Island.

Robert Thomas followed with a talk about the relationship between climate change and the fuel loads of migrating European Storm Petrels. He found out that between-year variation in body fuel reserves were associated with the North Atlantic Oscillation.

John Chardine then told us about the influence of ocean climate variability on Black-legged Kittiwake breeding success at Witless Bay,

Newfoundland. He found interesting trends between breeding success and the difference between timing of Kittiwakes hatching and capelins spawning. Changes in Capelin biology have occurred over years since 1980s. Capelin now tend to occur in colder, deeper waters and the lower temperatures have resulted in delayed spawning. Such mismatch of timing may mean that breeding conditions for Kittiwakes will deteriorate.

Lorien Pichegru presented results from a study on Cape Gannet colonies in South Africa located in two different ocean currents. Surprisingly birds within the upwelling system spent greater time foraging, travelled further and fed mainly on fisheries offal while gannets from Bird Island fed mainly on sardines. Competition with fisheries and predation by Fur Seals are suggested as environmental pressures to make birds display such behaviour.

Before talking about trends in seabird abundance and distribution Stefan Garthe encouraged delegates to undertake more European Seabirds at Sea (ESAS) counts of the North Sea to improve future data sets and interpretation. He analysed two time periods (1979-1991, 1992-2004) for seabirds during the non-breeding season and detected substantial declines for Herring Gulls and Greater Black-backed Gulls, while fulmars were less affected. He concluded that behaviour of seabirds is changing over time: Pelagic species interactions with fisheries are decreasing whilst inshore species interactions are increasing.

A scrumptious lunch was then prepared for us in Elphinstone Hall.



Lunch in Elphinstone Hall (Juan Brown)

The first session of the Saturday afternoon was opened by a presentation from Thomas Reed who made predictions in phenotypic plasticity for colonial breeders. He stressed the point that all Common Guillemots responded similarly in their average lay date to the large-scale environmental cues such as North Atlantic Oscillation leaving little space for individual variation and limiting the potential for directional selection to act.

The last presentation relating to climate change was given by Bernard Cadiou, who demonstrated that predation by Greater Black-backed Gulls, combined with impacts of climate change, can have a serious threat on the European storm petrel population in Brittany.

Theme 3: Mammal Predation

The first presentation of this session was given by Bob Swann who talked about the impact of Brown Rats on the Isle of Canna's breeding seabirds. Rats were shown to have led to a decline in seabird numbers and a redistribution in nesting Common Guillemots. He also pointed out that, at the same time, a food shortage occurred and that birds switched to energetically low value fish species. Following the winter 2005/06 rat eradication programme on the island, he presented updates on the current situation with Razorbills recovering from near local extinction.

Elizabeth Bell followed with an impressive report on crow clips, wax blocks and a very effective bait station grid containing 4200 stations to eradicate Brown Rats from Canna during winter 2005/06. She talked about the struggle to get 23 tonnes of bait to the island and the high amount of material lost through weathering (2.5 tonnes). By March 2008, we will be able to find out if the project has been successful and whether the island can be declared rat free - fingers crossed!

The last presentation before the two hour poster session was given by John Hughes. He informed us about the decline of Sooty Terns on Ascension Island by introduced predators such as Norway Rats, Mynah Birds and the encroachment onto nesting sites by Mexican Thorn. Domestic feral cats predated up to 32 Sooty Terns per night and were therefore the

main priority species to be eradicated in 2003. However, the population status of Sooty Terns has not improved and recent studies show that Norway Rats are now on a rapid increase.

Final Session on Saturday

Presentations continued with Thierry Boulinier after coffee. He asked the question: are individuals of varying quality distributed heterogeneously within a colony? Using mean egg size of Black-legged Kittiwakes, as an indicator for quality, no clear pattern of spatial autocorrelation was found amongst study plots over seven years of investigation. Therefore mean egg size could be used as monitoring tool to show response in environmental change.

Karen McCoy presented seabird ecology from the viewpoint of the tick *Ixodes uriae*. Recorded on more than 50 seabird host species, this generalist can aid in the transmission of pathogens, reduce reproductive success, limit habitat selection and affect recruitment. Karen talked about host specialization and the implications that this may have for both host population dynamics and the epidemiology of avian diseases.

Stephen Votier showed us the factors influencing recruitment in a breeding colony of Common Guillemots at Skomer Island, Wales. Apparently, combined influences of extrinsic and intrinsic mortality events can be masked by recruitment of non-breeders which will have an effect on actual recruitment rate.

The final talk of the day was presented by Matthew Parsons who talked about the first efforts to develop a breeding seabird indicator for Scotland as demanded by policy-makers. He showed how modelling trends from the UK Seabird Monitoring Programme closely agreed with the trend revealed by previous censuses but gave unsatisfactory output for species such as terns and cormorants. He concluded, however, that an all species indicator does not reflect individual species trends and sandeel specialists needed to be looked at as individually.

Conference Dinner

The conference dinner was held in the Elphinstone Hall which offered a grand space

and a great atmosphere with a very high ceiling, chandelier and antique wall hangings. After an excellent dinner in good company, a raffle was organised and delegates had the chance some attractive prizes. Afterwards the floor was cleared for the traditional Ceilidh and provided welcome exercise to delegates after a day of sitting. The Flying Piemen were well received and as a new face to the scene I greatly enjoyed my night and learned much about Scottish dancing and beer consumption.

Ilka Soehle.

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First Session on Sunday

“Ceilidh survivors” were welcomed to the first session by Chair Stefan Garthe. Any blurry eyes and minds were soon sharpened by the first talk, with Tony Diamond describing a looming crisis in the seabird populations in the Bay of Fundy. On the American – Canadian border, any confusion of ownership of Machias Seal Island was not shared by the resident Common Terns, as the patriotic maple leaf nest markers illustrated! On a less jovial note, Tony described how seabirds are struggling. A decline in young Herring has caused prey-switching to larval fish and krill. He also reported on a novel way of catching Atlantic Puffins, fledglings of which seem to be inexplicably drawn to the throb of a diesel generator!

Nele Markones then followed with news of the better fortunes of Black-legged Kittiwakes in German Bight, which are not suffering the declines experienced by some other North Sea colonies. Rather than foraging on sandeels, the German kittiwakes are thriving on young Whiting, foraging at ‘fronts’ (current interfaces or upwellings) rather than scavenging discards.

The next paper was delivered by Morten Frederiksen on the ‘boom and bust’ population dynamics of the European Shag. Unlike most seabird species, which typically exhibit slow reproductive rates and more stable populations, European Shags are able to exploit favourable conditions by producing a larger number of young. Conversely, they are less able to avoid unfavourable conditions than other seabirds and suffer high mortality in bad years. The ultimate factor driving this adaptive strategy is their

partially waterproof plumage, which facilitates more efficient foraging when conditions are good. However they are more susceptible to poor conditions as their plumage is less protective in stormy weather and their requirement for dry-land roosts limiting the species’ dispersal ability. Morten’s colleague Francis Daunt confirmed the sedentary nature of the Isle of May shags, and examined factors affecting year-round foraging behaviour using logger data and linked this with breeding success.

The conference then adjourned for coffee, with another opportunity to browse some 35 posters, plus a display of excellent pictures by Shetland artist Howard Towll.

Theme 4: Wind farm interaction

The late morning session was chaired by Sheila Russell. With pressure on governments to reduce carbon dioxide emissions as part of the Kyoto Treaty, coupled with opposition to terrestrial siting of windfarms, the number of proposed installations at sea is increasing. In order to minimise impacts on important bird populations, it is vital that we establish numbers, distribution and behaviour of species in areas of proposed or likely development.



Henrik Skov’s presentation (Juan Brown)

Results from surveys in North America (where there seems to be a lack of planning, as Henrik Skov reported, in place of Richard Podolsky), UK (Andy Webb and Ilya Maclean) and Denmark (Ib Krag Petersen), were presented. Andy described how aerial surveys in the UK have revealed considerably bigger populations of Common Scoters in Liverpool Bay and Red throated Divers in the Thames Estuary than were previously known.

Theme 5: Disturbance and other effects

After lunch, the next theme of the conference commenced and was chaired by Jim Reid. Iain Stenhouse headed the session with that charismatic species: the Ivory Gull. With a world population of just 14,000 pairs (far smaller than I had realised), the species' apparently massive population crash in Arctic Canada is cause for concern.

Claire Smith reported on the pecking order of the bully-birds of Handa, with Arctic Skuas heading for extinction due to predation of fledglings by Great Skuas, themselves suffering from the aggressive tendencies of the Great Black-backed Gull. This was particularly interesting since at other colonies Bonxies eat Great Black-backs chicks.

Philipp Schwemmer examined the impacts of shipping, which is predicted to increase of as new windfarms are constructed, on seaduck and Red-throated Divers in German waters. Mariette Wheeler ended the session by demonstrating the degree of irritation exhibited by nesting wandering albatrosses to human visitation and the implications for managing public access.

Theme 6: Contaminants

Alexander Bond looked at mercury contamination in Machais Seal Island seabirds, an anthropogenic pollutant which, when biomagnified, can cause reproductive failure. In order to identify the source of the mercury he used stable isotope ratios of nitrogen to identify what level in the food chain organisms were feeding, and of carbon to measure how far offshore species were feeding. The highest mercury levels were found in petrels and Atlantic Puffins, indicating a diet of Euphausiid shrimps in these species, as these were the prey items with the highest mercury levels.

The Conference ended as it began, with a Dutch speaker, Jan Andries Franeker, who exposed the considerable amount of plastic found in dead Fulmars. The grizzly sight of Fulmar entrails stuffed with coloured plastic has attracted the media spotlight and highlights the responsibility we have to ensure their survival.

Closing speeches and remarks

In his closing speech, Mark Tasker noted that we are becoming more co-operative as testified by the mean number of authors per paper: 2.45 in 2004, compared with 4.34 in 2006! Mark thanked everyone concerned with the organisation of the conference and presented Alan Leitch and Martin Heubeck with gifts of a local liquid speciality in recognition of the tremendous amount of work involved. Sarah Wanless also thanked Mark on behalf of delegates for his important role.

Juan Brown

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Field trip

On the Monday morning, a truly international group of 26 delegates boarded a coach for the field trip to Royal Deeside. Their guide for the day was Nick Picozzi, formerly of Banchory CEH, who has lived in Deeside for the past 40 years. His knowledge of the geomorphology, ecology and history of the area made for an interesting and entertaining commentary between and during stops, the first of which was at the famous Queen's View. Despite a bit of wind from the west, the weather held throughout the day, and we enjoyed a walk at the Muir of Dinnet through birch woods to the Burn O'Vat, a massive bowl in the rock carved out thousands of years ago by a sub-glacial river. Although the woods were fairly quiet, mixed flocks of tits and Goldcrests provided species for folks only just starting their European lists.

Further on, we drove up Glen Cree to high ground at the Cairnwell and Glen Shee Ski Centre for some magnificent views (plus Red Grouse and Red Deer, Buzzards, Ravens and Dipper – but alas no Golden Eagle) before descending for a picnic lunch by the Linn O'Dee (Grey Wagtails, Siskins and fly-over Crossbill). Then it was on to the Royal Lochnagar Distillery for a tour and tasting, and yes, the standard up the pole indicated the neighbours were in residence at Balmoral. All in all, it was a very convivial and relaxed introduction to the habitats and history of inland Aberdeenshire.

Martin Heubeck

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CONSERVATION NEWS

INVASIVE ALIENS ON CRAIGLEITH

The plight of Puffins on the island of Craigleith, off North Berwick, is to be featured in a Channel 4 series ‘Wild Thing, I Love You’. The new series is to be aired this autumn, focusing on conservation issues and the Puffins will feature on Sunday 15th October. The Craigleith Puffins, one of the largest colonies in the UK, are being forced out by a giant alien plant.

The plant, tree mallow (*Lavatera arborea*), is a Mediterranean species that grows up to 3 metres in height. Tree mallow is believed to have escaped into the wild in East Scotland after being planted in coastal gardens. In particular, lighthouse keepers grew the plants and used the large woolly leaves as an effective compress to cover wounds. Whereas tree mallow has been on the Bass Rock for more than three centuries, the species has rapidly expanded on other islands during the last fifteen years in the Firth of Forth region.



Dense stands of Tree mallow

It has multiplied alarmingly over the last decade, an increase caused by several factors including, it is believed, global warming. This has resulted in a dramatic reduction in the number of puffin

burrows on Craigleith, from 28,000 in 1999 to 14,000 in 2003. Puffins rely on the burrows for safely rearing their young, so their loss has caused a corresponding crash in puffin numbers on the island. Ironically, the puffins themselves have actually assisted in the establishment of the plant, which needs a fertile soil to take root. The soil on Craigleith is nitrogen rich as a result of the birds’ guano and the tree mallow seedlings grow predominantly in gaps in the vegetation, created by puffins through their digging.

On the basis of study by the Centre for Ecology and Hydrology (CEH), which was funded by the Scottish Executive, Scottish Natural Heritage (SNH) and the British Ecological Society, sections of the tree mallow have been removed from the island, increasing the area for suitable burrows and helping halt the spread of the mallow to other islands in the Forth. The programme, which has the full support of the owner of Craigleith, Sir Hew Hamilton-Dalrymple, will form the launch point for a long-term management plan to try to restore the puffins’ habitat and encourage these popular seabirds to return to this once successful breeding ground.

Lynda Dalglish

For further information contact the Seabird Centre on: marketing@seabird.org or CEH on cehpress@ceh.ac.uk.

CANNA RAT ERADICATION PROGRAMME

The islands of Canna and Sanday are situated off the west coast of Scotland, within the Inner Hebridean archipelago and are owned by The National Trust for Scotland. The islands (excluding all inbye land) were designated as a Site of Special Scientific Interest (SSSI) in 1987, for their biological and geological features and as a Special Protection Area (SPA) in 1997 for raptors and seabird populations, particularly Manx Shearwater *Puffinus puffinus* and European Shag *Phalacrocorax aristotelis*.

Over the past 38 years, The Highland Ringing Group has collected data on seabird breeding success and numbers through the Seabird Monitoring Programme Canna Studies (Swann, 1974-2004). These studies have highlighted a

decline in seabird numbers with a steep decline from the nineties. Predation by Brown Rats *Rattus norvegicus* was identified as one of the causes of the decline, and a series of studies were initiated by The National Trust for Scotland to investigate the feasibility of setting up an eradication programme, with control programme and to establish the impacts this may have on non-target species.

Seabird Declines

Since the mid 90s most species exhibited marked declines, with the exception of the cliff-nesting Black-legged Kittiwake *Rissa tridactyla*, which had increased by 44% up to 2004 (Table 1). Other seabird colonies within the archipelago have fared better and do not share Canna's trends, suggesting that the problem of seabird decline on Canna and Sanday is local.

Table 1. Percentage change in numbers of breeding seabirds (individuals) for each species on Canna and Sanday 1995-2004. (Source Highland RG data, gathered under contract to JNCC)

Species	Increase %	Decrease %
Manx Shearwater		99
Northern Fulmar		32
European Shag		91
Common Guillemot		19
Razorbill		12
Atlantic Puffin		40
Black Guillemot		48
Common Gull		65
Lesser Black-Backed Gull		67
Herring Gull		72
Greater Black-Backed Gull		48
Black-legged Kittiwake	44	

The population of Manx Shearwaters was estimated as between 1000-1500 pairs in 1973. This species has been decreasing since the late 1980s with a sharp decline in 1989 when only 15 out of 62 study burrows contained chicks, and only four chicks successfully reared (Swann, 2001). By 1998 productivity in the colony was too low to measure (Figure 1).

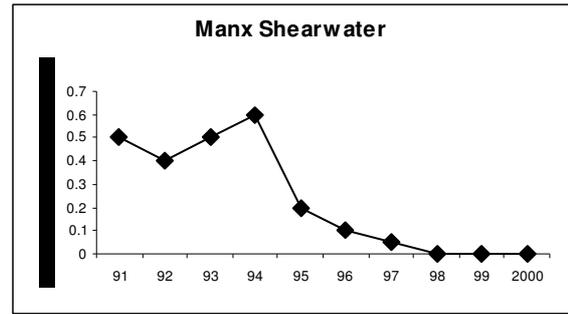


Figure 1. Manx Shearwater chicks fledged per egg laid within study burrows. (Source: HRG data, gathered under contract to JNCC)

There was a steady increase in the European Shag population throughout the 1970s to the 1980s; thereafter there has been a steady decline. The decline was most marked at boulder colonies in the south and west of the island. At the same time breeding output in these colonies showed a marked decline (Figure 2).

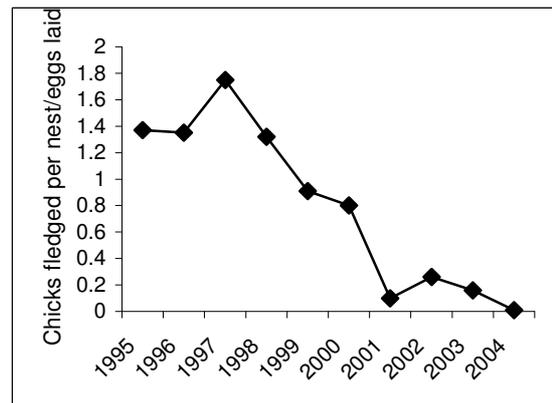


Figure 2. Decline in Shag productivity at two sub-colonies on Canna (Source HRG data, gathered under contract to JNCC)

Brown Rat survey

A survey was carried out in winter (2000-2001) to map the distribution of Brown Rats and to record rough densities throughout the islands (Patterson & Quinn, 2001). Survey points were made up of four chewsticks coated with lard and placed into the ground, the site marked with a bamboo cane for ease of locating and survey points placed in a 200 m² grid. To check for movement between islands, survey points were placed on the pedestrian bridge linking Canna and Sanday, and also on small islets accessible at low tide. This survey pattern was detailed enough to monitor all Brown Rat activity on the islands.

Of a total of 434 chewstick stations, 343 were on Canna, 78 on Sanday, three on the footbridge that connects the islands, and a further 10 on small islets. Small offshore islands and sea stacks were not surveyed. Chewsticks were coated in lard as an attractant for rats and chew marks then recorded on a scale of 1-5 where 1=light chewing (low activity), and 5 = heavy chewing (high activity). The highest level of rat activity was found around the coast reflecting the availability of potential food being washed up. Brown Rat activity was also found on inland areas and correlated with watercourses and Rabbit *Oryctolagus cuniculus* colonies. Brown Rats coexist with rabbits in their burrows and prey on sick or weak individuals as a food source. Myxomatosis was widespread on Canna and Sanday during the survey period and an abundance of carcasses and ailing individuals was available to rats. There are several islets adjacent to Canna and Sanday that can easily be accessed at low tide. Of the two islands and four islets included within the survey, only two of the smallest islets had no signs of rat activity. The presence of rats on the other larger islets highlights that Brown Rats will cross at low tide and access both Canna and Sanday. Chewstick stations on the footbridge showed no signs of Brown Rat activity indicating that they will not cross at this point.

Eradication Programme

Raptors are a priority when planning an eradication programme. All poison was placed in bait stations designed to prevent access to species larger than rats and so inaccessible to raptors. Rats die underground and therefore cannot be scavenged. Poison was contained in wax blocks and held in place with wire within a plastic flexible tube, which was secured to the ground with metal pins. Diphacinone, a first generation anticoagulant rodenticide, was used as the primary poison for the eradication programme. Diphacinone has limited, if any, secondary effects on raptors. It is important to maintain and increase productivity of White-tailed Eagles *Haliaeetus albicilla* as the two pairs on Canna and Sanday form 6% of the UK population. The eradication programme began in September 2005 to reduce the risk of disturbance to raptors and was completed by March 2006.



Poison bait dispenser made from drainage flexible plastic piping (Abbie Patterson).

Small Mammals

Other than rats, the small mammal fauna are limited to Wood Mouse *Apodemus sylvaticus* and (in smaller numbers) Pygmy Shrew *Sorex minutes* (Patterson & Brough, 1999; Patterson & Lloyd, 2000). Wood Mice on Canna and Sanday may be morphologically unique, being larger than their mainland conspecifics (Berry, Evans and Senñitt, 1967).

Small mammals are susceptible to Diphacinone poison and populations could be depleted during the eradication programme. The 200m grid is designed so that species with smaller home ranges will not always encounter bait stations and a small population may survive though this has to be tested. In addition, samples of Wood Mice were captured and shipped off the island to be kept in quarantine at Edinburgh Zoo and Kincaig Wildlife Park. They bred in captivity and a small sample have been released and are currently being monitored.

Baseline data from surveys carried out in 1999-2000 will facilitate comparison with post-rat-eradication numbers. Densities of the two species are expected to increase in the absence of rats (from current low numbers). Brown rats having been shown to suppress numbers of Wood Mice on Rum (Berry, Evans and Senñitt, 1967). Domestic cats *Felix domesticus* are present on Canna and these predators may also play a role in regulating numbers of small mammals.

Conclusion

Seabirds have been declining steadily for 20 years with a more pronounced decline in the last 10 years and there was strong evidence to

suggest that rats were the main predator causing these declines. Rat eradication was the only answer to this problem and mitigation procedures put in place to safeguard small mammals and raptors has been successful. The 2006 season has shown a slight increase in some seabird species and the return of the Manx Shearwater in this post rat phase, however time must be allowed to evaluate seabird populations over a longer time period to determine success.

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Acknowledgements

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REVIEW OF URBAN GULLS AND THEIR MANAGEMENT IN SCOTLAND

A new report (Calladine et. al 2006), commissioned by the Scottish Executive, has been released which aims to give an up-to-date review of urban gull colonies in Scotland and examines, through the use of a questionnaire sent out to all 32 Local Authorities, the perceived problems posed by urban gulls. It also looks into recent literature, legislation, existing management practices and advises on mitigation procedures for Local Authorities and makes suggestions for future research.

The questionnaire was returned by all 32 Local Authorities and 27 of those reported local gull populations and all but two of those had a problem with them. The problems were mostly from aggressive behaviour of the birds, noise, littering and fouling by droppings.

Five species of gulls are shown to have urban colonies with the major species being Herring Gull (concentrated on the eastern coastal towns and cities), the Lesser Black-backed Gull (concentrated in the central belt) and the Common Gull, whose centre of abundance is in the Cromarty Firth region. Lesser numbers of Black-headed Gulls and Great Black-backed Gulls have urban populations and these are of fairly recent occurrence and are concentrated in Dyce (Aberdeen) and the Nigg Oil Terminal (Cromarty Firth) respectively.

Control methods are discussed, including scaring sounds, falconry, prevention of access to gulls and changing the nesting substrate of colonies, actual interference with breeding success (nest & egg destruction, egg oiling, pricking & removal) and finally trapping and killing the gulls. However it was noted that there was a lack of scientific testing of the efficacy of the methods used.

Feedback from Local Authorities includes the wish for some legislative changes to facilitate dealing with the problem. For example, the potential to prosecute persistent feeders of gulls, the alteration of building restrictions so that incorporation of gull-proofing was mandatory in new buildings and the enforcement of nest removal and installation of gull-proofing on private buildings.

Research recommendations suggest a focus on the two main offending species, the Herring and the Lesser Black-backed Gulls. Intensive studies of the ecology, diet and demography of these species in a specifically urban context are suggested as well as studies of mitigation and management techniques with rigorous scientific testing.

Further details are available from: <http://www.scotland.gov.uk/Publications/2006/05/18113519/0>

(Special thanks to Anne Cotton for this summary on behalf of BTO Scotland- Ed)

US ESTABLISHES THE NORTHWEST HAWAIIAN ISLANDS MARINE NATIONAL MONUMENT

On Thursday, June 15th, 2006, U.S. President George W. Bush designated the Northwest Hawaiian Islands as a National Monument, making it the world's largest marine protected area. The Monument covers nearly 140,000 square miles and encompasses ten islands and atolls, including Midway Atoll, French Frigate Shoals and Laysan Island. It is an area rich in natural resources that provides important habitat for millions of seabirds, including albatrosses, terns, boobies, shearwaters, petrels and tropic birds, as well as many other rare, endangered, and endemic species.

This area has long been recognized for its importance as seabird habitat. In 1909, President Theodore Roosevelt designated several of the islands as the Hawaiian Islands Bird Reservation. This has since been managed by the United States Fish and Wildlife Service (USFWS) as the Hawaiian Islands National Wildlife Refuge and is part of the Pacific/Remote Islands National Wildlife Refuge Complex which includes Midway Atoll. Prior to the June 15th proclamation, the Northwest Hawaiian Islands were being considered for National Marine Sanctuary status, but declaring the area a Monument instead has circumvented this multi-year process. At the same time it immediately provides the strongest federal environmental protection for the islands and surrounding waters that is currently available in the United States. The Monument will be jointly managed by the National Oceanic and Atmospheric Administration (NOAA) and USFWS, in coordination with the State of Hawaii.

Nearly all of the world's population of Laysan Albatrosses (*Phoebastria immutabilis*) and Black-footed Albatrosses (*P. nigripes*) nest within the designated Monument. These birds are currently under threat from many human-induced causes, particularly mortality on the hooks of longline fishing vessels, ingestion of floating plastic trash, exposure to contaminants such as lead, and the proliferation of invasive species at their breeding sites. For example, on Midway, flakes of lead paint from 95 aging military buildings, constructed during the Second World War, are killing thousands of Laysan Albatross chicks every year. At this and other important sites, an invasive plant, golden crown-beard (*Verbesina encelioides*), grows so densely that it prevents birds from reaching their nests and entangles newly-hatched chicks, often killing them. This is severely affecting the breeding success of both albatross species.

The Monument designation will help protect these important seabird populations by restricting unauthorized access and regulating special uses of the area, such as research and education. Under the new Monument regulations Midway Atoll is designated as a "Special Management Area", with the goal of enhancing the management, protection and preservation of its wildlife resources. American

Bird Conservancy (www.abcbirds.org), which recognized the Northwest Hawaiian Islands as a Globally Important Bird Area in 2001, strongly supports this designation in the hope that it will inspire renewed commitment to protecting Hawaii's seabirds.

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RESEARCH NEWS

THE SEAPOP PROGRAMME: A MILESTONE FOR THE MAPPING AND MONITORING OF SEABIRDS IN NORWAY



SEAPOP (SEAbird POPulations) is a new and long-term monitoring and mapping programme for Norwegian seabirds that was established in 2005. The programme represents a new initiative for these activities in Norway, Svalbard and adjacent sea areas, and will provide and maintain base-line knowledge of seabirds for an improved management of this marine environment. The data analyses aim to develop further models of seabird distribution and population dynamics using different environmental parameters, and to explore the degree of covariation across different sites and species. This knowledge is urgently needed to distinguish human influences from those caused by natural variation.

The activities in the two initial years were restricted to the Lofoten and Barents Sea area but the programme is designed for implementation on the full national scale within a few years. The work is organised and carried out by the Norwegian Institute for Nature Research (NINA) in close cooperation with the Norwegian Polar Institute (NP) and Tromsø University Museum, and is currently financed by the Ministry of Environment, the Ministry of Petroleum and Energy and the Norwegian Oil Industry Association. The data and knowledge is

being organised for serving different users online via an own web site (www.seapop.no).

Mapping

Within the scheduled programme period of ten years, SEAPOP aims to map in detail the distribution of breeding, staging and wintering seabirds along all coastlines of Norway and the Svalbard archipelago. For logistic and economic reasons, much of the highly dynamic distribution of seabirds at sea in the vast areas covered by the programme will be predicted using multi-disciplinary models. This work is done in close cooperation with the Institute of Marine Research in Bergen and is based on data collected on their ecosystem surveys in parts of the area.

Monitoring

The national monitoring of population trends that has been ongoing since the 1980s will be continued and extended with more sites and species. To help reveal as early as possible important environmental pressures acting on the populations, we have extended and further adjusted the monitoring of reproduction, adult survival rates and diets of selected seabird species on the four previously established key-sites Røst, Hjelmsøya, Hornøya and Bjørnøya (i.e. Bear Island) to meet the general design of the programme. Two new key-sites have now been established, one on Anda and the other on western Spitsbergen. The latter is divided among several localities because there is no suitable single site in the area that holds a sufficient variety of breeding species. On the basis of time series that date back many years, a number of interesting trends for different species and parameters are now being uncovered, both within and between these colonies. When the programme is implemented on the full national scale, as is expected within a year or two, additional key-sites will be established in central and southern Norway, most likely including the colonies at Sklinna and Runde and a selection of sites in Rogaland and Telemark counties.

Special studies

SEAPOP will also fund a number of more specialised, shorter-term studies of seabird

ecology and habitat use, some of which will apply sophisticated methods for automatic data recording.

Publication

When up and running, the SEAPOPOP web site will accumulate a lot of results generated by the programme. Although only licensed users will be able to download raw data, a variety of pre-prepared information will be made freely available. The web site will also contain an up-to-date list of scientific publications associated with the programme and summaries of the main results will be presented in annual reports, the first of which has already been published. For a pdf file of the report (Anker-Nilssen et al. 2005) or additional information, visit www.seapop.no.

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SANDAY STORM PETREL IN SWEDEN

The BTO Ringing Unit recently received details of a BTO-ringed Storm Petrel recaptured on the west coast of Sweden. This bird was ringed at Tress Ness on Sanday, Orkney, on 27 August and was recaptured by ringers on the island of Måseskär on 5 August, some 800km distance. This is the first time a BTO-ringed Storm Petrel has been found in Sweden, though a bird ringed Måseskär island in 1996 was recaptured on Faraid Head in Highland in 1997.

It's well known that Stormies can make such quick movements, though Sweden is a somewhat unusual destination. A quick summary of the previous foreign movements of Stormies is shown here, though it is almost certainly a reflection of catching effort as much as anything.

	BTO-ringed	Foreign-ringed
Norway	590	368
Faeroes	43	171
Portugal	143	46
France	34	86
Channel Islands	10	22
South Africa		26
Iceland		7
Spain	3	1
Mauritania		3
Morocco		2
Namibia		2
Senegal		2
Switzerland		2
Gabon		1
Ivory Coast		1
Liberia		1
Malta		1
Netherlands		1
Sweden	1	
Zimbabwe		1

The movements of Leach's Petrels aren't so well known, there being far fewer recoveries. To the end of 2004, over 410,000 Storm Petrels had been ringed (generating 11,300 recoveries (2.8%)), compared to only 12,700 Leach's (generating 73 recoveries (0.6%)). The only foreign movements of Leach's are two birds from the Western Isles to the Faeroes and singles from Shetland to Faeroes and Shetland to Norway. The other way, Norwegian birds have been caught on Sule Skerry (2) and North Ronaldsay and an Icelandic bird has been recaptured on North Rona (14 years after ringing).

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SOOTY SHEARWATER MIGRATION STUDY

Scott Shaffer and colleagues from the United States, New Zealand and France, have recorded for the first time, the complete migration of Sooty Shearwaters *Puffinus griseus* in the Pacific. Working as part of the Tagging of Pacific Pelagics (TOPP) project, the team fitted miniature archival electronic data loggers to 33 birds from two New Zealand colonies in 2005. The 12g tracking tags collected data on position, ambient temperature, and dive depth and recorded tracks of around 260 days.

The tracks from 19 tags revealed that the birds made a 64,000 km 'figure of eight' round trip, the longest animal migration ever recorded electronically. Contrary to previous assumptions, the birds travelled to one of three discrete regions off Japan, Alaska or California, rather than making a pan-Pacific sweep to cover all of their feeding areas in the Northern Hemisphere. However, birds that travelled to different regions do not represent distinct populations of shearwaters and similarly, birds from the same breeding colony could end up spending the austral winter in different areas of the north Pacific.

The timing and route of the northward migration was somewhat variable, with birds crossing the equator at various locations over a period of about a month. But the return trip was remarkably synchronous, with all tagged birds funnelling through a narrow corridor and crossing the equator within a ten-day period in October. The study shows that birds take advantage of prevailing winds along different portions of their migration route and cross the equator twice a year in pursuit of an 'endless summer' in which their feeding areas are always at or near the period of peak productivity. Diving patterns recorded by the tags indicated the birds stopped little if at all to feed as they pass through the equatorial regions on their journey between the Southern and Northern Hemispheres. Shaffer and his colleagues redeployed the tags this year, with some on the same birds, and plan to recover the tags in October.

For more information on TOPP visit www.topp census.org, where you can also download a pdf of the publication, Shaffer *et al.* (2006) Proceedings of the National Academy of Sciences (PNAS), 103 (34) 12799-12802

Linda Wilson

2006 UK BREEDING SEASON NEWS

ST KILDA

St Kilda, 45 miles west of the Uists, is the largest seabird colony in Britain, with up to a million seabirds present in the summer. This is

recognised in its designation as a World Heritage Site. Last year saw an addition to the NTS staff on the island with the creation of a new three year summer position, a Seabird and Marine Ranger. In the light of recent concerns over seabird populations around Scotland, it seemed that the time was right to expand the level of seabird and marine monitoring in this hugely important colony.

St Kilda has the largest puffin colony in Britain (142,000 apparently occupied burrows counted in Seabird 2000). Unfortunately, 2005 was a disastrous year for puffins on St Kilda, with a productivity of only 0.26 young per egg laid, making it the poorest year on record (average productivity in the past has been around 0.71). All indications seemed to be that the puffins struggled to find food for their young, many of which consequently starved to death. It appeared that many of the pufflings were being fed the nutritionally-poor pipefish in the absence of any more suitable fish prey. This year saw a distinct improvement, with a productivity of between 0.53 and 0.61 young per egg laid, although this is still a below-average year. Adult puffins seemed to be able to find considerably more silvery fish (fish samples collected appear to be small fish of the herring family) than last year, but as the season progressed it was noticeable that pipefish became more abundant as a prey item and a proportion of the chicks in burrows were again seriously underweight.

At fledging, young puffins are attracted to the light and sound of the Base on St Kilda, and become stranded at the base of the buildings. These are collected in the early morning for release at dusk, and the average weight of collected pufflings has been shown to be a good indicator of breeding success (Harris, Murray and Wanless "Long-term changes in breeding performance of Puffins *Fratercula arctica* on St Kilda" Bird Study (1988) **45**, 371-374). In years of good breeding success, fledging weights are 240 – 260g, but average weights have been below 200g for the last five years. However, this year the average weight was 235g, suggesting again that, although below average, puffins had a much better year in 2006.

Kittiwakes are another seabird on St Kilda that appears to be struggling to find adequate food supplies. Birds were frequently observed both

this year and last year bringing in pipefish to the nests, and productivity has been poor in recent years (below 0.37 fledged young per apparently occupied nest (AON) for the last six years). Numbers of AONs on the archipelago as a whole decreased from 7829 in the Seabird Colony Register Census of 1987, to 3886 in 1999. A full archipelago boat-based count carried out this year revealed a total of only 1516 AON, a worrying decline of 61% in just seven years, and with a productivity of 0.34, breeding success this year was again low. St Kilda seems to be suffering a much more rapid decline in kittiwake numbers than the general trend throughout Britain, which may suggest either severe local food shortages or that other causes (or a combination of factors) are at work. Great Skuas have been shown to be significant predators of kittiwakes on St Kilda and elsewhere, and it is possible that this could be an additional pressure on colonies.

These studies of puffins and kittiwakes both suggest that finding sufficient food supplies may be problematical for birds on St Kilda. It was therefore felt that specific feeding studies would provide much useful information on the health of the surrounding marine environment, and may help to explain the poor seabird productivities observed. Mike Harris (Centre for Ecology and Hydrology) provided us with the protocol for carrying out detailed feeding studies on guillemots. These birds, being single-prey loaders, are particularly sensitive to reductions in prey size and quality, making them an excellent indicator species for detecting problems with food availability. Such data could also be fed into the collaborative project set up in 2006, involving CEH, RSPB, JNCC and Aberdeen University, to study regional variations in guillemot diet and foraging conditions by collecting feeding data from as many colonies as possible in the UK and Ireland, with the aim of assessing the scale of problems within the marine environment.

The guillemot feeding studies on St Kilda showed that pipefish were the commonest food item brought back to the young, and chicks were commonly observed with undigested pipefish sticking out of their bills for long periods of time. Silver fish (clupeids, gadoids and the occasional sand eel) that were brought back were often much too large for the chicks to

tackle, and this led to fights with neighbouring adults on occasion, which in one case led to a chick being kicked off the ledge and subsequently drowning. Only 5 out of a total of 24 fish recorded were both nutritious and of a suitable size for chick provisioning. The fledging period also appeared to be quite lengthy this year, presumably as a consequence of inadequate provisioning rates. It seems that guillemots were finding it hard to find nutritious food of the right size class for their young, and that they were unable to take advantage of the small fish that the puffins were seen carrying to their burrows.

These studies have highlighted a potentially worrying food supply problem for seabirds on St Kilda, and may help to explain the poor breeding successes for a number of species seen here in recent years. It would seem that, despite its remoteness, St Kilda is not immune from the problems that seabirds elsewhere in the country are facing.



Sarah Money using Endoscopy to look at Leach's Petrels in the Cleits

Despite all this doom and gloom, there was some good news on St Kilda this year. In 2004, JNCC installed 25 nest boxes for Leach's petrels in cleits (stone storage structures unique to St

Kilda) at the Lover's Stone, in the hope that they would aid in the study of Leach's petrel breeding biology by allowing ease of access to breeding birds. There was no sign of any use in 2004, but in 2005, 4 out of the 25 nest boxes were investigated by prospecting Leach's petrels. This year, 9 boxes showed some form of petrel activity. One box had a nesting pair which laid an egg, but unfortunately the egg was subsequently abandoned after several weeks (the egg was noticeably thin-walled, which is not uncommon in first time breeders, and this may have been the reason for the abandonment). A further 3 boxes had nests built in them and regular visits from birds, and it seems likely that these are pre-breeding birds "playing house". The signs look very promising for next year, and it is to be hoped that 2007 sees the first successful Leach's petrel nesting in a nest box on St Kilda.

Sarah Money
Seabird and Marine Ranger, NTS, St Kilda.

ISLE OF MAY

Just as in 2005 the breeding of many of the seabirds on the Isle of May was very late. Indeed, for Guillemot, Razorbill and Kittiwake only 2005 had later first egg dates. Puffins were also late this year although not as delayed as 2005. The first Shag egg was eleven days ahead of last year but still two weeks behind the long-term average. Fulmars were the exception being only a day later than last year but still at an average date.

Return rates for all species showed an improvement on 2005. After the large mortality of Shags in early 2005 this species doubled in numbers at monitoring plots with the return rate of adults slightly above the long-term average. Kittiwake and Puffin had normal return rates while Razorbill was noticeably above the mean. By contrast for Guillemot only 2005 had a lower return rate.

Breeding success varied considerably between species with Shags and Guillemots at the extremes. Guillemots had their worst ever breeding season on the Isle of May with productivity at only 0.41 noticeably lower than the previous low point in 2004 (0.50) and well below the long term average (0.77). In contrast

Razorbill, Puffin, Fulmar and Shag all enjoyed more productive seasons than 2005 with all but Shag being close to the long term mean. Shag had the most productive season of all the species on the May in 2006. After a very poor season last year they produced 1.22 chicks per pair that was noticeably above the long-term mean (0.9). For Kittiwakes the breeding success at 0.53 was close to the long-term average.

Despite average breeding success recorded in Kittiwakes the condition of fledglings appeared to be poor. As well as chicks close to fledging looking to be in a poor condition numerous juveniles were observed sitting on the island's freshwater loch for several weeks after fledging and feeding on insects.

Further evidence for a dramatic shortage of food at the end of the season came from late puffin chicks which grew more slowly and those that managed to fledge were leaving at a weight well below normal. This was backed up by the weights of chicks found around the island which had failed to find the sea after leaving their burrows.

The deterioration in conditions late in the season may have been linked to the emergence of large numbers of Snake Pipefish in the diet. Unheard of a few years ago these fish started to appear in the last couple of seasons but this year the frequency of observations rocketed. Early in the season Kittiwakes were observed courtship feeding with Pipefish with many found discarded around their nests. As the season progressed Puffins, Guillemots, Shags and large gulls were all observed carrying or feeding on Pipefish. This long, thin, bony fish appears to be of little nutritional value and seabirds struggle to swallow it. Towards the end of the breeding season Snake Pipefish were noticed scattered all over the island presumably dropped or discarded by Puffins. However, it was most apparent with Kittiwakes which went from a few Pipefish observed around the nests to widespread observations, with chicks struggling to swallow the fish in at least 10% of nests. This was first noted on 28th July and continued for the next ten days, over the period when chicks should have been fledging. Nests were becoming covered by pipefish which the chicks appeared unwilling or unable to swallow with some nests contained over fifty fish which had all been delivered in

less than 24 hours. It is difficult to know whether Kittiwakes were feeding on a sudden abundance of Pipefish or whether they were driven to it by a lack of more suitable prey, such as sandeels, at the end of the season. Either way it is clear that pipefish are an unsuitable prey species for seabirds and their sudden appearance in the diet is a genuine concern.

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SHETLAND (excluding Fair Isle)

Red-throated Diver: The 28 pairs which bred on Fetlar fledged 19 chicks (0.68/pair), a slight improvement on 2005 (0.54, 24 pairs). Nine pairs on Foula fledged just 3 chicks (seven pairs had young but their chicks disappeared before fledging). Elsewhere, Shetland Ringing Group (SRG) reported a poorer season than in 2005, with fewer broods of two, and unusually, several pairs losing large chicks before fledging. With the exception of a single sandeel, gadoids were the only fish seen being brought in by parents.

Fulmar: There was little change since 2005 in numbers in study plots at four monitored colonies, other than a 32%+ increase in occupied sites at Troswick Ness, where disturbance and/or predation by both feral cats and ferrets was believed to have occurred last year. The season was notably late on Foula. Breeding success averaged 0.49 chicks fledged per occupied site, a marked increase on 2005.

Storm Petrels: A better year on Mousa than 2005 although it was again a late season. More chicks were ringed and none were found dead in nests.

Gannet: Chicks are ringed annually at Hermaness and on this year's visit on 26th June most nests should have contained ringable chicks. However, most only had eggs or chicks too small to ring suggested laying was about three weeks later than normal, the first time this has been known to happen. Most regurgitates were of mackerel or herring, but a few were of whitefish.

Shag: At Sumburgh Head, the breeding season was earlier than in 2005 and 2004 and a higher proportion of pairs that started nests went on to lay. One object this year was to survey nests along the west Mainland coast to see whether there had been an influx of breeding birds from Foula, where numbers crashed in 2004 and had not recovered in 2005. There was a 37% increase in numbers of nests (444 *c.f.* 325) since 2004 along the coast from Reawick Ness to Vaila, but a 17% decrease since 2002 at Papa Stour (299 *c.f.* 360), where several long-occupied geos and cliff faces were completely deserted, although this year's was still 20% higher than in 1997-99. There was little change in numbers at Muckle Roe (62 nests *c.f.* 63 in 2004) or at south-east Yell (143 *c.f.* 134 in 2004). There a marked increase (28%) on 2005 from Noness to Sumburgh Head in south-east Mainland (602 *c.f.* 470), although it should be remembered that 2005 was a late season with a higher element of non-breeding. Breeding success on Mousa was high (1.56, 39 nests) and may have been equally high at Sumburgh Head (1.19, 160 nests) had not heavy swell washed out many lower nests in the second week of July. On Foula, 0.63-0.80 chicks fledged from a sample of 33 nests; while breeding numbers are still low, counts of adults around the island in late July suggest adult have returned but are not breeding.

Arctic Skua: The eight pairs monitored in plots on Fetlar failed completely. Success was better on Mousa, with 14 pairs fledging 13 juveniles (0.93) compared to six young from 12 pairs in 2005. On Foula, only two chicks fledged from c.79 AOT; more pairs laid than in 2005 but the season was late and many chicks died around the turn of June/July.

Bonxie: On Fetlar, 85 pairs in the monitored plots enjoying success of 0.91 fledged/AOT (0.57, 72 pairs in 2005). Numbers increased on Mousa from 24 AOT in 2005 to 35, and breeding success (0.49/AOT) improved from the 0.17 in 2005. SRG only ringed 12 chicks on the Bard of Bressay instead of the usual 50-60. It was a late and poor season on Foula, with much cannibalism of chicks.

Kittiwake: Colonies were surveyed along the same coasts as for Shags, with mixed results and some welcome respites from the relentless

declines of the past 20 years. Rates of decline between Reawick Ness and Vaila (total 85 nests) and around Papa Stour (82 nests) have slowed to 12-13% per annum compared to 20-25% p.a. in the first half of this decade. Numbers have remained stable at Muckle Roe (57 nests) for the past five years (although breeding distribution is changing), but are increasing nicely at Burravoe, Yell (140 nests *c.f.* 98 in 2004). In south-east Mainland, numbers are now only declining slowly at Noness (251 nests), Troswick Ness (63) and Boddam (28). A count of 1,065 nests on Foula was 19% higher than in 2005 (898), but may only reflect a temporary halt to the long-term decline, and/or a higher element of non-breeding in 2004 and 2005. Laying was generally 10-14 days earlier than in 2005, a high proportion of pairs laid, parental attendance was high, and few chicks were seen dead in nests, although on Foula chicks disappeared from 35% of nests where they hatched. Breeding success averaged 0.71 (Sumburgh Head 0.70, Noness 0.77, Ramna Geo, Burra 0.92, Burravoe, Yell 0.95, Foula 0.22, only moderately high but slightly lower than 2005 (0.97). Clutch sizes may have been rather low, and the fact that many adults were trying to feed chicks pipefish may also have kept overall success lower than it might have been.

Arctic Tern: On Fetlar, the 486 pairs again did poorly, fledging only 68 chicks (0.14), only a slight improvement on 2005 (0.06, 537 pairs). Only 16 young fledged on Mousa from a reduced colony of 195 pairs (287 pairs in 2005). On Foula, the maximum count was of 112 on 6th July, but none even laid. In general, this seemed to be the pattern throughout Shetland, with *only some* colonies fledging *only a few* young.

Guillemot There was little change in numbers since 2005 at Sumburgh Head, Troswick Ness and Eshaness, but a highly significant increase of 24% at Burravoe, Yell, where numbers have now increased by 78% since their lowest point in 2003. There was no change in the number of attended sites in the breeding success plot at Sumburgh Head but the proportion of site-holding pairs that laid increased from of a low of 72% in 2005 to a more normal 83%. Breeding success (0.57 fledged per egg-laying pair) was similar to 2005 (0.56), and while chicks were fed a variety of fish, gadoids seemed to

predominate. Chick weights prior to fledging were slightly higher than last year but still rather light. Few dead juveniles have been found on Shetland beaches so far this autumn.

Razorbill: There were decreases in numbers since 2005 at Sumburgh Head (-26%), Troswick Ness (-50%), Eshaness (-36%) and Burravoe (-20%), statistically significant at all but Burravoe. Sumburgh Head provides the largest sample size, and this year's counts were the lowest there since monitoring began in 1977.

Black Guillemot: There is no meaningful monitoring of breeding performance, but the number of juveniles noted on boat surveys during August suggested a reasonable breeding season.

Puffin: For such an 'iconic' species, remarkably little is monitored, or even known. On Foula, many 2-3 day old chicks were found dead at burrow entrances on 3rd July, and dead chicks were again noted on 20th August, about half fledging size.

Martin Heubeck & Mick Mellor (SOTEAG), Martha Devine & Kate Sheard (RSPB), Dave Okill (Shetland Ringing Group), Sheila Gear (Foula Ranger Service).

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FAIR ISLE

Overview: A much better season than of late with record numbers of some species and lots of chicks produced. There does still seem to be a shortage of 1-group Sandeels at the correct time, however this was partly compensated for by an apparent abundance of Gadoids. Things were not all rosy however as a large number of Snake Pipefish were collected in colonies and from regurgitates of all bird species. These are particularly hard for chicks to swallow and digest and are also low in nutrition. Many are just discarded by chicks.

Northern Fulmar: Numbers of AOS (Apparently Occupied Sites) on the plots increased by 13.5% from 2005 (and by 95% since 2004) but are still nearly 40% less than 20 years ago. Breeding success was high with a mean productivity of 0.51 (at the five monitoring plots) being the highest since 1993.

Northern Gannet: Following two years of slow growth, the island breeding population increased this year by 18.1% to 2,145 AON (Apparently Occupied Nests), including a large jump from 23 AON to 44 AON at the newest colony on Sheep Rock. Breeding success looks to be characteristically high.

European Shag: Overall numbers of nests at the population plots were the highest since 2001 and a massive 41.2% up on the 2005 figure. Productivity was 1.48, the highest since 2002 and over twice as productive as 2004 & 2005. The few food samples collected consisted predominantly of Sandeel.

Gulls: Ten pairs of Common Gulls raised eight chicks to fledging – the highest number on record – whilst Herring Gulls and the few pairs of Lesser Black-backed Gulls also fledged the majority of chicks. Gulls seemed to be feeding predominantly on Snake Pipefish with large numbers regurgitated by chicks during handling.

Skuas: Surprisingly (following several years of extremely low productivity), both Arctic and Great Skua had a very successful breeding season. A record number (189) of Bonxie pairs set up territories (previous highest was 152 in 1997) and around 180 chicks fledged – a productivity of 0.95. Similarly, 105 Arctic Skua AOT (the highest since the early 1990s) produced 86 chicks to fledging – a productivity of 0.82.

Black-legged Kittiwake: The least successful of all species. Numbers of AON fell by 10.3% compared to 2005 (although still 27% higher than in 2004). Fledging success, whilst better than the complete failures of 2003 & 2004, was quite low. A productivity of 0.29 is below the 0.37 recorded in 2005. Productivity during the previous ten years has ranged from 0 – 1.31 (mean 0.54). Many chicks and adults regurgitated Snake Pipefish and these were also evident as discards in nests indicating a lack of availability of favoured food. Butter Fish, Gadoids and a 15-spined Stickleback were also collected but no Sandeels.

Arctic Tern: ‘Tirricks’ were the great success story this year. After five consecutive years of failure to fledge any chicks and with numbers of nesting birds dwindling each year, it was a

surprise to record over 800 AIA this year and even more surprise that over 300 chicks fledged – a productivity of 0.39. Whilst Sandeels were evident during the courtship period, by the time chicks had hatched adult birds were mainly seen carrying small individuals of other fish species. Samples collected during ringing trips into colonies were almost exclusively 3-spined Stickleback.

Common Guillemot: Numbers of attendant adults were similar to the previous year (+4.2%) but numbers apparently laying eggs on the productivity plots were low. However, fledging success was phenomenally high – a productivity of 0.9 is the highest on record. Fledging chicks were however particularly underweight, which will no doubt affect their future survival chances. Feeding watches and collected samples showed that a variety of fish were being fed to chicks. During the 24hr feeding watch in early July, 40% were Sandeels, 26% were Gadoids and 5% Pipefish. Food samples obtained during ringing trips were varied; Lesser sandeel, Pipefish and Gadoids – several individuals of Poor Cod were identified.

Razorbill: The number of eggs in the breeding-monitoring plot was again (as last year) a new record but fledging success was low. A productivity figure of 0.21 is less than half that of the previous year (0.44) and only the complete failure in 2004 was worse. The ten years prior to these (1994-2003) saw a mean productivity of 0.60. As in recent years, chicks were also very underweight this year with some even losing weight between visits to the colony. The majority of food items collected were Lesser Sandeels (mean length 66.9mm).

Atlantic Puffin: Breeding success was particularly low – a productivity of 0.40 is the second worst on record (0.31 in 2001) and some way below the 1990 – 2005 average (0.68). During the 24hr feeding watch 14th/15th July, 43% of feeds were 0-group Sandeels and a further 26% 1-group Sandeels. A significant proportion (21%) were Pipefish, the majority of which would have been discarded by the chicks near the entrance to the burrow. Feeding rates were 4.46 feeds/burrow/day – a below average figure. Food samples collected from adults returning to colonies in July were; 41% Snake Pipefish, 40% Gadoid and just 7.4% Lesser

Sandeel (mean length 63mm). During one colony visit a total of 85 discarded Snake Pipefish were retrieved from *a single* burrow!

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NEXT NEWSLETTER: SKOMER, THE FARNES AND NORTH RONA.

JOURNAL REVIEWS

By Mark Tasker

From *WORLD BIRDWATCH* (June 2006)

In parallel to those strange adverts on foods preferred by cats, tests have found that 16 out of 20 blue petrel chicks preferred the smell of dimethyl sulphide, a chemical emitted by plankton concentrations, over a control odour. This indicates that chicks can recognise potential food sources at sea prior to leaving the nest.

The first cahows ringed as chicks in 2002, as part of a project to determine the life history of the species, have returned to their breeding grounds after just four years. This is earlier than was previously estimated.

Good news from India: following excellent community-based work by conservation NGOs along with improved breeding site protection, the population of spot-billed pelican is growing. In the 1920s, the population in South and South-east Asia was thought to number more than a million, but by the 1990s, fewer than 12,000 birds were left following loss of wetlands and nesting sites. The total population in South India alone has now reached 6,000 birds, a considerable improvement upon the low of 4,000.

BirdLife's annual evaluation of the status of the World's birds has recently been published. Two shearwater species (Persian and Bannerman's) have disappeared from the lists due to taxonomic lumping. Collared petrel, only known to breed on Gau in Fiji has been moved from "Least Concern" to "Near Threatened", while another species, the Tasman booby has been "discovered" extinct. The species certainly bred

on Norfolk and Lord Howe Islands but seen to have been wiped out on Norfolk Island by the Polynesians prior to 1744, while the species survived until at least 1786 on Lord Howe Island. A four page article provides further detail on the Volvo Ocean Race and its support of the Save the Albatross Campaign.

From *SEEVÖGEL* Vol. 27 (2)

This issue marks the 2006 International Ornithological Congress in Hamburg. The issue has two page summaries of the seabird colonies on Helgoland (cliff-nesters) and Hallig Norderoog (the westernmost marsh island in the Frisian Wadden Sea) (terns and gulls).

From *PACIFIC SEABIRDS* Vol. 33 (1)

Vivian Mendenhall reviews the recent outbreaks of the highly pathogenic H5N1 avian influenza. Avian influenza was blamed for the deaths of 1300 common terns in South Africa in 1961 and the paper lists another 21 seabird species from which the avian influenza virus has been isolated. More recently, great cormorants, brown-headed gulls and great black-headed gulls have been killed in China by highly-pathogenic avian influenza. And the virus was also found in 6 dead great cormorants in the Ukraine in May 2006. The US is monitoring glaucous gulls, glaucous-winged gulls and Aleutian terns as part of their avian influenza surveillance programme.

Short-tailed albatrosses are recovering from their endangered status with the world population now about 2000. Accompanying this recovery, the species appears to be expanding (returning to?) its marine range with at least four sightings or ring recoveries off the coasts of California and Oregon in the past four years. Numbers of Laysan and black-footed albatrosses on Midway have also reached record numbers.

A report culled from an article in *Conservation Biology* indicates that the marbled murrelet's decline may be caused not only by the loss of their coastal forests to logging, but also to the collapse in stocks of nutritious high-fat food fish, such as sardines, anchovies and squid in their feeding grounds. A comparison of carbon isotopes in feathers today with those from a century ago, when fish stocks were in a far

better state, showed that the current diet is less nutritious, comprising mostly krill, sandeel and young rockfish.

Marbled murrelets are controversial as their nesting grounds are in old growth coastal forests. The species is listed as endangered in US legislation because the California, Oregon and Washington population has been regarded as a separate segment (of 17,000 – 20,000 birds) from the 1 million birds in Canada and Alaska. The US Fish and Wildlife Service is now of the opinion that all birds belong to one population and are considering delisting the species. This will then make it easier for the logging companies to cut down their breeding sites.

The islet of Mokolii off Oahu in the Hawaiian islands has been cleared of rats. This has allowed vegetation to flourish on the island, which appears to have had the unfortunate side effect of allowing the non-native yellow crazy ants to increase in number. The resident wedge-tailed shearwaters do not appear to like the acidic secretions of the ants and are leaving the island. Sometimes it must seem that conservationists just cannot win! Meanwhile in Fiji, the seabird island of Vatuiria is scheduled to be cleared of rats.

From WATERBIRDS Vol. 29 (2)

In a study of great northern divers in winter off Maryland, Stephanie Thompson and Jordan Price found that dive duration was longer in areas of higher water clarity than in murky areas, and that dives were also longer at low tide compared with other tidal states. Joanna Whittier and co-workers examined the genetic variation in least terns and found little evidence to support the current three American sub-species. The authors also suggest that genetics should be used to re-examine the split between least tern and little tern.

From MARINERS INTERNATIONAL CLUB MAGAZINE, 2006 No. 1

Dai Morgan has supplied a copy of an interesting article by John Fisher and Martin Smith who have skippered vessels across the South Pacific Ocean and around Cape Horn in both the 1970s and in 2005. Comparing their

bird notes from the two periods showed a considerable drop in numbers of albatrosses seen (and no wanderers seen at all in 2005). The authors attribute this to losses of birds to longline fishing.

PAPER REVIEWS

MODELLING THREATS TO ALBATROSS POPULATIONS

Arnold, J.M., Brault, S., and Croxall, J.P. (2006). Albatross populations in peril: A population trajectory for black-browed albatrosses at South Georgia. Ecological Applications 16: 419–432.

Most of us, I am sure, are aware of BirdLife International and the RSPB's "Save the Albatross" campaign. Since then, BirdLife and its national partners have raised awareness, lobbied national governments and raised money to fund research. Education is a major success of this project and BirdLife's latest website (www.savethealbatross.net) provides interesting updates on the status and threats facing albatross species worldwide. For instance, did you know that even the world's most common albatross, the black-browed albatross (*Diomedea melanophrys*), is currently endangered but was not even on the IUCN Red List back in 1994!

Arnold *et al.* illustrates recent trends and forecasts the potential plight for this species, in the absence of any new control measures. Threats to albatross populations, world-wide include fisheries-related mortality, changes in prey availability, anthropogenic pollution, human disturbance, habitat degradation and disease. The black-browed albatross is one of the albatross species which most frequently becomes entangled/hooked and drowned during long-line fishery operations. Additionally, changes in the extent and fluctuation of sea-ice in the Southern Ocean are associated with krill availability, which is in turn thought to affect the breeding success of black-browed albatrosses.

Arnold *et al.* combine data recorded over the past 23 years with insight from years of field study to provide a robust snapshot of the plight of the world's most numerous albatross. They use a matrix population approach: put simply, a

model that allows individuals to pass through different life history stages (juvenile, non-breeder, breeder, etc.) with a different probability and, when in a specific stage, to have a certain reproductive output and survival. The model is parameterized with estimates (survival, breeding success, etc.) from long-term data and provides a framework for modeling all albatross species and other long-lived seabirds. Simply substituting life-history and population parameters, e.g. the number of non-breeding stages and their associated survival probabilities, with data for other species provides a foundation to begin the assessment of their population trends.

In this paper, the authors find that their model faithfully recreates observed trends and also detects a substantial decline in South Georgia's black-browed albatross population since the inception of long-line fishing, proximately driven by reductions in adult survival. The model indicates that small changes in adult survival are far more important in determining population trends than more substantial changes in juvenile survival or breeding success. More worryingly, only a 10% or greater increase in survival across all age classes will be sufficient to permit a "delisting" of this species. In fact, if recent conditions persist, there is a 98% chance that the near-20,000-strong South Georgia black-browed albatross population will decline to a meager 25 pairs by 2074. It is unsurprising therefore, that urgent action is needed if we are to truly save the albatross.

There is a strong trend of increasing application of models in ecology. Many of these are highly mathematical and require extensive study to fully understand. As a result of this complexity, the structure of models often dominates conference presentations and papers, sometimes obscuring the biological message. It is a credit to Arnold *et al.* that they describe the modelling process with a minimum of technical jargon and therefore present a powerful tool available for anyone interested in examining population trends of long-lived seabirds. This could be a significant step in reversing the current plight of some of the world's most charismatic seabirds.

Steve Oswald
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STABLE ISOTOPES SHOW LONG TERM CHANGES IN SEABIRD DIET

Barbraud, C. and Weimerskirch, H. (2006). Antarctic birds breed later in response to climate change. *Proceedings of the National Academy of Sciences of the United States*, 103: 6248-6251.

Human activities can have far-reaching effects on marine ecosystems. Among the most important of these anthropogenic effects are climate change (due to increased carbon emissions), pollution, the introduction of invasive alien species, and overexploitation of marine resources. Many seabird populations have shown lower breeding success in recent years and are suffering population declines. Reduction in food availability, caused by over-fishing, has been widely cited as a primary cause. The mechanistic link between over-fishing and seabird population dynamics can be difficult to demonstrate, however, as patterns can be obscured by natural/climate-induced variation in prey abundance.

In this study, Barbraud and Weimerskirch investigate temporal changes in seabird diets using stable isotope analysis. Analysis of stable isotopes deposited in feathers collected throughout the year can provide information on short and long-term temporal changes in seabird diet. This approach was employed for a population of Marbled Murrelet (*Brachyramphus marmoratus*). The population of this species in California has decreased dramatically to the point where it is now an endangered species, in both in the United States and Canada. Their decline has been attributed to the destruction of nesting habitat and the over-fishing of their sardine prey species, a fishing industry that collapsed in the 1940s. Stable isotope analysis, of feathers from pre- and post-breeding individuals, was used to ascertain how the murrelet diet varies through the course of a year. Secondly, perhaps most importantly, feathers were examined from pre-fishing museum specimens (1895-1911) and from more recent post-fishing individuals (1998-2002) to ascertain how their diet has changed over the long term.

Becker and Beissinger found decreases in both carbon 13 and nitrogen 15 when comparing

feathers from the earlier and later era. These decreases indicated that pre-breeding marbled murrelets now feed further down the food chain. This was especially true when comparing diet in cool years between the eras, where contemporary diets were shown to have 42% less high-trophic-level prey and a 26% more krill, relative to the historic population. In contrast, post-breeding diets did not vary as significantly between eras perhaps because the lower-trophic level prey are not so abundant at that time of year.

Sardines are energetically superior to lower trophic level prey such as krill but overfishing, has caused large scale changes in murrelet diet. This study shows that the present low murrelet reproductive success and population size can be partly attributed to the long term impacts of over-fishing via changes in the trophic level seabirds feed at. Other seabird species are likely to have been effected in similar ways by over-fishing and thus this study illustrates the importance of conserving marine areas to protect seabirds.

Debbie Russell, Leeds University.
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BOOK REVIEWS

By Mark Tasker

IMPORTANT BIRD AREAS OF THE FALKLAND ISLANDS

This is a great little book describing 22 sites in the Falkland Islands that are of global importance for bird conservation. Needless to say, many of the sites are of importance to seabirds. Published in June 2006 by Falklands Conservation with support from OTEP, this book beautifully illustrates the islands and the bird breeding there. Check out www.falklandsconservation.com for availability.

SEABIRD MONITORING HANDBOOK FOR SEYCHELLES

Although this handbook was published in 2003 (second edition), I have only just received a

copy. Compiled by Alan Burger and Andrea Lawrence, techniques for monitoring the following species are described in depth in a very readable style: wedge-tailed shearwater, Audubon's shearwater, White-tailed tropicbird, Red-tailed tropicbird, Masked booby, Brown booby, Red-footed booby, Greater Frigatebird, Lesser Frigatebird, Sooty tern, Bridled tern, Roseate tern, Caspian tern, Greater crested tern, Black-naped tern, White tern, Lesser noddy and Brown noddy. This is essential reading for those wishing to monitor tropical birds. Check www.natureseychelles.org for availability.

CONFERENCES AND WORKSHOPS

34th PACIFIC SEABIRD GROUP MEETING 7-11 FEBRUARY 2007

The next Pacific Seabird Group meeting will be at the Asilomar Conference Center in Pacific Grove, Monterey, California. Check out their web site for further details: <http://www.pacificseabirdgroup.org>.

BIRD MIGRATION AND GLOBAL CHANGE CONFERENCE ALECIRAS, SPAIN MARCH 2007

The MIGRES Foundation is proud to invite you to this Conference on bird migration and global change. **Sessions will include:**

- The spread of emerging diseases
- Behavioural changes induced by climate change
- Tracking long-distance migration
- Protection of corridors and stopovers sites
- Redefining distribution ranges for migratory birds
- Migrating birds as bioindicators of environmental stress

The deadline for registration is 15th December 2006. For further details contact Giulia Crema on: secretariat@fundacionmigres.org.

SEABIRD GROUP NEWS

PROBLEMS WITH NEWSLETTER 102

A number of our members reported that they were charged excess postage for the Seabird Group Newsletter 102. A phone call was made to the Post Office explaining that we had weighed the envelopes at a Post Office counter. The Post Office wrote back to explain that the scales are only correct at the time of weighing and the weight can be affected by other factors such as moisture (!). They also sent a booklet of 12 first class stamps as a gesture of goodwill. Unfortunately there appears little else that we

can do to take this further with the Post Office. If you did not receive a June newsletter, but would like one, please e-mail seabird@bto.org and a pdf will be sent to you. We are sorry to our members for any inconvenience caused.

CORRECTIONS

Many apologies to Debbie Russell, of Leeds University, who wrote the paper reviews entitled "You are what you eat" and "Population Size: effects on individual behaviour and condition" in Newsletter 102. Unfortunately Debbie's name was omitted (*My fault! - Ed*).

THE FORTY-FIRST ANNUAL GENERAL MEETING OF THE SEABIRD GROUP

The forty-first Annual General Meeting of The Seabird Group will be held at 1500 hours on Saturday 18th November at the Fife Arms Hotel in Braemar.

DRAFT AGENDA

1. Minutes of the 40th Annual General Meeting held on Saturday 19th November at the Duke of Gordon's Hotel in Kingussie.
2. Matters arising from this meeting.
3. The 41st Annual Report.
4. Accounts and Treasurers report.
5. Election of Officers. John Davies (treasurer) and Jim Reid (editor Atlantic Seabirds) along with ordinary members, Martin Heubeck and Linda Wilson having completed their respective terms of office are due to retire. As Liz Humphreys was co-opted for a year in 2005 to replace Chris Wernham as Newsletter Editor that post is also technically vacant. As this will mean a significant change to the committee, the committee may propose that one or more of those due for re-election are co-opted for a further year in the interests of continuity.
6. Membership Secretary. This is not a formal committee post, but a very important one nevertheless. Sheila Russell has expressed a wish to retire and a replacement is sought.
7. Conference 2006 and future conferences.
8. Atlantic Seabirds
9. Seawatching paper.



Registered charity No. 260907

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To subscribe to the Seabird Group Forum:
seabirdgroupforum-subscribe@yahoogroups.com

The Newsletter is published three times a year. The editor welcomes articles from members and others on issues relating to seabird research and conservation. These should be received by 15th May (for June edition), 15th September (for October edition) or 15th January (for February edition).

The Seabird Group promotes and helps co-ordinate the study and conservation of seabirds. Members also receive the journal *Atlantic Seabirds*, containing papers on current research. The Group organises regular conferences and also provides small grants towards seabird research. Current 2006 membership rates are:

Standing Order £9.00
Concession £5.00
Institution £15.00
Ordinary £10.00

Sheila Russell
Membership Secretary
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CURRENT SEABIRD GROUP COMMITTEE

Current retiral dates (at AGM) are shown in bold after the name of each member. Nominations (which should be submitted to the Secretary) from Group members for replacements on the committee are always very welcome.

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2006 Conference Organiser

Martin Heubeck (2006)
(martinheubeck@btinternet.com)

Other Members:

Jez Blackburn (2007)
Linda Wilson (2006)
Juan Brown (2008)

SEABIRD GROUP GRANT: OCTOBER 2006 ROUND

The Seabird Group awards small grants each year towards seabird research projects or censuses. Priority is given to Seabird Group members working on Atlantic seabirds and the merits of each application are assessed by the committee. Grant application forms are available from our website. The deadline is 31 October 2006.

EDITORIAL

Many of you will be aware that the Post Office has made major changes to the way in which they charge for sending letters. We are keen that our members should receive a healthy looking newsletter but to avoid high costs, we are now limited to 24 pages which corresponds to the weight at which postage becomes very expensive. Therefore I would like to apologise to those people who submitted articles which have not appeared in this newsletter. I am delighted that so many people are contributing and would like to thank them all very much! Thanks also to Chris Pendlebury for proof reading this Newsletter.

Every effort is made to check the content of the material that we publish. It is not, however, always possible to check comprehensively 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 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 the Seabird Group.