

Project information

Project title

Seabird habitat use

Year

2011/2012

Project leader

Børge Moe, NINA

Participants

- Leader: Børge Moe (NINA)

Participants:

- Varpe, Strøm, Welcker, Gabrielsen, Sagerup (NPI)
- Lassen (UIT)
- Hanssen, Bustnes, Anker-Nilssen, Dalsgaard-Christensen (NINA)
- Fenstad, Bech, Noreen, Schultner (NTNU)
- France: Chastel, Tartu, Boulinier, Gremillet, Ponchon (CNRS), Gilg (GREAA)
- Spain: González Solís (Univ Barcelona), Victor Garcia (Ministry of Environment)
- Netherlands: Oudman, Biersma, Loonen (Univ Groningen)
- Denmark: Fort, Frederiksen (Århus Univ/DMU)
- UK: Richard A. Phillips (BAS)

Flagship

Fjord and coast, Theme: Physical-biological coupling: Oceanography and habitat use by predators and their prey

Funding Source

Fram Centre, own funding, Fylkesmannen i Troms/Finnmark, Nansenfondet

Summary of Results

In this project, we revealed, for the first time, the complete migration routes and habitat use of long-tailed skuas (Fig. 1) and glaucous gulls during the non breeding season. Also, it is the first time that this has been done for little auks from Svalbard. Furthermore, we recaptured common eiders, kittiwakes and arctic skuas (Fig. 2) that were fitted with loggers in 2010 and 2009. Hence, this has provided important new knowledge about inter-annual as well as inter- and intra-individual variation of migration in these species. All the work has been part of large scale collaborations to ensure multi-colony tracking. Hence scientific and financial contributions of partners have been crucial, and the results have strong significance for management and conservation.

For kittiwakes, we have identified a habitat hot-spot for post-breeding kittiwakes at East Svalbard during autumn. Kittiwakes were tracked from 7 different colonies, using both light-level geolocators and PTT satellite transmitters (Fig. 3). Furthermore, the results on kittiwakes from 2009-2010 have been merged in a large cooperation involving groups that have deployed loggers in 18 colonies across the North Atlantic, and this is accepted for publication (Frederiksen et al. 2011). The results on little auks will be merged in a cooperation with researchers working in Greenland. A workshop has been held in Tromsø and plans for further analyses and publications have been made.

During field-work in 2011, we continued deployment with gls-loggers in little auks, kittiwakes, glaucous gulls, common eiders, arctic skuas and long-tail skuas, as well as deployment with PTTs on 7 kittiwakes. The PTTs will give better precision compared to gls-loggers and provide positions from time-periods when gls-loggers can't, i.e. during constant daylight and during autumn equinox.

All deployments and recaptures in Svalbard were performed in cooperation with teams from NINA, CNRS, NPI, UIT and NTNU. In Norway the studies were performed in cooperation with teams from NINA and CNRS. Deployments and recaptures in Greenland were performed by GREAA, DMU and CNRS.



Fig. 1. The distribution of Arctic skuas from Svalbard during the non breeding season.



Fig. 2. Identification of a habitat hot-spot for post-breeding kittiwakes at East Svalbard during autumn. Kittiwakes were tracked from 7 different colonies, using both light-level geolocators (red shaded areas) and PTT satellite transmitters.

Published Results/Planned Publications

Publications in preparation, in which my contributions has been funded by the Fram Centre:

- Moe, B., Strøm, H., Chastel, O., Ponchon, A., Anker-Nilssen, T., Boulinier, T. et al. (2011) Post-breeding hotspot in the cold: geolocation and satellite tracking of kittiwakes in the Barents sea (manus in prep) Gilg, O.,
- Moe, B., Hanssen, SA. et al (2011) Migration strategies of Long-tailed skuas (manus in prep) Moe, B. Hanssen SA. Et al (2011) Pirates of the oceans: Migration strategies of Arctic skuas. (manus in prep) Fort, J.,
- Moe, B. , Strøm, H. Welcker et al. (2011) Multi-colony tracking of little auks from Greenland and Svalbard. (Manus in prep)
- Moe, B., Bustnes, JO., Helberg, M., Phillips, RA. (2011) Migration and wintering areas of lesser black-backed gulls from the declining Norwegian population. *Ibis* (submitted)

Publications where my contributions has been partly funded by the Fram Centre:

- Frederiksen, M., Moe, B., Daunt, F., Phillips, RA., Barrett RT., Bogdanova, M., Boulinier, T., Chardine, JW., Chastel et al. (2011) Multi-colony tracking reveals the non-breeding distribution of a pelagic seabird on an ocean basin scale. Divers. Distrib. (in press)

Publications in preparation, in which my contributions has been funded by the Fram Centre:

Communicated Results

SEAPOP seminar 5.-6. April 2011 [users, management, press, researchers]

Science seminar, 21 juni, 2011, Ny-Ålseund, [public, researchers]

Workshop, Fram Centre 21.22. September 2011 [project partners]

Framdagen 11.11.11, Fram Centre [users, management, press, researchers]

International scientific journals (Diversity and Distributions, more to come..) Aftenposten, meeting/interview this week [popular science, mass media]

More communication will follow when the papers have been in printed.

Interdisciplinary Cooperation

Seabird ecology, spatial ecology, ecophysiology and ecotoxicology.

The project has benefitted from cooperation between researchers from different disciplines, and it has increased the potential number of publications coming out of the project. Between the different flagships, the link to "Hazardous substances" (ecotoxicology) has been the most important so far. The manuscript which is in preparation Moe et al 2011 Hotspots in the cold, will be highly relevant for the flagship "Sea Ice" as well.

Budget in accordance to results

The funding from the Fram Centre has played a major role for financing fieldwork, equipment and for writing papers, and has thus given me the opportunity to have a leading role in the large-scale cooperation. So did the incentive funding from the Fram Centre. The project has also depended on external funding. This project is a huge cooperation, involving many researchers and costly field work and costly analytical work. Its large-scale success has depended on external funding for the field activities of project partners (e.g. extensive field operations in Greenland).

Could results from the project be subject for any commercial utilization

No

If Yes

But the results may have major implications for management and industry (e.g. oil industry, fisheries, shipping)

Conclusions

a) It has resulted in an application recently submitted to Research Council of Norway (NFR, NORKLIMA). The project has established a unique basis for further work over the next years. We have a 3-year perspective and will further develop the project to focus on climate effects on migratory strategies and habitat use in arctic seabirds. We also aim to strengthen the link to the flagship on Hazardous substances. With funding from the NFR there will be a post-doc position connected to the project.

This project has also been relevant for developing an application to the Ministry of the Environment (MD) about large-scale tracking studies of seabirds in Norway, Russia, UK and Iceland. This application is made in collaboration between NPI (Strøm) and NINA (Moe, Fauchald).

b) The development of small-sized electronic tags has been a prerequisite for the project. However, there is a constant need for further decreasing the size, increasing the battery life and increasing the precision of the electronic tracking tags.