MSc on the distribution of seabirds in the Southern Ocean: abundance, density and variability in time and space

We are seeking an MSc student to work with us on a project related to "Developing the risk assessment framework for the Antarctic krill fishery, with a special focus on SubArea 48.1", focusing on the development of a krill-fishery management system that minimises the risk of krill-dependent predator populations being inadvertently, or disproportionally affected by the fishery, whilst also accounting for the needs of the fishery. The aim of the master thesis will be to explore the variation in seabird (flying and swimming) abundance in space and time and relate these changes to physical and biological factors.

The MSc is required to participate on field work (30-40 days) in the Southern Ocean (see figure 1) sometime between November 2019 and March 2020. More specifically, the student will count marine mammals and seabirds on board Hurtigruten (FRAM or MIDNATSOL). The student will be trained and accompanied by a professional Marine Mammal Seabird Observer (MMSO). Assuming the two ships follow a similar cruise pattern to 2018/2019 (see figure 1), i.e. 21day (FRAM) and 10day (MIDNATSOL) turnarounds, the FRAM observation team will remain on for at least two consecutive cruises, while the MIDNATSOL team will remain attached to the ship for ca. 3 voyages. A Standard Methods protocol for observation and recording data will be provided to both teams, as well as the hardware required (GPS, recorder, binoculars etc).

The project will be supervised by Ulf Lindstrøm (UiT and IMR), Martin Biuw (IMR) and Andrew Lowther (NPI) at the Institute of Marine Research (IMR) and the Norwegian Polar Institute (NPI). The project must be written in English in article form. The minimum required academic output is a MSc thesis and subsequent peer-reviewed journal publication, with an additional Working Paper presented to the CCAMLR Working Group on Ecosystem Monitoring and Management (WG-EMM). Good quantitative skills and experience in programming in R is recommended.

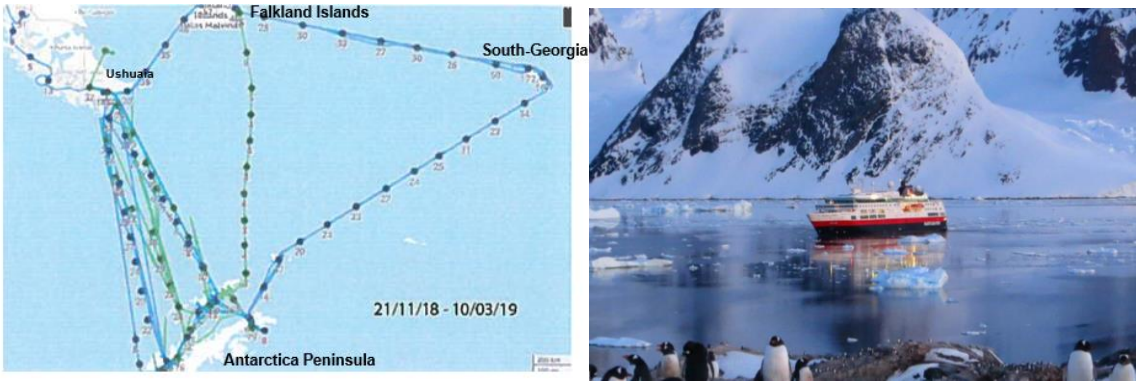

Figure 1. Tracks of MS FRAM (blue) and MS MIDNATSOL (green) in the Southern Ocean in the period November 2018 to March 2019 (left) and a picture of MS FRAM (right).

Relevant publications:

Goyert HF, Gardner B, Sollmann R, Veit RR, Gilbert AT, Connelly EE, et al. 2016. Predicting the offshore distribution and abundance of marine birds with a hierarchical community distance sampling model. Ecol. Appl., 26: 1797–1815. doi:10.1890/15-1955.1

Harvey GKA, Nelson TA, Paquet PC, Ferster CJ, Fox CH. 2018. Comparing citizen science reports and systematic surveys of marine mammal distributions and densities. Biol. Conserv, 226: 92–100. doi:10.1016/j.biocon.2018.07.024

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