

Ornithologist work, Kongsfjorden 2014

In work package 5 we assess in detail the importance of glacier fronts in Svalbard as foraging areas for seabirds, with emphasis on the black-legged kittiwake, which is the most numerous species utilizing glacier fronts as foraging habitats in Svalbard. The study areas are Kongsfjorden and Hornsund. The main goals are to:

- Assess the temporal (day/week/month) variation in the use of glacier fronts by kittiwakes and other seabird species using time-lapse cameras deployed during the breeding season. This will be related to data collected in other work packages (i.e. melt water runoff) to see how the distribution and abundance of seabirds are linked to the physical properties of the glacial front system.
- Assess the relative importance of the fronts as foraging areas for kittiwakes during the breeding season, and the temporal and spatial variation in their foraging patterns by deploying GPS loggers on breeding kittiwakes in colonies at different distances from glacier fronts.

The 2014-season was a pilot season for testing the field techniques and set-ups.

Fieldwork was conducted in Kongsfjorden from mid-June to end of July 2014. Three cameras (Harbortronics Inc.) were deployed facing the Kronebreen glacier front to monitor bird activity and the attractiveness of the glacier front for seabirds (mostly black-legged kittiwakes, arctic terns and northern fulmars). Each camera took one picture/hour from 17 July to 27 October, giving a total of 5968 pictures.

Two cameras were set up on the south side of the glacier (78°52'06.1" N / 12°29'14.7" E) and one on the north side (78°53'35.9" N / 12°32'35.5" E). On the south side, one camera had a wide angle lens while the other had a telephoto lens in order to collect information at different scales. On the north side, the camera had a telephoto lens. All cameras aimed at what were assumed to be the major melt-water outlets from the glacier that released cold fresh water into the fjord. Image analyses started in January 2015, and are giving promising results.

Black-legged kittiwakes were deployed with GPS loggers (Ecotone) in the Ossian Sarsfjellet colony, north of the Kronebreen glacier. The performance and functionality of the Ecotone URIA GPS loggers and their data recording base station were tested. GPS loggers were deployed for up to one week on three adults caught on their nest during the chick rearing period on 13 July. In addition, a number of "conventional" GPS loggers (CatTag; without wireless download and a base station) were deployed on 27 birds. The method used to attach the loggers to the birds' tail feathers proved particularly efficient. Once equipped, none of the birds showed a behaviour suggesting they were disturbed while flying. Some issues were faced regarding the functionality of the loggers, however. Some were resolved thanks to the fast replies of Ecotone's technicians while others, including the ability of the solar panels to charge the battery (when the logger is attached to the tail and is covered by the wings when the adults are not flying), were still to be solved at the end of the summer. All in all the pilot study gave valuable data on kittiwake movements and their affinity to nearby glacier fronts, and provide a good basis for a more comprehensive deployment in 2015. Movement data will be analyzed in spring/summer 2015.

