

Field study of seabirds at Ydre Kitsissut 2009-11: preliminary results

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The archipelago Ydre Kitsissut (60°46' N, 48°28' W) west of Nunarsuit has a uniquely diverse and important community of breeding seabirds, including scarce species such as common murre and Atlantic puffin. It is also the largest colony of cliff-nesting seabirds in the assessment area. Unfortunately, little is known about which areas at sea are important for the birds nesting here, both during and outside the breeding season. There is also a need for updated information on population status, as previous visits (most recently in 1999) have demonstrated an on-going decline in the number of breeding thick-billed and common murres (Falk et al. 2000). Therefore, a dedicated field study was carried out during the 2009-11 breeding seasons; preliminary results of the work are presented here.

Population status

Previous surveys had found a combined population of thick-billed and common murres of 9015 in 1985, 9900 in 1992, and 5943 in 1999. In 2009, photographic counts showed that only 2408 murres were present, equivalent to a decline of nearly 60% since 1999 or 8.7% decline/year. In 2010, 3449 murres were counted, implying a 42% decline since 1999, or 4.8%/year. The reasons for this decline are presently unclear, but illegal egg collection has taken place regularly in the colony, and continues to do so. This may have contributed to the decline. Other seabird species with less accessible nests (e.g. razorbill, Atlantic puffin and black guillemot) seem to have more stable or increasing populations.

Foraging areas during the breeding season

We used GPS data loggers to investigate the space use of three species of seabirds (common murre, thick-billed murre and razorbill) during the breeding season (Figure 1). Most birds of all species foraged in relatively shallow water close to the colony and towards the mainland to the east, normally within 20 km of the nest site. However, a few birds (one thick-billed murre in 2009 and one razorbill in 2011) also foraged in deep waters at or beyond the shelf break up to 60 km from the colony. The most important areas appeared to be west and east/southeast of the colony, whereas relatively few birds foraged to the north and south. There are few data on prey choice (chick diet of thick-billed murres in 2010 was predominantly capelin), but the considerable variation observed in the direction and length of foraging trips indicates that birds feed on a variety of prey, probably including both benthic and pelagic fish. An oil spill off South Greenland during summer would be likely to cause severe impacts on locally breeding seabirds, if the oil were to reach a 20 km zone around Ydre Kitsissut.

Migration and wintering areas

Migration of four auk species was followed using geolocators, tiny data loggers which record light levels and provide rough daily estimates of position (Figure 2). The four species showed very different patterns. Common murres largely spent the winter off the coast of Southwest Greenland, although one individual spent the late winter period off East Greenland and another mainly stayed

offshore in the Labrador Sea. Similarly, most thick-billed murrelets stayed off South and Southwest Greenland, but one bird spent part of the winter in the southern Labrador Sea east of Newfoundland. In contrast all razorbills migrated to the east coast of North America, where they spent the early part of the winter off Newfoundland, later migrating to the Bay of Fundy near Nova Scotia. Some birds continued south along the US east coast as far as the Carolinas. Finally, one black guillemot was tracked to a wintering area well north of the colony around Nuuk. These results indicate that an oil spill off South Greenland during winter could impact local breeding populations of murrelets in addition to winter visitors from other parts of the range.

Some of the results have been published here:

Linnebjerg, J.F., Fort, J., Guilford, T., Reuleaux, A., Mosbech, A. & Frederiksen, M. 2013: Sympatric breeding auks shift between dietary and spatial resource partitioning across the annual cycle – PLoS ONE 8(8): e72987. doi:10.1371/journal.pone.0072987

References

Falk, K., Kampp, K. & Merkel, F.R. 2000. Monitoring af lomviekolonierne i Sydgrønland, 1999. – Pinnortitaleriffik, Grønlands Naturinstitut. Nuuk, Greenland. 26 pp.

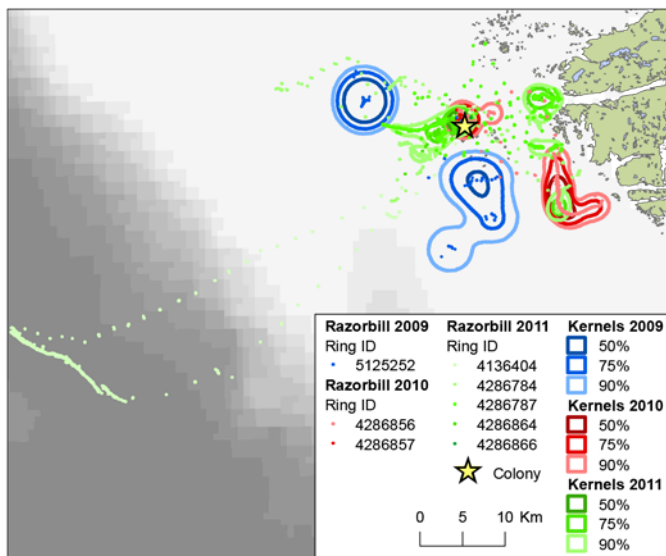
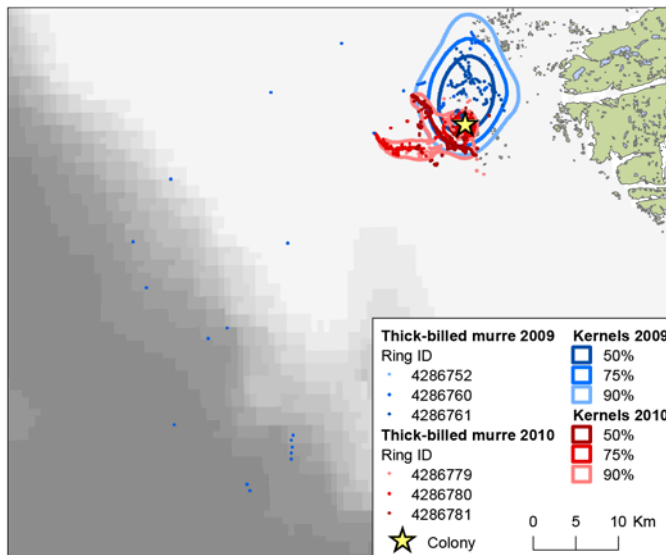
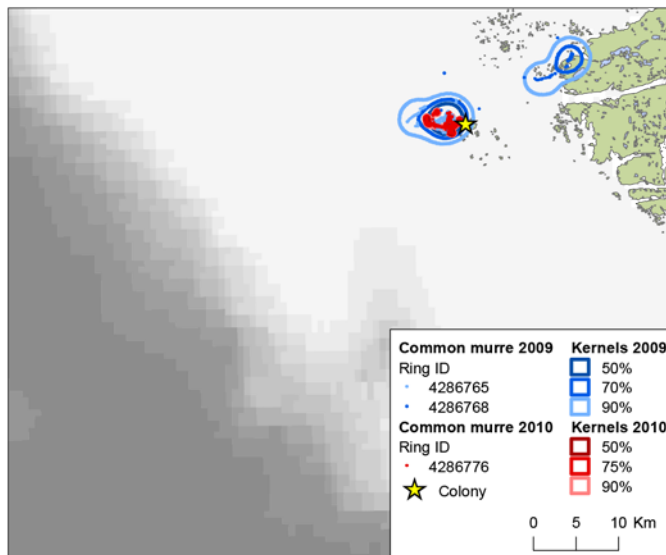


Figure 1. Foraging trips recorded for common murre, thick-billed murre and razorbill from Ydre Kitsissut during the breeding seasons of 2009, 2010 and 2011. All trips were recorded by GPS loggers, and the sampling interval was 10 min in 2009 and 2 min in 2010 and 2011. The birds mostly foraged within 20 km of the colony, and only two birds went to the continental shelf break (one thick-billed murre in 2009 and one razorbill in 2011). The maps also show 50%, 75% and 90% kernel contours, indicating areas where birds spend most time. Positions within 300 m of the colony are disregarded.

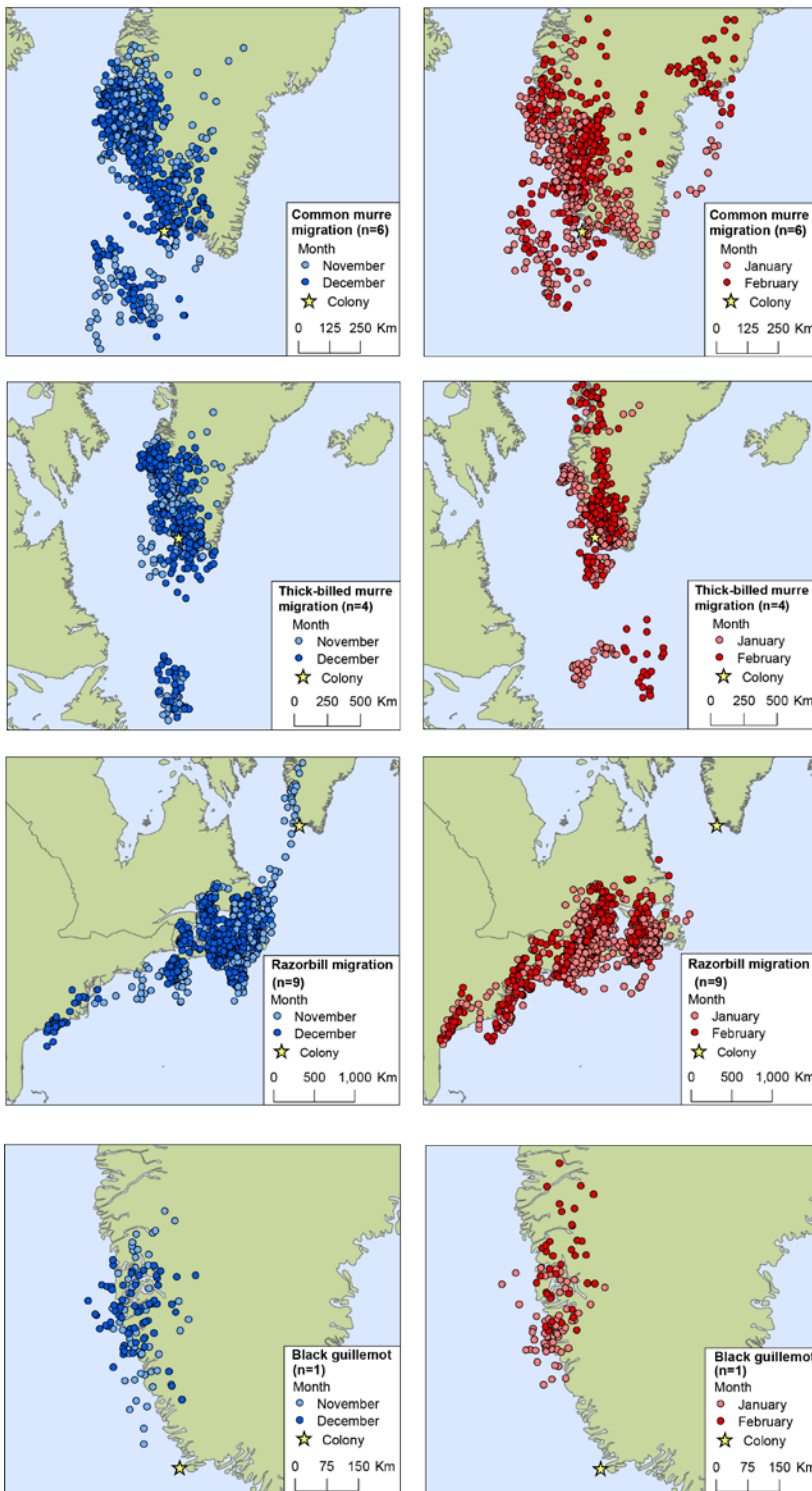


Figure 2. Migration patterns of common and thick-billed murres, razorbills and black guillemots from Ydre Kitsissut during the 2009/10 and 2010/11 winters. Light-level geolocators were used to track migratory movements. Positions derived through geolocation have a mean error of about 185 km, and therefore some positions occur on land. As can be seen on the maps, the murres, razorbills and black guillemots have different migratory behaviour. The murres stay in local waters around South Greenland, the black guillemots stay in local waters along the West Greenland coast whereas the razorbills migrate to the east coast of Canada/USA. Individual positions shown here have not been fully analysed and should not be taken too literally; however, the greater picture is reliable.