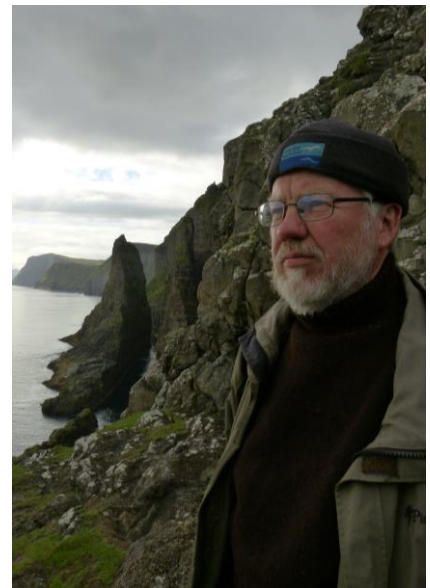


Mike Harris, Centre for Ecology & Hydrology, and Tycho Anker-Nilssen, Norwegian Institute for Nature Research

The development of miniaturized tracking devices in recent years is allowing us to gradually piece together an understanding of where birds go and what they do when they are not at the colonies. However, we are still woefully ignorant of many fundamental aspects of their winter ecology. There is a legal autumn and winter hunt for auks around the Faroe Islands and over many years Jens-Kjeld Jensen, a local taxidermist and naturalist with a wide interest ranging from seabirds to lice³, has been helping to plug some of these gaps by examining the bodies of birds shot there during the hunt.

His collection of stomachs has allowed the first detailed description of the winter diet of **Atlantic Puffins** (*Fratercula arctica*) which showed that around the Faroes nereid worms (41% of total biomass), large sandeels (23%) and other large fish (17%) made up the bulk of the diet with the latter two prey types being most important in energetic terms (46% combined despite accounting for only 9% of items⁴). In 2010 he sent me a present of the skull of an Isle of May adult that had been shot in the Faroes, not only that but its stomach arrived in a separate package.

His examination of wings has helped to partly sort out the troubling problem of when Puffins undertake their main moult during which they are flightless. The answer here seems to be that the timing within the population is extremely variable with adults being flightless any time between October and March⁵. Recently, he sent us a picture of an Atlantic Puffin shot near Nólsoy on 5 October 2018 that had been ringed EY52587 as an adult on Sule Skerry, Orkney on 14th July 2015 by the Sule Skerry Ringing Group. As Jens-Kjeld points out one can see that it had already developed the dark head winter plumage, but had still not shed its primaries and was actively growing the body feathers. The feet and legs have also changed colour from summer orange to winter yellow.



Jens-Kjeld Jensen at Bøsdalafossur, Leitisvatn, Vágur, Faroe Islands
© Marita Gulklett



Left: Atlantic Puffin ET70833 ringed as a breeding adult on the Isle of May, Firth of Forth in July 1998 and shot off Streymoy, Faroe Islands in October 2010 © Sarah Wanless

Right: EY52587 ready for the pot © Samson Samson

³ Palma, R.L. and Jensen, J.K., 2016. Additional records of lice (Insecta, Phthiraptera) from the Faroe Islands. *Norwegian Journal of Entomology*, 63, pp.50-57.

⁴ Harris, M.P., Leopold, M.F., Jensen, J.K., Meesters, E.H. and Wanless, S., 2015. The winter diet of the Atlantic Puffin *Fratercula arctica* around the Faroe Islands. *Ibis*, 157(3), pp.468-479.

⁵ Harris, M.P., Wanless, S. and Jensen, J.K., 2014. When are Atlantic Puffins *Fratercula arctica* in the North Sea and around the Faroe Islands flightless? *Bird Study*, 61(2), pp.182-192.

Because many seabirds, including Atlantic Puffins, winter far offshore, data on weights of healthy birds outside the breeding season are very scarce. In a recent paper, Anker-Nilssen, Jensen & Harris⁶ compare the masses and wing lengths of adult Atlantic Puffins shot around the Faroes with breeding adults on the Isle of May, southeast Scotland and Røst, northern Norway. On average, Atlantic Puffins breeding in Scotland and Norway increase their body mass by 20–30% between the chick-rearing period and winter. These gains in body mass are at least double the decline occurring between incubation and chick-rearing. Three birds had been weighed both at the colony and after being shot – the gains in mass ranged 11–32%. Over a third of the mass of one bird came from fat stored under the skin or around the internal organs. Traditional harvests of wildlife are often controversial; however in this case, thanks to Jens-Kjeld's extraordinary commitment, such killing of birds away from the colonies offers us a chance of extending our knowledge of basic Puffin biology.

⁶ Anker-Nilssen, T., Jensen, J.K. and Harris, M.P., 2018. Fit is fat: winter body mass of Atlantic Puffins *Fratercula arctica*. *Bird Study*, pp.1-7.