

Short report from the EcoQO monitoring of plastic particles in stomachs of fulmars beached on the coast of Southern Norway in 2002-2020

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Background

In Norway, annual monitoring for the EcoQO on plastic particles in stomachs of beached fulmars was initiated in Lista in Vest-Agder county in winter 2002/03. Since 2010, most of the work has been made in the neighbouring county Rogaland. The fieldwork is conducted by volunteers affiliated to local departments of the Norwegian Ornithological Society (BirdLife Norway) and is administered by the Norwegian Institute for Nature Research (NINA) with financial support from the Norwegian Environment Agency.

Material and methods

Altogether, 115 fulmars have been collected and fully examined for their stomach plastic contents, of which one was found in Rogaland in the winter 2019/20. All examinations have been made according to internationally standardised procedures (van Franeker 2004), many of them also by or under the guidance of Jan van Franeker at the laboratory facilities of IMARES/WUR, The Netherlands.

Results and discussion

Fifty-seven (49.6%) of the 115 birds examined contained > 0.1 g of plastic. As also indicated by the five-year running average (Figure 1), a numeric increase in the annual proportion of birds exceeding the EcoQO threshold reversed after winter 2013/14. Albeit based on small sample sizes in several years, the long-term trend since start of the monitoring in 2002/03 is stable (ANOVA, $F_{1,113}=2.87$, $p=0.093$). The results show that the overall rate of birds exceeding the EcoQO threshold remains at a high level.

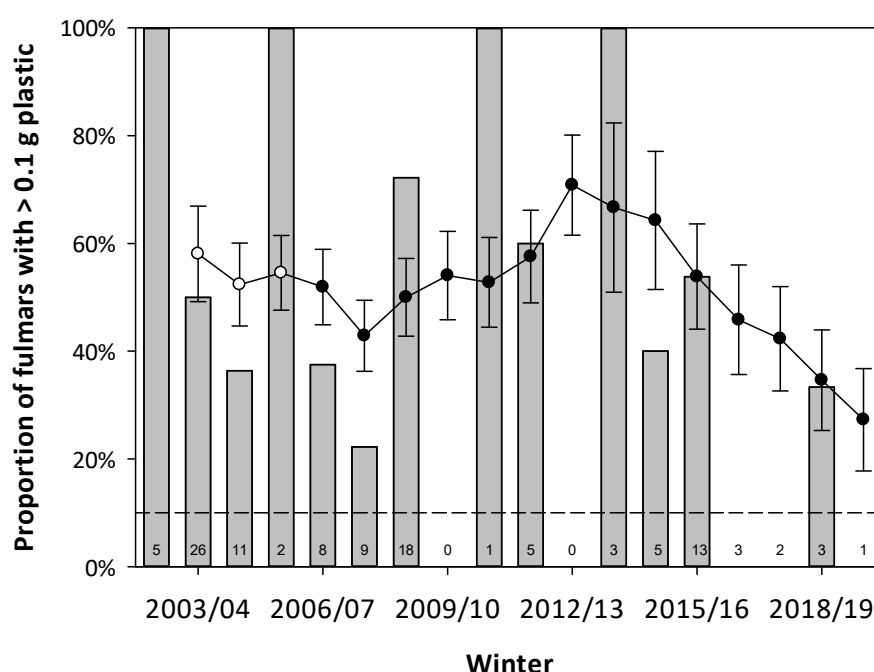


Figure 1
Proportions of fulmars with more than 0.1 g plastic in their stomach, among those found dead on beaches in South Norway in 2003-2020. The EcoQO threshold level (dashed line) and annual sample sizes are indicated. The line and scatter plot shows the 5-year running mean (\pm SE) centred over the last year in each period.

All Norwegian data of relevance to the fulmar EcoQO for the North Sea area are reported in the attached Excel file (OSPAR-RawData-NOR_FULMAR_by2020), which contains individual details for date and place found, the birds' sex and age, and the numbers and masses of plastic particles divided by main categories (industrial plastics and user plastics) and summed.

Examination of birds from North Norway

Following the same procedures, we have also examined the plastic contents in 72 fulmars collected as unintentional bycatch in fisheries off North Norway in 2012 and 2013 (Herzke et al. 2016), as well as another 26 fulmars collected in the same fisheries and area in later years. The frequency of birds exceeding the 0.1 g EcoQO threshold in the latest sample (34.6%) was strikingly similar to that in the previous one (34.7%), and the overall frequency in the total sample from North Norway (34.7%, n=98) is significantly lower than for the birds collected in Southern Norway ($\chi^2=4.194$, df=1, p=0.041). More fulmars collected from the same fisheries remain to be examined.

References

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