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|  <p>Agreement on the Conservation of Albatrosses and Petrels</p> | <p>Fourth Meeting of the Population and Conservation Status Working Group</p> <p><i>Wellington, New Zealand, 7 – 8 September 2017</i></p> <p>High occurrence of jellyfish predation by black-browed and Campbell albatross identified by DNA metabarcoding</p> <p><i>Julie C McInnes, Rachael Alderman, Mary-Anne Lea, Ben Raymond, Bruce E Deagle, Richard A Phillips, Andrew Stanworth, David R Thompson, Paulo Catry, Henri Weimerskirch, Cristián G Suazo, Michaël Gras, Simon N Jarman</i></p> |
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SUMMARY

Gelatinous zooplankton are a large component of the animal biomass in all marine environments, but are considered to be uncommon in the diet of most marine top predators. However, the diets of key predator groups like seabirds have conventionally been assessed from stomach content analyses, which cannot detect most gelatinous prey. As marine top predators are used to identify changes in the overall species composition of marine ecosystems, such biases in dietary assessment may impact our detection of important ecosystem regime shifts. We investigated albatross diet using DNA metabarcoding of scats to assess the prevalence of gelatinous zooplankton consumption by two albatross species, one of which is used as an indicator species for ecosystem monitoring. Black-browed and Campbell albatross scats were collected from eight breeding colonies covering the circumpolar range of these birds over two consecutive breeding seasons. Fish was the main dietary item at most sites, however cnidarian DNA, primarily from scyphozoan jellyfish was present in 42% of samples overall and up to 80% of samples at some sites. Jellyfish was detected during all breeding stages and consumed by adults and chicks. Trawl fishery catches of jellyfish near the Falkland Islands indicate a similar frequency of jellyfish occurrence in albatross diets in years of high and low jellyfish availability, suggesting jellyfish consumption may be selective rather than opportunistic. Warmer oceans and overfishing of finfish are predicted to favour jellyfish population increases and we demonstrate here that dietary DNA metabarcoding enables measurements of the contribution of gelatinous zooplankton to the diet of marine predators.

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