

Dietary studies are fundamental to assess seabird resource requirements, foraging overlaps with fisheries and identify any shifts in prey availability due to ocean warming. Dietary studies also allow seabirds to be used as indicators of change in the marine system. Seabird diet is typically determined by stomach content analysis of prey remains, or stable isotope analysis of blood or feathers. DNA-based dietary analysis is proving to be a highly effective, non-invasive alternative dietary analysis approach for many seabird species, by identifying prey DNA sequences in predator scat samples. To achieve the best results with this approach, it is important to understand how different variables affect the quality of samples. We conducted field experiments to understand how certain environmental and physiological variables may affect the quantity and quality of diet data. Shy albatross (*Thalassarche cauta*) scats were collected from Albatross Island off Tasmania, Australia during the austral summer 2014/15. We investigated the longevity of DNA within the exposed scat samples, how substrate type affected the DNA obtained and how fasting during incubation changed prey and parasite prevalence in the scat. These field protocols will enable us to maximise the quantity of data collected and identify any limitations the technique may have in relation to sample acquisition. The use of this dietary technique is ideal for threatened species where minimising disturbance is critical. Understanding seabird dietary needs will further define ecosystem linkages, permitting the institution of improved management and conservation programs.

PS3.2 Up the shit creek: new sampling method reveals trophic interactions of a specialised seabird

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Because of difficulties to sample the diet of adult seabirds, only few studies have simultaneously examined the diets of adults and chicks. For some species, such as most terns, it is often assumed that chicks and adults feed on the same forage species, although central-place foraging theory predicts that single-prey loaders should bring more energy rich prey to their chicks than they feed on themselves. Here we report on a new and easy sampling technique we used to assess the diet composition of adult Sandwich Terns *Sterna sandvicensis* by collecting faecal samples each week throughout the breeding season. The study shows that the adult diet varies through the breeding period. In the first weeks after egg-laying, adults primarily fed on sandeel, clupeids and Nereid worms (the latter being absent in the chick diet) although most energy was obtained from sandeel. Clupeids became increasingly important, sometimes already early during the egg-period, but in terms of energetic composition herring only became important when the first chicks hatched or shortly thereafter. Surprisingly, the composition of the chicks' diet closely followed that of the adults, suggesting that adults did not select different prey species for their chicks. However, the length of the prey items (especially of clupeids) found in the adult diet was much smaller than that fed to the chicks. Adults thus seemed to adapt prey size (and not prey species) to the energy demands of their growing chicks, but fed on a constant small fish size themselves. These results are in line with the optimal sharing theory depicting that parents should ingest all small prey, and fly off to the colony only with large prey, with the threshold being determined by their relative needs.

PS3.3 A non-invasive method for studying the diet of a seabird breeding in an intensely exploited marine environment

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