

Symposium 29 New developments in the study of seabird foraging

Introduction

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The inception of new technologies for studying the behavior of seabirds in their natural environment, coupled with the large size of the birds and the relative ease with which they can be captured, has led to seabirds pioneering a recent thrust in understanding animal foraging ecology. Although seabirds may travel thousands of kilometers or dive to depths in excess of several hundred meters on a single foraging sortie, new technologies now make it possible to monitor and quantify their behavior precisely. This is in stark contrast with previous studies, where inability to gather rigorous quantitative data from free-living birds meant that testing theoretical models of foraging decisions rested largely on laboratory studies.

This symposium reviews progress in the field, and evaluates the strategies that seabirds use to enhance chances of finding food while minimizing energy expenditure. This includes assessments of how procellariiforms use olfaction in hunting (Gabrielle Nevitt), how remote sensing technology can track decision-making

in diving penguins (Rory Wilson), what biomechanical and physiological constraints there are to diving in foraging penguins (Katsufumi Sato and colleagues), and how great cormorants (*Phalacrocorax carbo*) maintain minimum energetic costs during foraging despite living in thermally taxing environments (David Grémillet and colleagues). A fifth paper, integrating data and predictions about the seasonal distribution of seabirds and their prey from ship- and colony-based studies, was presented as an oral only. Titled 'Seabirds foraging in a heterogeneous environment' (George L. Hunt and Henri Weimerskirch), its abstract is published in the Abstract volume for the Congress.

Seabirds forage over the oceans of the world, at the top of the food chain. Combining remote sensing and ship- and colony- based studies of them with measurements of oceanic parameters can be expected to tell us a great deal about the functioning of the marine environment and its temporal and spatial variability.