FLEXIBILITY OF FORAGING BEHAVIOUR IN TWO PURSUIT-DIVING SEABIRDS: THE IMPORTANCE OF PREY TRANSPORT CONSTRAINTS

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Different species of central place foragers use a wide range of methods for transporting food, yet the importance of mode of prey transport for foraging behaviour has rarely been considered, especially in the context of responses to environmental change. Here, we use bird-borne devices and observations at the nest together with independent assessment of sandeel biomass and size in the same area that birds foraged, to examine flexibility in foraging behaviour and food provisioning of chicks for two species of seabird over eight breeding seasons: common guillemot (*Uria aalge*), which is an obligate single-prey loader and razorbill, which is a facultative multiple-prey loader (*Alca torda*). Guillemots had smaller core and total foraging areas than razorbills but travelled a greater vertical distance underwater. Thus the total volume of water sampled by each species was similar. In years of low sandeel biomass, guillemots made longer trips but delivered larger fish, mainly clupeids, whereas razorbills made shorter trips, returning with several small sandeels. Long trips by guillemots resulted in chicks being left unattended at the nest-site and hence vulnerable to attack, whereas razorbills were not left unattended even in the poorest years. This difference in parental non-attendance was most likely a main cause of lower breeding success of guillemots in years of low sandeel biomass. Razorbills have been considered more vulnerable than guillemots to adverse effects of low prey availability but this study suggests that as a consequence of being able to carry multiple prey, razorbills have previously unappreciated flexibility in foraging and food provisioning behaviour that single-prey loaders such as guillemots do not possess.