

The choice of prey for parents own and for chicks in Rhinoceros Auklet

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Central-place foraging theory predicts that seabird parents feed on prey species that maximize foraging efficiency (kJ/foraging effort unit) for self-feeding but on prey species that maximize energy delivery (total energy in meal-loads) for chicks. The difference of prey for parents and chicks have been in some species but not in some others. To understand the underlying factors for those prey choice in seabirds, we collected prey for parents (stomach contents) and for chicks (meal-load) from Rhinoceros Auklet *Cerorhinca monocerata* at Teuri Island in 2004–2009, 2014–2015 and Daikoku Island in 2014–2015. We categorized the extent of the difference in prey species between meal-loads and stomach contents as “same”, “partly different”, and “different” ($n = 4–61$ per year colony). The birds at Teuri Island fed on age $\geq 1+$ anchovy both for chicks and themselves in 2004–2009 but fed on age-0 greenling and age-0 sand lance for chicks and also krills and squids adding to the two species for themselves in 2014–2015. Proportion of individuals categorized as the “same” in Teuri Island was high (67–100%) in 2004–2009 but small (8–47%) in 2014–2015. The birds in Daikoku Island fed on age-0 salmon for chicks but age-0salmon and squid for themselves in 2014–2015 so the proportion of individuals categorized as the “same” was small (0–16%). Of the 61 birds that were categorized as “partly different” or “different” (combining all year and colony), 56% brought the prey species giving higher meal-load energy to chicks. As age $\geq 1+$ anchovy maximize the meal-load energy and also increase foraging efficiency (kJ/diving time) by eight times than age-0 greenling and age-0 sand lance, the parents fed on anchovy for chicks and for themselves as well in 2004–2009 when anchovy was abundant. While in 2014–2015 when anchovy was not abundant, the parents fed on various prey species opportunistically for themselves but fed on prey species that relatively increase meal-load energy such as greenling $0+$ or salmon $0+$ for chicks. This study suggests that Rhinoceros Auklet change the strategy of prey choice for themselves and chicks depending on the availability of the most profitable prey species.