

Food for Thought

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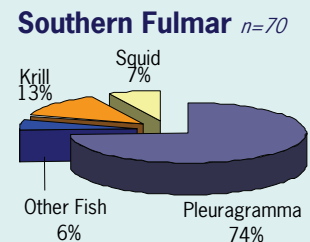
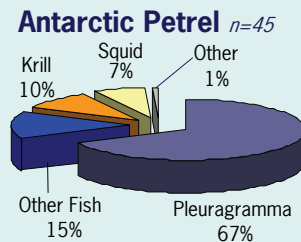
Antarctic Petrels (*Thalassoica antarctica*) and Southern Fulmars (*Fulmarus glacialis*) are among the most numerous bird in high-Antarctic waters. Antarctic Petrels breed mostly in continental Antarctica and Southern Fulmars on peri-Antarctic islands, but have some overlap along the coast of East Antarctica. Both species breed on ice-free cliffs and slopes, but depend on the sea for food. Food demands are highest during the chick-rearing period, when both parents undertake foraging flights to nourish themselves and the chick at the nest. Here, we present results of studies on Ardery Island (66°S 110°E), East Antarctica. Diets were studied by stomach flushing. Provisioning rates to chicks (meal size and frequency) and chick growth were recorded on artificial nest systems with devices for individual recognition and continuous weighing.



Southern Fulmar with chick on artificial nest

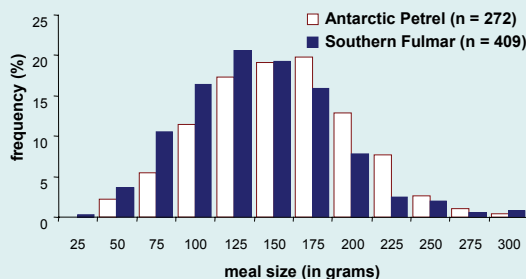
Which food?

Both species feed their chick with a similar diet, consisting of $\pm 80\%$ fish, mainly *Pleuragramma antarcticum*.

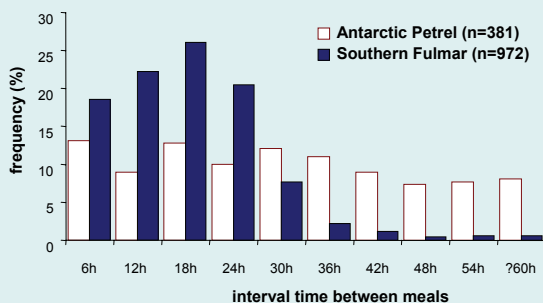


How much food?

Antarctic Petrels deliver larger meals (142g) to their chicks than Southern Fulmars (124g).



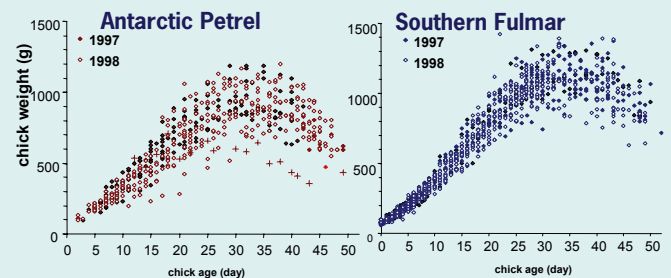
However, the interval time between meals is much longer in Antarctic Petrels (1.2 day) than in Southern Fulmars (0.6 day).



Overall, Antarctic Petrel chicks receive only $\pm 60\%$ (123 g/day) of the food mass that is delivered to Southern Fulmar chicks (207 g/day).

How fast do chicks grow?

Chicks of both species have a similar growth curve with peak weight for Antarctic Petrel chicks $\pm 17\%$ lower than that of Southern Fulmar chicks, a difference similar to that in adults.



Similar chick growth

Despite a large difference in provisioning rate, chicks of both species have a similar growth curve. Apparently, conversion of food into chick mass is more efficient in Antarctic Petrel chicks than in Southern Fulmar chicks. After a meal, an Antarctic Petrel chick loses on average 5.4 g of body mass per hour and Southern Fulmar chicks 10.1 g per hour

How is this possible?

Antarctic Petrel chicks receive food of higher nutritional value than Southern Fulmar chicks. During long foraging trips, food of Antarctic Petrels is more digested and water content decreased. In addition, Antarctic Petrel chicks have a lower basal metabolism, possibly related to their different breeding distribution.

In spite of strong similarity in diet, Antarctic Petrels and Southern Fulmars have very different strategies of foraging and rearing chicks