

VARIATION IN MASS OF THE NORTHERN FULMAR  
*FULMARUS GLACIALIS*  
VARIATIES IN MASSA BIJ DE NOORDSE STORMVOGEL

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*Het gewicht van een opvallend zware Noordse Stormvogel, gevangen op 3 juli 1972 bij Bereneiland (Barentsz Zee) werd in twijfel getrokken in een publicatie van Van Franeker & Wattel in 1982. Omdat er in de literatuur nog maar weinig aandacht is besteed aan de (voor de hand liggende) variaties in gewicht bij stormvogelachtigen wordt hier dieper ingegaan op dat onderwerp. De meeste*

*Noordse Stormvogels worden gewogen in de latere stadia van het broedseizoen, wanneer de vogels minder verstoringsgevoelig zijn, maar wanneer de vogels vermoedelijk ook het meeste gewicht hebben verloren. Zo bedroeg het gemiddelde gewicht van mannetjes op Eynhallow (Orkney) slechts 835g (689-957g) en mannetjes op het Schotse vasteland wogen gemiddeld slechts 815g op het moment dat de kuikens een gewicht van liefst 1120g hadden bereikt. Er blijken aanmerkelijke verschillen te bestaan in de gewichten van stormvogels op zee en van die in de kolonies. Zo werden in juli verschillende vogels van meer dan 1 kg gevangen op zee (het zwaarste dier woog 1300g) en lag het gemiddelde gewicht ruim een half ons boven dat wat werd vastgesteld in de kolonie. Het is mogelijk dat de vogels op zee geen broedvogels waren, maar dieren die ter voorbereiding van de 'moeilijke' periode van slagpenrui een vetreserve hebben aangelegd.*

On 3 July 1972 I collected a dark Northern Fulmar *Fulmarus glacialis* at 74.5EN, 19EE off Bear Island in the Barents Sea in order to estimate its organochlorine content, which was low (Bourne & Bogan 1972). I recorded its mass as 1200g (Bourne 1973) and have only just noticed that this mass is questioned by Van Franeker & Wattel (1982). It may be useful to expand on the subject. While the heaviest Fulmars are found at the breeding places early in the season, and their mass declines later, heavier birds are then found at sea, and may be non- or failed breeders accumulating fat before the moult?

While it might be expected that owing to their exposure to varying weather and long periods of attendance at the nest the mass of petrels is likely to fluctuate, little attention has been paid to this (Warham 1990). The best study is apparently that by Fisher (1967) of the Laysan Albatross *Diomedea immutabilis*. He found that the birds return to their nests at their maximum mass. The males then lose 10% during the pre-egg stage, regain most of this before incubation, but then lose 22% during the first spell of incubation lasting up to three weeks. Later in the incubation period they regain some mass so that they are only 10% below their starting mass when the egg hatches. Then they lose mass again so that they are a third below their initial mass by

*Table 1. Mean and range of Northern Fulmar mass (g), number of individuals measured in parentheses.*

*Tabel 1. Gemiddelde, minimale en maximale massa (g) van Noordse Stormvogels Aantal gewogen exemplaren tussen haakjes.*

	At sea op zee	At Eynhallow op Eynhallow
April-June	792, 570-965 (12)	834, 670-1000 (16)
July-August	852, 550-1300 (15)	806, 590-1002 (58)

the end of intensive care of the chick, which by then has reached the adult starting mass.

The late George Dunnet told me that less attention has been paid to the early stages of the Fulmar breeding cycle because the birds are prone to desert their nests if disturbed then. Therefore most published masses, such as those from his study of breeding birds on the island of Eynhallow in Orkney (Dunnet & Anderson 1961), which reported an average male mass of 835g and range of 689-957g, come from the later stages of the cycle when the adults are liable to be at their lowest mass. Mainland Scottish males averaged only 815g by the time their chicks reached their maximum average mass of 1120g later in the year (Mougin 1967).

The situation is different at sea (Table 1). While the differences are not statistically significant, which may be because the different classes of birds have become mixed, it may be of interest that in the Eynhallow records, in May and June unsexed birds had a high average mass of 834g, including two (12.5%) over 1 kg, but by July their average mass had fallen to 806g, with only four birds (7%) over 1 kg. On the other hand, the birds collected at sea in May had a low average mass of 792g, with none over 1 kg, but in July their average mass had risen to 852g, with three (20%) over 1 kg. The heaviest was a pale bird weighing 1300g collected by T.J.Dixon at 58.7EN 0.7EE east of Shetland on 21 July 1971, though the lowest mass of 550g (presumably of a breeding bird?) also occurred at 57.3EN 0.3EE off Aberdeen three days later. I particularly remember the bird of 1200g collected after a period of exceptionally fine weather off Bear Island, a male of near average size for both Bear Island and Britain (Bourne 1973), in light body moult with small fish in its stomach and an incubation patch, because when skinned it was found to be blown up like a balloon with semi liquid fat.

Initially it seemed possible that this heavy Fulmar had put on its fat in preparation for a long spell of incubation, since some birds were still incubating on Bear Island then, and that this might also have made it so clumsy that it was the easiest bird encountered to collect. The location of a second record of a heavier bird later in the season (but still too early for a fledging chick) raises the question whether these were really breeding birds at all, or perhaps unemployed pre- or failed breeders laying down fat in the fine summer weather in preparation for the moult. This would explain why such heavy individuals are apparently not found at the breeding places, where the lowest masses are recorded among the breeding birds at this time. Petrel masses appear to deserve further study.

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