

FLYING FISH AS FOOD OF CORY'S SHEARWATER
*CALONECTRIS BOREALIS**

KUHLS PIJLSTORMVOGELS JAGEN OP VLIEGENDE VISSSEN

MARDIK F. LEOPOLD

*ALTERRA-DLO, PO Box 167, Den Burg, Texel, The Netherlands, E-mail
m.f.leopold@alterra.dlo.nl*

Cory's Shearwaters Calonectris borealis associated with a research vessel near the Canary Islands (off West Africa) were seen to chase and capture flying fish flushed by the vessel. Although the handbooks failed to list flying fish as prey for this species, a literature search revealed that Cory's Shearwaters have been noted on several occasions to prey on these fish after they become airborne.

Leopold M.F. 1999. Flying fish as food of Cory's Shearwater *Calonectris borealis*. Atlantic Seabirds 1(4): 186-188.

Cory's Shearwaters *Calonectris borealis* were seen pursuing flying fish on four occasions, and capturing such fish on one, off the Canary Islands (West Africa) on 31 May 1988. In all four cases the flying fish leaped into the air just ahead of the ship's bow. Cory's Shearwaters and flying fish were both common in the area. All flying fish chased up by the ship during this cruise were bluish and rather large (estimated 25-30 cm total length) with grey fins ('wings'), possibly belonging to the genus *Cheilopogon* (Whitehead *et al.* 1986).

A first sighting were four shearwaters flying close to the bow that gave chase to a flying fish the moment it became airborne (27° 17'N, 15° 30'W, 13:00 GMT). The birds flew in from both sides of the ship and chased the fish over some 100m. Then the fish hit the water but one of the birds dived after it and came up with it in its bill, after which the other three landed and started quarrelling over the prey. Some 35 minutes later a single Cory's Shearwater chased a fish over 50m. One meter before re-immersing, the fish made a sharp, 90° turn and the prey was missed. Two more chases, both involving a single fish and a single bird, were seen at 15:50 and 17:00 GMT. Both birds missed the fish after a chase of some 40m. During the last chase, the fish hit the water three times with the lower half of its tail, gaining speed by making strong, lateral movements (off Port of Las Palmas, Gran Canaria; 27° 56'N, 15° 19'W).

In all four cases, the birds seemed to expect fish to be flushed by the ship and it appeared that they were deliberately flying near the bow, rather than just following the ship. The pursuits were deliberate and reminiscent of chases given by a skua. On the outward journey from Gran Canaria on 7 May, such chases were not seen, and neither was this behaviour seen further south. Seabirds (and flying fish) were also counted *en route* to and from Mauritania between 22° and 24°N, and during three weeks at sea off the Banc d'Arguin, Mauritania between 17° and 20°N (see Leopold 1993). While Cory's Shearwaters were seen in all three areas, and *Cheilopogon* also occurs throughout this range (Whitehead *et al.* 1986), both species were clearly most abundant near the Canary Islands and no chases were observed away from the islands.

Neither Bauer & Glutz von Blotzheim (1966) nor Cramp & Simmons (1977) have listed flying fish as prey for Cory's Shearwater (but see Thibault *et al.* 1997). However, chasing and capturing flying fish by Cory's Shearwaters has been observed in a large area, extending from the Azores to the Mediterranean. Moore (1995) described how a Cory's Shearwater pursued and caught a small flying fish, disturbed by a ship approaching the Azores. The chasing bird was described as '*wobbling clumsily just behind and above the fish*', over a distance of 150 m. Fish and bird then struck the water and the fish was captured. Only because Cramp & Simmons (1977) did not mention flying fish as prey of Cory's Shearwater, Moore concluded that the observed behaviour was merely opportunistic. Still, Beven (1946) described how 'North Atlantic' (Cory's) Shearwaters caught fish that were jumping out of the water near the Azores, and that they took some of these while actually in the air. '*The fish were assumed to be flying fish.*' Cory's Shearwaters were also noted to: '*pursue flying fish when they took the air sufficiently near them*' by Mayo (1948), probably near the Cape Verde Islands. In more recent years, flying fish have been described as being

captured by Cory's Shearwaters in several publications (in general terms, Warham 1990; in the Strait of Gibraltar, Finlayson 1992; and in the Mediterranean, Sarà 1993) and Den Hartog & Clarke (1996) found remains of flying fish in two out of 18 stomachs of Cory's Shearwaters collected near the Canary Islands. Aerial pursuit may thus be a rather normal foraging behaviour in Cory's Shearwaters. *Calonectris*, compared to the *Puffinus* shearwaters has long wings and a weakly developed sternum (Brown *et al.* 1978) and this makes *Calonectris* ill-suited for deep-diving, restricting it to foraging near the surface, including the air.

Kuhls Pijlstormvogels Calonectris borealis die rond de boeg van een schip in de buurt van de Canarische Eilanden rondhingen, zetten een aantal keren de achtervolging in van vliegende vissen die door de naderende scheepsboeg werden opgestoten. De vissen werden over tientallen, soms ruim 100 m achtervolgd en in één geval ook gegrepen. De vogels leken goed te beseffen dat een varende schip vliegende vissen kan opstoten en zetten de achtervolging snel en doelbewust in, wat suggereert dat deze pijlstormvogels dit gedrag vaker vertonen. De beide handboeken bleken dit gedrag niet te beschrijven, een meer gericht literatuur onderzoek leverde echter nog diverse andere beschrijvingen op van dergelijke situaties. Het gedrag komt voor in een groot gebied, van de Azoren tot in de Middellandse Zee. De vogels lijken bij hun jacht baat te hebben bij schepen die de vissen opstoten, op een voor hen voorspelbare plaats, namelijk bij de boeg.

Bauer K.M. & Glutz von Blotzheim U.N. 1966. Handbuch der Vögel Mitteleuropas, 1. Akad. Verl., Wiesbaden.

Beven G. 1946. Feeding behaviour of North Atlantic Shearwater. Brit. Birds 39: 123.

Brown R.G.B., Bourne W.R.P. & Wahl T.R. 1978. Diving by Shearwaters. Condor 80: 123-125.

Cramp S. & Simmons K.E.L. 1977. The Birds of the Western Palearctic, 1. Oxford Univ. Press, Oxford.

Den Hartog J.C. & Clarke M.R. 1996. A study of stomach contents of Cory's Shearwater, *Calonectris diomedea borealis* (Cory, 1881) (Aves: Procellariidae), from the Macronesian Islands. Zool. Med. (Leiden) 70: 117-133.

Finlayson C. 1992. Birds of the Strait of Gibraltar. T. & A.D. Poyser, London.

Leopold M.F. 1993. Seabirds in the shelf edge waters bordering the Banc d'Arguin, Mauritania, in May. Hydrobiologia 258: 197-210.

Mayo A.L.W. 1948. Birds seen in the tropical Atlantic and Western Approaches to Gibraltar. Ibis 90: 22-25.

Moore C.C. 1995. Cory's Shearwaters pursuing and apparently consuming flying-fish. Brit. Birds 88: 47.

Sàrà M. 1993. Feeding habits of Cory's Shearwater (*Calonectris diomedea*) in the Central Mediterranean Sea. In: Aguilar J.S., Monbailliu X. & Paterson A.M. (eds). Estatus y Conservacion de Aves Marinas: 213-220. Actas del II Simposio MEDMARAVIS, SEO, Madrid.

Thibault J.-C., Bretagnolle V. & Rabouam C. 1997. *Calonectris diomedea* Cory's Shearwater. BWP Update 1(2): 75-98.

Warham J. 1990. The Petrels: their ecology and breeding systems. Academic Press, London.

Whitehead, P.J.P. Bauchot M.-L., Hureau J.-C., Nielsen J., & Tortonese E. (eds) 1986. Fishes of the North-eastern Atlantic and the Mediterranean, II. UNESCO, Paris.

*Known as *Calonectris diomedea borealis* on the British list