

First record of gooseneck barnacles *Conchoderma auritum* on a minke whale *Balaenoptera acutorostrata*

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Clusters of a stalked barnacle, identified as *Conchoderma auritum*, were found attached to both damaged and complete baleen plates of a male minke whale caught off the coast of East Greenland on 16 July 1984. No previous record is known of gooseneck barnacles on minke whales.

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INTRODUCTION

Sessile barnacles found on whales are usually fixed very superficially on skin or teeth by cementum, but some species, like *Coronula*, burrow into the epidermis and dermis (Arvy 1982). These sessile barnacles may provide attachment for other epizoa, which do not settle on soft skin. One of these is probably *Conchoderma auritum* (Linnaeus). Clarke (1966) discussed the attachment of *Conchoderma* spp. to whales, and concluded that on whalebone whales *Conchoderma auritum* has only been reported from hard surfaces, such as *Coronula* shells and baleen plates. In only one occasion was *Conchoderma auritum* recorded on the deformed jaw of a baleen whale (Mörch 1911). No *Conchoderma* have been found in areas where *Coronula* is very rare. According to Clarke (1966), *C. auritum* has never been recorded from bowhead (*Balaena mysticetus*), minke (*Balaenoptera acutorostrata*) or grey whales (*Eschrichtius gibbosus*), from which

three species *Coronula* spp. have not been recorded.

Conchoderma has a cosmopolitan and pelagic distribution. Single finds are known from the coast of Finnmark, N. Norway, Jan Mayen, Iceland, but not from E. Greenland area, probably due to scantiness of investigation (Nilsson-Cantell 1978).

During the period 1972–1984 a total of 1317 minke whales have been examined in the North Atlantic by the staff of the Institute of Marine Research in Bergen. In addition to general biological examination and sampling, the occurrence of epizoa was also recorded. The most common crustaceans found on North Atlantic minke whales are *Cyamus* sp., and less frequently, *Pennella* sp.

MATERIAL

During a whaling cruise to East-Greenland in 1984, a minke whale was caught on July 16, at position 70° 24'N, 19° 17'W. When this animal, a 595 cm long male, was hauled on to the flense deck, the observer discovered that the outer third of the baleen plates on both sides of the mouth were damaged. The demolished plates had probably been destroyed by some kind of rope as suggested by the shape of healed scars near the tip of the snout (Fig. 1). The broken baleen plates were recovering. The whale was relatively thin, with a blubber thickness of only 25 mm, as compared to 30–40 mm in other whales caught on the same trip. Attached to the baleen plates, both to the undamaged and the broken ones, were several stalked barnacles (Figs. 1–2).

Some specimens were conserved in formalin. Length measurements of the biggest animal after conservation were as follows:
Total length (capitulum + pedunculus): 74.3 mm
Length of capitulum: 32.2 mm

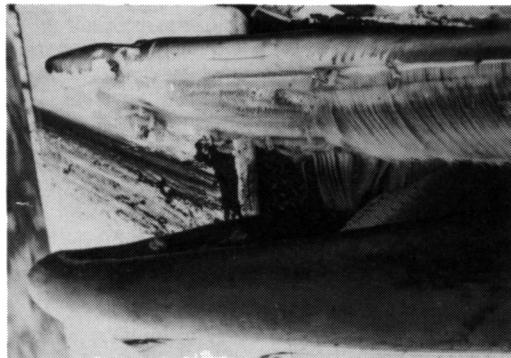


Fig. 1. Photo showing the demolished baleen plates and the attachments of some of the gooseneck barnacles (Photo Aa. Nilsen).

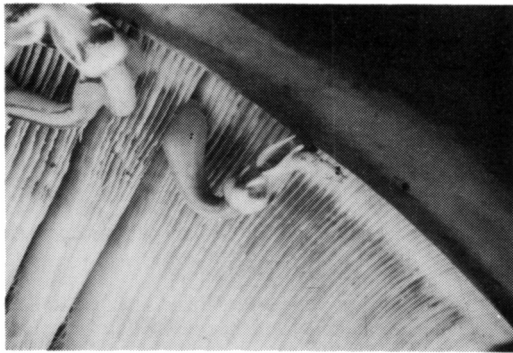


Fig. 2. Photo showing the attachments of the gooseneck barnacles to the baleen plates.

Length of scutum: 9.7 mm

If we include the «ear», the total length is 90.9 mm.

The species was readily identified as *Conchoderma auritum* (Linnaeus) (Cirripedia, Lepadomorpha) by the conspicuous ear-like appendages on the capitulum and the small triangular scutum (Stephensen 1933, Broch 1959).

DISCUSSION

Conchoderma auritum has a wide distribution and is occasionally found in the southern North Sea, the English Channel, in South and West Ireland, in the Faroe-Iceland area and in the Norwegian Sea (Broch 1959, Nilsson-Cantell 1978). In temperate and warmer seas the barnacle is found on drifting debris or fixed to ships, but in northern waters it is mostly found attached to *Coronula* sp. on great whales (Broch 1959).

Clarke (1966) summarized the occurrence of *C. auritum* on some whales and gave the following infection rates on baleen whales:

97.8% of 500 humpbacks from the Antarctic, S. Africa and the North Pacific

0.2% of 3343 blue whales from the Antarctic

0.3% of 7794 fin whales from the Antarctic

0.2% of 1031 sei whales from the North Pacific.

It is assumed that the low infection of *C. auritum* on blue, fin and sei whales is connected with the low frequency of occurrence of *Coronula* on these whales. There is no previous record of *Coronula* on minke whales, nor has *C. auritum* been recorded on this host. The present record which is the only one for 1317 whales examined, gives an infection rate of 0.076% for minke whale in the North Atlantic.

According to Clarke (1966) *C. auritum* is rarely attached directly to the baleen plates. This had been reported only once from a blue whale, once from a sei whale and three times from fin whales. The baleen of the infested fin whale, described as a new

case of direct infection by Clarke (1966), was much fretted and worn away, apparently diseased.

In our case the minke whale did not suffer from sickness. The breakdown of the baleen has probably been caused by an accident. The demolition of some of the baleen plates may have made it possible for the larvae of *C. auritum* to settle. The cases reported by Clarke (1966) and our finding indicate that if some of the baleen plates are destroyed, *C. auritum* may find a suitable substratum for attachment. When some barnacles have settled, other larvae will settle in the vicinity of their own species.

The time for the settlement of *C. auritum* is difficult to estimate, but the healing of the wounds and the recovery of the baleen plates put the accident somewhat back in time. It is probably that the infection occurred in warmer waters.

The growth rate of the capitulum of *C. auritum* has been measured to 0.7 mm/day during the first month, but this high growth rate probably slows down after sexual maturity, at a scutum length of 7 mm (Rasmussen 1980). The largest individual reported by Rasmussen (1980) had an age of 150 days and a capitulum length of 33.6 mm. The largest present specimen has a scutum length of 9.7 mm, and therefore was sexually mature. The capitulum length of 32.2 mm should indicate an age of up to 150 days. Rasmussen's (1980) measurements of growth rates were from animals living in water temperature of 16°–19°C. The growth rate probably slows down in colder waters, implying that the present animal could be older depending on how long the minke whale had stayed in Greenland waters. Clarke (1966) showed that *C. auritum* survived Antarctic waters, therefore the present animals could be more than one year old.

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