

## Observed and inferred epimeletic (nurturant) behaviour in bottlenose dolphins

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Epimeletic, care or attention giving, behaviour is widely documented in captive and free-ranging dolphins, although there has been some debate as to whether it is intelligent or instinctive (Caldwell & Caldwell, 1966; Pilleri, 1984). This distinction is, perhaps, unimportant in intraspecific epimeletic behaviour as the adaptive significance of such behaviour, if it is widespread, is clear, particularly if the giver and receiver are genetically related. Bottlenose dolphin schools inhabiting the coastal waters of Florida can be genotypically distinguished, implying a familial relationship between members of a school (Duffield *et al.*, 1987). In this context, epimeletic behaviour between members of the same school has positive survival and evolutionary adaptive consequences. Interspecific epimeletic behaviour is more difficult to interpret and may imply some conscious or deliberate action (Pilleri, 1984), although this is doubtful where a captive bottlenose dolphin carries a dead shark around on its beak for a week (Norris & Prescott, 1961).

The epimeletic behaviour of captive bottlenose dolphin mothers towards their calves, nurturant behaviour, is clearly evident during the two or more years that the calf suckles from and is associated with the mother (Cockcroft & Ross, 1989a). During the calf's early infancy the mother appears to reprimand it for transgressions and removes the calf from impending danger (Cockcroft & Ross, 1989a). It is not surprising, therefore, that aspects of this behaviour should be evident in free-ranging groups or inferred from incidental captures of calves in nets.

On the south east coast of southern Africa bottlenose dolphins are captured incidentally in gill nets set to catch and reduce the numbers of sharks off major bathing beaches. Between January 1980 and December 1987 a minimum of 212 of these dolphins were captured and calves and lactating females constituted almost 60% of this total (Cockcroft & Ross, in press). Many of these captured calves showed fresh 'rake' or tooth marks on various parts of their bodies, implying that there had been attempts to remove them from the nets subsequent to capture. Although the occurrence of these 'rake' marks on captured bottlenose dolphin calves was not recorded

consistently, the available records show that the incidence is high, fresh tooth marks occurring on at least 30% of all captured calves. This suggests that certain mothers attempt to free their entangled calves and, in some instances, may be captured during these efforts. A similar interpretation was proposed by Pilleri (1984) who observed fresh tooth marks on the tail stock and flukes of a La Plata dolphin calf captured with its mother in gill nets off Los Cerros, Uruguay.

Although the presence of such 'rake' or tooth marks may also imply that the calf was chased or harassed into the nets, the extent of maternal care in dolphins and the observations of dolphins supporting sick or even dead calves at the surface, suggests that it is nurturant and not aggressive behaviour (Tavolga & Essapian, 1957; Caldwell & Caldwell, 1966; Cockcroft & Ross, 1989a).

On 16 July, 1989, one of us (WS) observed an incident involving six bottlenose dolphins off the Kromme River, Eastern Cape, South Africa, which illustrated possible nurturant behaviour in free-ranging bottlenose dolphins. Large groups of bottlenose dolphins had been seen in the area during the previous ten days, probably feeding on the extensive shoals of squid (*Loligo* sp.) which were present in the region and which are important in the diet of bottlenose dolphins (Cockcroft & Ross, 1989b).

During a routine trip in a seven metre motor driven boat, a group of six dolphins were seen moving slowly in the inshore region. On closer inspection, from about 10 m, it was observed that two of the animals were attempting to support a dead calf, approximately 1.5 m in length, at the surface, one adult on either side of the calf. As the boat approached closer the calf was released and sank to the bottom in some 7 m of water. As the boat retreated, the two adults again lifted the calf to the surface. Over the following 20 minutes the dead calf was pushed from below and brought to the surface twice more, for periods of about three to four minutes. At the surface it was supported either with the rostrum or pectoral flippers of the two adults. During this period the other four dolphins remained in the vicinity, but some 150 m distant. The episode culminated as the two adults again pushed the dead calf to the surface,

but released it, joined the other animals and moved off, parallel to the coastline. Unfortunately, WS was unable to retrieve the body of the dead calf and the cause of death is unknown, though no visible signs of trauma (cuts or abrasions) were evident. We have no way of knowing for how long these animals had been supporting the calf and if they would have continued if not disturbed.

This note provides strong inferential and direct evidence for nurturant behaviour within free-ranging bottlenose dolphins. Such behaviour has clear implications for the survival of possibly genetically related dolphins within specific groups.

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