Steno bredanensis (Rough-toothed Dolphin)

Family: Delphinidae (Oceanic Dolphins)
Order: Cetacea (Whales and Dolphins)
Class: Mammalia (Mammals)

Fig. 1. The rough-toothed dolphin, *Steno bredanensis*.

[http://marinebio.org/oceans/dolphins.asp, downloaded 18 November 2011]

TRAITS. Although insufficient studies have been conducted on the rough-toothed dolphin significant literatures exist to conduct an assessment of this species. The rough-toothed dolphin is distinguishable from other dolphins bearing close resemblance to it by its slim nose and tapered small head (Fig. 1). The position of the flippers or pectoral fin is moderately protracted along the body such that it is located further along the body with the dorsal fin exhibiting distinctiveness (Wikipedia 2011). The dorsal fin which is situated at the mid-back is comparatively elevated and hefty. The coloration of the throat abdomen and lips are rose-tinted white with the flanks having a grizzled shade of grey compared to the dorsal fin. Its length is characteristically 2.6 m and approx. 160 kg (NOAA fisheries, 2011). The white marking that defines the beak which is relatively elongated differentiates the rough toothed dolphin from the bottlenose dolphin (Steiner, 1995). The dorsal cape sited amid the blowhole and dorsal fin is

murky in tint. Blotches and asymmetrical spots comprise the ventral segment of the abdomen. A coloration that is tripartite exists amongst the cape, head and dorsal fins, (Addink and Smeenk, 2001). There is significant resemblance between the males and females although several males have a larger appearance with a well-defined pre-anal hump and dominant scaring, (Greenwood, 2011). The calves are conspicuously paler in tint. The characteristic feature of this dolphin is its teeth which possess soft edges allowing them to acquire a roughened look. The dolphin is presumed to have a lifespan ranging from 32 to 36 years.

ECOLOGY. These animals favour deep water areas of the tropics and humid temperate regions, (NOAA fisheries, 2011) and may also be established in shallow waters as observed in Brazil and Japan. It is found off the coast of Tobago and in areas such as Hawaii in the United States and South America. Although there is little information of distribution pattern the presumption is that they are fundamentally pelagic (Addink and Smeenk, 2001) and are deemed to be an offshore species (Ritter, 2002). An analysis of the organism's stomach content indicates that their dietary consumption includes mollusc and small fishes (Pitman and Stinchcomb, 2002). Wild species consume a variety of fish species as well as cephalopods which are either on the coastline or marine. In addition dental analysis indicate that outsized fishes may also be devoured, (Perrin, Würsig and Thewissen, 2008). They often acquaint with other cetaceans. Isolated animals have also been viewed with other dolphin species such as Fraser's dolphin. Other studies of disease in this species have been inadequately assessed to make factual assumptions. Rough-tooths are relatively slow swimmers and appear unenergetic in their natural habitat. Their characteristic behaviour comprises of bow-riding by surface gliding at moderate speed generating a splatter. Diving and mid-air behaviour (Fig. 2) have been detected in this non- athletic organism with a maximum dive of 70m being clocked. Studies have indicated an increased level of fidelity as compared to other species in this family.

SOCIAL ORGANIZATION. The species are present in groups comprising around 10-20 although a bigger group encompassing approx 50 individuals have been observed in the Canary Island, (Perrin, Würsig and Thewissen, 2008). The organisms are usually encountered offshore of usual depth 100-1000m but can occasionally be stumbled upon 20-50m inshore (Ritter, 2002). The group composition is often adults with several young. Amongst the 39 sightings recorded, 47% was accounted for by juveniles and 13% was comprised by the calves, but their presence was usually in a minority. Surface activity in this dolphin can be relatively great on occasions. Variations in the level of activity within the group exist. Collective swimming in rigid arrangement is also exhibited by the species with the individuals immersing and appearing all at once alongside each other. Their proximate arrangement facilitates occasional intimate bodily contact socialization in conformed group structure. The variation of activity within the group structure of the dolphin was documented with progress being stagnant over wider vicinity ranges. Their behaviour at times were subtle with movement being sleek and sluggish lacking splatter when floating up and staying immersed while proximate to the water surface when whirling with regular alterations to their route. Although this was characteristic of particular dolphins it was also occasionally a group display and was demonstrated for special activities. The skimming behaviour monitored was illustrated as the swift swim movement of the dolphin having its snout constantly close to the surface and the dorsal fin being exposed incessantly (Ritter, 2002).

SOCIAL INTERACTIONS AND ACTIVITY. Interactions were recurrent and comprised of fluke-patting, pursuing and tummy-shaking which involved the animal orienting to its side

momentarily revealing its white abdomen to other group members. Also observed were leaping and head smacking (Addink and Smeenk, 2001). They acquainted on five instances with several cetaceans including the bottlenose and the spotted dolphins. There were in addition recorded contact with whales and humans. Interactions between the dolphin and a whale group involved the side fluking of a mother dolphin while it's young smacked its tail in a playful manner. Other interactions included the head trembling with a diskfish in its mouth. Proximate approach and rapid swimming was an avoidance behaviour that was employed by the dolphin against the aggressive behaviour of the whales they encountered (Wedekin et.al 2004). These intelligent and inquisitive organisms also interacted well with humans often coming towards humans and behaving in a very playful manner.

COMMUNICATION. The communication amongst delphinid is classified as whistles, echolocation clicks, ruptured sound clicks and synchronous patterns of swimming (Oswald et.al 2007). Echolocation and sound clicks are of a short waveband and mirrors a tonal quality to the human ear due to rapid rates of click production. Echolocation clicks are utilized in navigation, recognition as well as directionality and object bias. These are perceived to facilitate social interaction amongst the species. The tapered uninterrupted band produced by whistling functions in communal gesturing and ranges from 2-30 kHz. Evidence suggests whistles and clicks serve to develop characteristic algorithms in the species that can be used to categorize different individuals within the group. Harmonized swimming within groups facilitates eavesdropping allowing for the communication of specific information within the group structure (Götz, Verfub and Schnitzler 2006). Communication can also be tactile and visual.

FEEDING. Feeding behaviour exhibited by the dolphin is opportunistic, (Addink and Smeenk, 2001). Numerous bouts involved the regrouping into lesser groups and conducting explorations for food. Surveys conducted close to shipping vessels by rapidly swimming around shoals of fishes resulted in their emergence with a fish in their beak. At times before reappearing with their catches there were overexcited forward rolls. Individual meals were trailed with immense swiftness and it was observed that fishes of considerable size were captured. In the open sea the dolphins acquaint with hovering debris, with the preferred meal choice being the fast-swimming Mahimahi located off the coast of Hawaii. Since the dolphins are relatively slow swimmers collective foraging behaviour is required. Their prey are hurled into their beaks and fragmented with the use of their rough tooth with meal sharing amongst the group being observed. There is no known predator of this dolphin apart from humans. Feeding was conducted close to the water surface. The distinctive behaviour was observed to include rapid gliding, floating, leaping and diving (Fig. 3). The alteration in direction occurred in several instances without extensive submergence.

SEXUAL BEHAVIOUR. Little is known about the sexual behaviour of the dolphin in its natural habitat. However generalization of sexual behaviour in dolphins can be made. Copulation in dolphins occurs through slits located on the bodies' underside the abdomen in close proximity the act is concise and recurring. Extensive foreplay is also exhibited. The gestation period of the dolphin however is unknown. Sexual dimorphism exists in this organism where both male and female are dissimilar in physique (Greenwood, 2011) and adult males are significantly larger than females of the same age. There is swift growth within the first five years of life. Sexual maturity of females is usually 9- 10 years of age at 212 to 217 cm lengths and 101 to 108 kg while males are sexually mature at 5-10 years at lengths of 216 cm and 92 to101 kg. Studies of

the species when in captivity indicate that the length of the newborn ranges from 1 to 1.3 m. Hybridization in confinement can exist between this species and a bottlenose dolphin. A solitary calf is produced at a single time being birthed in shallow water. Mating access with the female often leads to intense male rivalry.

JUVENILE BEHAVIOUR. Mother-calf interaction is numerous and sucklings stroke the glands of milk on the mother's abdomen while the mother remains in an erect position. The position of the calf when swimming is usually to the mother's side close to her flippers. They act independent, swimming away from their mother and are quite energetic. Their behaviour is erratic soaring or whirling noisily near to but apart from the adults when feeding. Evidence suggests that the interaction between calf and its mother is extended due to lactation. From most of the observations made it was noted that the calves usually play with their prey which was quite large and are wounded or unconscious. The young calve is shielded from danger by the proximal swimming of the mother to the young orienting itself between calve and the adjacent dolphin. Within the first hour of birth attempts are made to nurse but are futile until around day 3 of birth and usually occurs diurnally below the water surface (Greenwood, 2011).

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Fig. 2. Bow riding in rough-toothed dolphin

[http://cetaceans.tumblr.com/post/1526012139/whale-of-the-day, downloaded 26th October 2011]

Fig. 3. Rough-toothed dolphins leaping.

[http://www.cascadiaresearch.org/hawaii/roughtootheddolphin.htm, downloaded 26th October 2011]

Fig. 4. Showing the group structure of the rough-toothed dolphin.

[http://www.cascadiaresearch.org/hawaii/roughtootheddolphin.htm, downloaded November 12th 2011]

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