Stenella frontalis (Atlantic Spotted Dolphin)

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

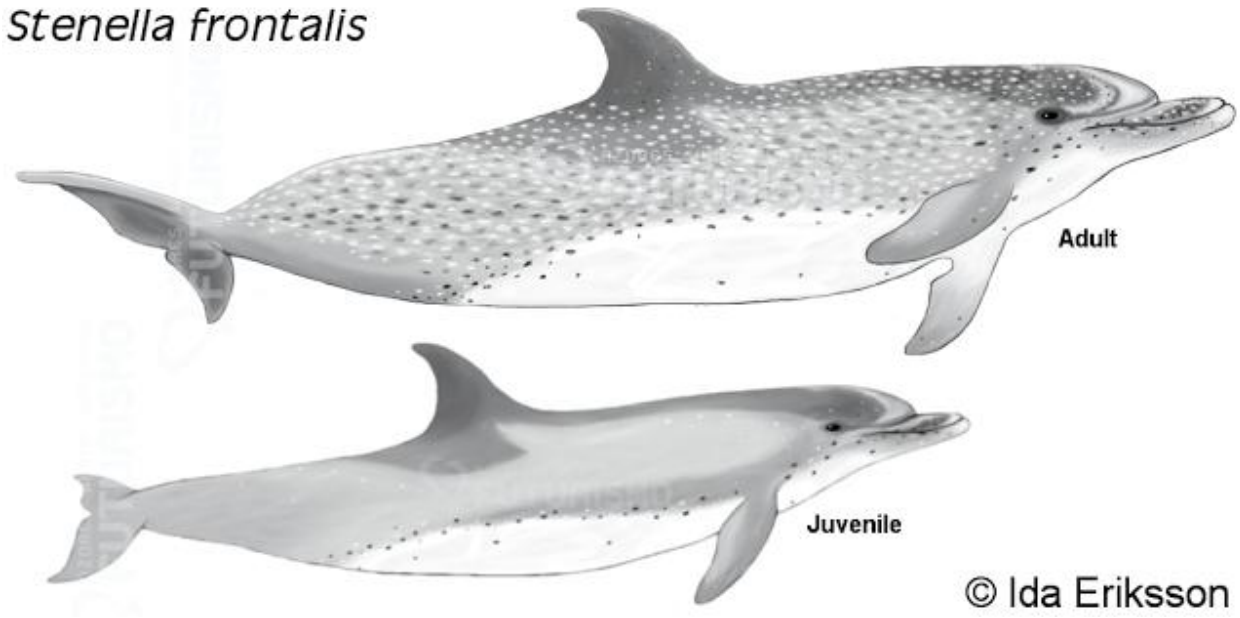

Fig. 1. Atlantic spotted dolphin, *Stenella frontalis.*

[http://azoreswhales.blogspot.com/2007/07/atlantic-spotted-dolphin.html, downloaded 20 October 2015]

TRAITS. The Atlantic spotted dolphin is distinguished by its spotted body (Fig. 1), which looks almost white from a distance (Arkive.org, 2015). Males of the species have a maximum length of 2.3m with a weight of 140kg while the females have a maximum length of 2.3m with the weight of 130kg (Ccaro.org, 2015). The Atlantic spotted dolphin has a streamlined body with a layer of blubber, tall dorsal fins and flippers to ensure the high adaptability of this mammal to life in an aquatic environment (Dolphindreamteam.com, 2015). Even though juvenile of the Atlantic spotted dolphin resembles the bottlenose dolphin there is a unique crease between the melon and beak (Nmfs.noaa.gov, 2015).

ECOLOGY. These dolphins prefer temperate to warm seas. They occupy the Atlantic Ocean; from southern Brazil to west of New England and to the east coast of Africa (Fig. 2.), mostly between the geographic coordinates of 50ºN and 25ºS (Arkive.org, 2015). They are found in the open ocean habitat of the marine environment which is beyond the edge of the continental shelf. However there are records of long term residency of the Atlantic spotted dolphins in the sandflats of the Bahamas. The Gulf Stream is an example of the warm currents that affect the distribution of these dolphins (Cms.int, 2015).

SOCIAL ORGANIZATION. Associations of Atlantic spotted dolphins are influenced by sex, age and reproduction (Elliser and Herzing, 2014). The males start forming long term alliances or coalitions with each other when they are mature; at ages 8-15. Their alliance is typically made up

of 3-4 males (Elliser and Herzing, 2014). This gives the advantage of mating by competing with weaker alliances. Super-coalitions can be formed when two or more alliances or coalitions come together, which normally happens during aggressive behaviour (Johnson and Herzing, 2015). The females form more of a casual relationship, comprised of 5-25 females. Age does not affect their association but reproductive status does. The mothers tend to get help in rearing offspring (Johnson and Herzing, 2015). The relationships are normally maintained by the mother's associate young and the mother's young throughout their life (Elliser and Herzing, 2014). Groups or pods (Fig. 3) can be formed with any number of individuals ranging from 2-15 but these are only temporary and the number depends on the depth and size of the environment as well as the availability of food (Whalefacts.org, 2015).

SEXUAL BEHAVIOUR. *Stenella frontalis* has seasonal breeding, which occurs during the period of May to September. The females reach sexual maturity at age 9 and the males at age 12. One calf is born every three years per female. It was observed the alliances that are formed by the males fend off the weaker male alliances and escort the female into the deep waters during feeding for mating purposes (Elliser and Herzing, 2014). Interspecific sexual behaviour was also observed between the Atlantic spotted dolphin and the bottlenose dolphin; either with a juvenile spotted female and adult bottlenose male or with an adult spotted female and a juvenile bottlenose male in the sandflats of Bahamas (Elliser and Herzing, 2015).

AGGRESSION. The Atlantic spotted dolphin shows aggression by synchronized swimming and squawking and by head to head face offs (Johnson and Herzing, 2015). There is also interspecific aggression between the Atlantic spotted and the bottlenose dolphins (Johnson and Herzing, 2015). Even though there is interspecific aggression, the Atlantic spotted dolphin and the bottlenose can work together to defend themselves against predators (Cusick and Herzing, 2014).

ACTIVITY. *Stenella frontalis* are extremely fast swimmers which allows them to catch up to the bow of boats and were observed performing aerial tricks like jumping and flipping (Ccaro.org, 2015). They travel long distances but do not migrate (Ccaro.org, 2015). Diving deep is another one of its abilities in order to do this they hold their breaths for 1-10 minutes as they reach depths of 40-60m (Whalefacts.org, 2015). Some individuals of the Atlantic spotted dolphins maintain an interspecies relationship with the bottlenose dolphins in which they both benefit (Arkive.org, 2015).

FORAGING BEHAVIOUR. *Stenella frontalis* tend to feed at night at varying depths (Fig. 4.) (Fertl and Wursig, 1995). They feed on invertebrates, eels and a variety of small fishes. They are coordinated feeders, which mean they utilize different techniques when hunting for food (Fertl and Wursig, 1995). The Atlantic spotted dolphins feed in groups. In the Gulf of Mexico their hunting technique was witnessed. The group of dolphins was divided into sub-groups which all encircled the school of fish into a tight ball, some of the dolphins remained at the bottom of the school forming an underwater barrier. They eventually forced the fishes to the surface, trapping them between the sub-groups then the dolphins partook of the fishes. In shallow waters they also trap their prey against the shoreline which makes them easier to consume (Fertl and Wursig, 1995). When observing Atlantic spotted dolphin foraging behaviour the mothers were seen teaching their offspring how to hunt by chasing the prey longer and using their body to refer to the direction of the prey, this is known as social learning (Bender et al., 2008). This behaviour was not seen when the mothers are hunting by themselves or with other adults (Bender et al., 2008).

COMMUNICATION. Communication in the Atlantic spotted dolphin is done by contact, visual signals and vocalization. The dolphins have a highly-developed nervous system which increases the sensitivity in their skin (Dudzinski, 1998). The level of intensity of the touching and rubbing of their pectoral fins and bodies tell whether it's an aggressive or friendly touch. Visual signals such as; the density of spots, coloration and posture lets the initiator know if that specific dolphin is approachable, what its age is and if it is a male or female (Dudzinski, 1998). Typically the "S" posture of the spotted dolphin means it is aggressive. Vocalizations from the Atlantic spotted dolphins can be whistles which are long distance social calls, echolocation clicks used for scanning the environment and foraging, bursts pulses used by mothers to discipline their offspring and synced squawks used when displaying aggression (Herzing, 1996).

JUVENILE BEHAVIOUR. Atlantic spotted dolphins are born after an 11-12 month gestation period with maximum length of 1.2m**,** no spots and a muted coloration pattern, however as they grow into adults the density of the spots increases heavily (Nmfs.noaa.gov, 2015). They suckle from their mother until 2 years when they then start to learn foraging behaviour from their mother (Bender et al., 2008). They take 8-15 years to mature fully and they either stay within their pod or go off on their own and make new associations with different dolphins of the same species (Whalefacts.org, 2015).

ANTIPREDATOR BEHAVIOUR. The muted coloration pattern in the newborn Atlantic spotted dolphins is known as countershading which is a type of camouflage to hide from predators (Nmfs.noaa.gov, 2015). One main antipredator behaviour was seen in the Atlantic spotted dolphins where they form a super-coalition among themselves or an alliance with bottlenose dolphins to chase away predators such as sharks (Johnson and Herzing, 2015). They are able to do this by their aggressive swimming as well as being able to outnumber the shark (Johnson and Herzing, 2015).

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Posted online: 2015

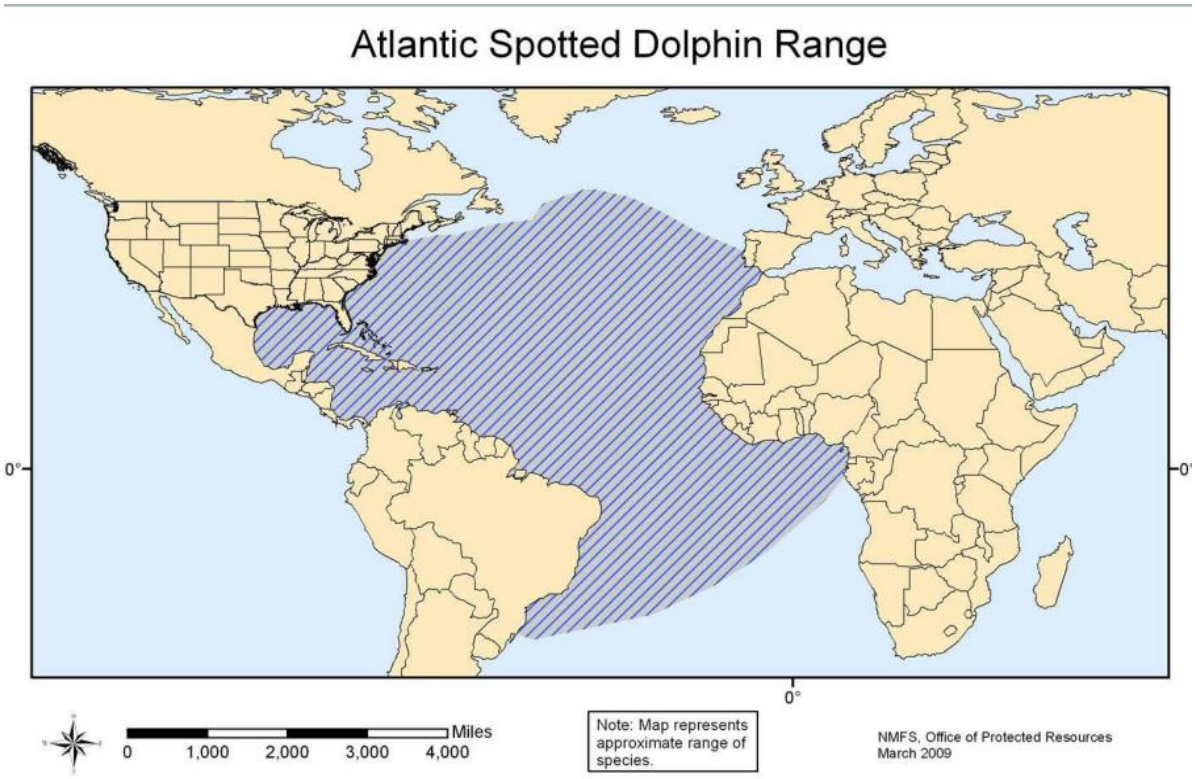

Fig. 2. Atlantic spotted dolphin geographic location.

[http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/spotteddolphin_atlantic.htm, downloaded 24 October 2015]

Fig. 3. A pod of Atlantic spotted dolphins.

[http://cdn1.arkive.org/media/24/2407FFDC-1683-4F23-BA9E-35DF567B9FA0/Presentation.Large/Atlantic-spotted-dolphin-pod.jpg, downloaded 24 October 2015]

Fig. 4. A pod of Atlantic spotted dolphins foraging for food on the sea floor.

[http://www.dolphindreamteam.com/dolphins/dolphins.html, downloaded 3 November 2015]

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