

## *Pseudorca crassidens* (False Killer Whale)

Family: Delphinidae (Oceanic Dolphins and Killer Whales)

Order: Cetacea (Whales and Dolphins)

Class: Mammalia (Mammals)



**Fig. 1.** False killer whale, *Pseudorca crassidens*.

[<http://ocean.si.edu/ocean-photos/killer-whale-imposter>, downloaded 31 October 2015]

**TRAITS.** *Pseudorca crassidens* is at the upper size range within its family (Delphinidae); males can be as much as 6.1m and females 4.9m in head and body length (Nowak, 1999). Both sexes weigh in at around 700kg (NOAA Fisheries, 2013) although they can reach a maximum weight of 1360kg (Nowak, 1999). Newly born offspring are typically no longer than 1.8m and are only a fraction of an adult's weight (Leatherwood, 1988). The false killer whale has a bulb or melon feature on its forehead (Fig. 1) which is slightly larger in males, and a narrow head which tapers into its slightly elongated and rounded snout. The jaws of *P. crassidens* hold 8-11 pairs of thick teeth and have an overhang, with the upper jaw protruding forward past the lower jaw. The thin sickle shaped dorsal fin of the false killer whale is also slightly tapered and can measure as much as 40cm tall (Leatherwood, 1988; Nowak, 1999). The pectoral flippers have a characteristic

shape unique in its family, with a bulge on the front edge. Sexual dimorphism also occurs in the skull with size variation between male and female which measure 58-65cm and 55-59cm respectively. The species is uniform in colour typically being black with a lighter shade on its ventral side which may include white tinges. The head of the false killer whale also appears lighter on some individuals with dark grey areas near its head (Nowak, 1999).

**ECOLOGY.** *Pseudorca crassidens* is very well distributed throughout temperate and tropical seas, usually in waters 1000m and deeper. They are known to have been observed around Hawaii, Australia, New Zealand, South Africa, The Philippines, Japan, Argentina, Peru, Malaysia, the coasts of Maryland and British Columbia as well as the Yellow, Red and Mediterranean Seas (Fig. 2) (NOAA Fisheries, 2013). The carnivorous mammal feeds mostly on squid and fish but will feed on young dolphins, seals and sea lions should the opportunity arise (NOAA Fisheries, 2013). Hunting is carried out at both daylight and at night (Stacey et al., 1994). The false killer whale engages in group stranding, and has been observed associating with bottlenose dolphins in particular (Baird, 2002). The estimated lifespan of the false killer whale in the wild for male and female is 57.5 and 62.5 years, respectively (Stacey et al., 1994).

**SOCIAL ORGANIZATION.** The false killer whale is a very social animal that prefers to spend its time in sexually diverse groups sometimes as large as 500 individuals (Leatherwood, 1988), although smaller groups of 10-20 individuals appear more commonly (NOAA Fisheries, 2013). Stranding of up to 835 individuals has been observed at one occasion, this however has not been repeated since at a scale this large (Leatherwood, 1988). The animal does not appear territorial but rather very social; an individual observed in captivity formed close interspecies bonds with various dolphins and associated with humans quite readily. In captivity and in the wild, they have been observed swimming in the bow waves created by ships as well as associating with other species of dolphins in the wild in order to increase their foraging range (Nowak, 1999; Leatherwood, 1988; Odell and McClune, 1999). The false killer whale has no set home range and moves freely throughout temperate and tropical regions where they forage in subgroups usually consisting of 2-6 members, of the initial larger pod (Nowak, 1999). Once weaned the young calf of the false killer whale usually doesn't show any dispersal from the pod of its mother and remains within the same social group (NOAA Fisheries, 2013).

**ACTIVITY.** Very little is known about the false killer whale's activity budget while in the wild. Time spent resting is unknown. It is suspected that while the animal hunts both at day and night, it does not persist throughout the entirety of the night (Nowak, 1999). Individuals are most visible and easily studied while they are stranding and no other information regarding time spent in the wild is known as the animal has been recorded diving to as much as 230m (Baird, 2002).

**FORAGING BEHAVIOUR.** Food sharing has been observed during foraging with offspring as well as other individuals of the group. These agile creatures gain high speeds then leap completely out of the water in order to grab prey (Fig. 3) (NOAA Fisheries, 2013). The false killer whale has been observed conducting a rare act for the order Cetacea; manipulating food (Watson, 1981). They shake the captured prey until both the head and intestines of the captured animal are removed. Using their teeth they remove the skin before eating, some instances has shown mothers to clasp the fish between their jaws and allowing their calf to feed on it (Watson, 1981). *Pseudorca crassidens* is known widely to steal the catch of fishermen from their lines and

even to raid fisheries which sometimes lead to accidental capture and death of the false killer whale by tuna fisheries in the eastern Pacific (Nowak, 1999).

**COMMUNICATION.** Vocalization is the only form of communication researched adequately in relation to *P. crassidens*, although it is likely to use tactile, auditory, ultrasound and visual cues as channels of perception. The range of calls made by the false killer whale is quite diverse and is used to communicate between individuals as well as with groups. Audiograms have indicated that the animal can hear a wide range of frequencies from 2-115 kHz and are particularly keen to hearing frequencies in the echolocation range of 32-70 kHz with a preferred frequency of 28 kHz. The preferred frequency is quite similar to the sounds made by the false killer whale's closest known associate, the bottlenose dolphin (Stacey et al., 1994). The sounds made by the false killer whale extend past pulses of echolocation frequencies. They use a range of whistles and squeals which can be heard at an estimated 200m distance while retaining the ability to distinguish the sound and its message (Watson, 1981). The animal is suspected to use its echolocation abilities as an extension of its visual capacity which in itself might be quite poor. In a study of the animal in captivity through vocalization alone the animal was able to identify a steel sphere filled with water only 7.5cm wide without the use of visual perception (Stacey et al., 1994).

**SEXUAL BEHAVIOUR.** The false killer whale is suspected to be using a polygynandrous or promiscuous mating systems where any member of a single sex can breed with any member of the opposing sex (Animal Diversity Web, 2015). *Pseudorca crassidens* can breed throughout the year without dependence on any season (Jefferson et al., 1993) although there is a peak in December and January which is followed again by another peak in March (Nowak, 1999). The gestation period of the animal is 11-15.5 months and only a single live offspring is produced which is cared for exclusively by the female. Like other dolphins, female false killer whales continuously ovulate until conception occurs. Sexual maturity occurs at 8-11 years in females and 8-10 years in males; females are not reproductively active beyond 45 years old (Nowak, 1999). After giving birth females do not breed for about 7 years afterwards (Animal Diversity Web, 2015). This species has been known to mate with *Tursiops truncatus* (common bottlenose dolphin), to produce a reproductively viable hybrid offspring referred to as a wholphin (Wikipedia, 2015).

**JUVENILE BEHAVIOUR.** The typical size of a new-born calf is generally 1.6-2m long. New-borns are able to swim very quickly after birth. Its lactation period goes on for 18-24 months after which it is cared for, fed, protected and taught by its mother. The calf may most likely remain with its mother's social group after maturation (Nowak, 1999).

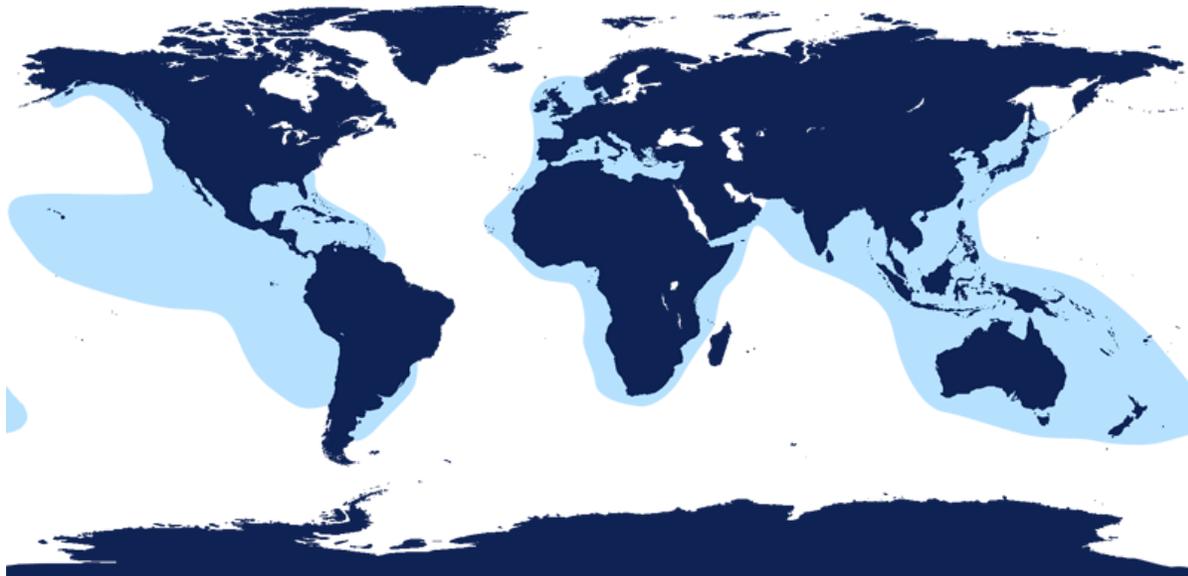
**ANTI-PREDATOR BEHAVIOUR.** In the wild the false killer whale has no known natural predators other than modern man (Nowak, 1999). Humans actively hunt the species in order to reduce their thievery in certain fisheries in Hawaii (NOAA Fisheries, 2013). A smaller number of the animal's population is hunted as food in Japan and the West Indies (NOAA Fisheries, 2013). No anti-predation behaviours have been researched or documented for the false killer whale although it has adapted very well as a display animal living in captivity in Japan and the United States of America (Leatherwood, 1988).

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**Fig. 2.** False killer whale's distribution represented by pale blue.

[[http://cetuc.ucsd.edu/voicesinthesea\\_org/images/species/speciesRangeMaps/dolphin/rangeMap\\_falseKillerWhaleL](http://cetuc.ucsd.edu/voicesinthesea_org/images/species/speciesRangeMaps/dolphin/rangeMap_falseKillerWhaleL)  
G.png, downloaded 5 November 2015]



**Fig. 3.** *Pseudorca crassidens* breaking the water's surface to catch its prey (dolphinfish).

[[http://www.cascadiaresearch.org/robin/Pewithmahi\\_DJMs.jpg](http://www.cascadiaresearch.org/robin/Pewithmahi_DJMs.jpg), downloaded 5 November 2015]

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