Meet the Narwhal

(Linnaeus, 1758)[12]

Credit: Danielle Hall, 2017.

Classification and Taxonomy

Class: Mammalia
Order: Cetacea, but more recently Cetartiodactyla[12]
Suborder: Odontoceti
Family: Monodontidae
Genus/Species: *Monodon monoceros*

Common Names: Corpse Whale, Narwhal, Narwhale, Unicorn Whale, Moon Whale, Polar Whale.

Conservation: IUCN Species of Least Concern (2017) & CITES Appendix II.[12]

Evolutionary History

The Monodontidae fossil record dates to as early as the late Miocene. These extinct monodontids were found in much warmer latitudes[24] including off the coast of Peru[11], and it was not until the early Pliocene that they began migrating towards the North Atlantic[11]. Today there are only two living species[8,13] in the Monodontidae family: Narwhals *(Monodon Monoceros)* and Belugas (*Delphinapterus leucas*)[12]. These two living species are restricted to Artic waters, they lack dorsal fins[8], have broad rounded flippers[8], blunt bulbous heads[8], and have unique skeletal muscles[25] adapted for cold-water swimming and diving.

Distribution and Habitat

Credit: Lowry et al., IUCN Red List, 2017.

Anatomy/Morphology

Weight: 3,500 to 4,200 pounds (1600-1900 kg) in males, and 2,000 to 3,400 pounds (900-1550 kg) in females.[2,22,27]
Length: 16.4 to 17.7 feet (5-5.4 m) in males, and 13.1 to 16.1 feet (4-4.9 m) in females.[2,22,27]
Appearance:* Adults have black[6] and brown speckles throughout the top of their body and a lighter underside[10]. The head, neck, fluke, and flipper edges are black[15]. They develop white patches[10] with age and seniors can be completely white[22]. They have a dorsal ridge[22] instead of a dorsal fin[22]. Males have a 10 foot (3 m) long[18,26] spiraled tusk[13] that erupts from the left lip[14].

Behavior

Narwhals are social animals that travel in pods of 5 to 20 individuals[14,15], but they migrate in much larger groups and during the winter[12] the populations around ice holes can number in the hundreds or thousands[14]. They are very vocal and use echolocation to communicate with each other and hunt[6], some have even speculated that their tusks play some role in echolocation[15]. They have frequently been observed swimming upside down[4], which can help them maneuver under sea ice and prevent injury to tusks.

Biology/Development

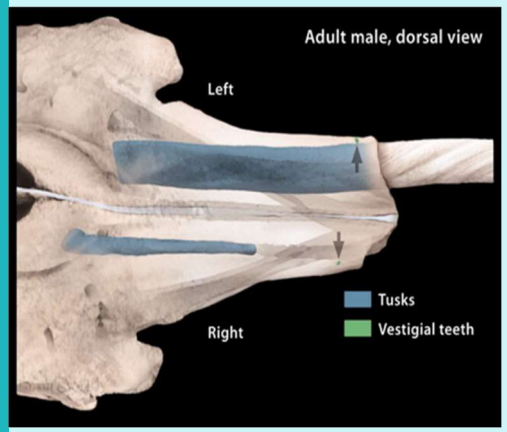
Lifespan: On average 50 years[12,16,22] up to 125[23].
Development: At birth calves are 5.2 feet (1.6 m) in length[23] and weigh 176 pounds (80 kg)[23]. They are born with a blotchy gray coloration[22]. Females sexually mature at 6 years[23] of age and 11.9 feet[6] (3.6m)[6], males mature later at 8 years[23] and 13.8 feet[6] (4.2 m)[6] in length.
Reproduction: Breeding occurs[12] during the winter[3] and spring.[6,22] Females give birth to a single calf every three years[6] in the spring[10] or summer[6,20] after a 14 to 16-month gestation[6,22] period and calves nurse for up to two years[6].

Distribution and Habitat

There are approximately 170,000[12] Narwhals worldwide in 12 distinct geographic populations[12], which can be found between 70°N and 85°N[15] in the Arctic waters[6,12] around Canada, Greenland, the Russian Federation, Svalbard, and Jan Mayen. The have high site fidelity[12] which means that populations follow the same 620-mile (1000 km)[9] two-month[12,15,22] migration routes between their summer and winter homes. They spend the winter under the deep-sea ice, feeding extensively at depths up to 1-mile (1500 m)[12], and they gather near shallow-water coastlines during the summer[9].

Tooth Morphology

Narwhals have two vestigial teeth[18] and two canine teeth;[18] the left canine[13,14] develops into the "tusk" in males and 15% of females[3,28], whereas the right canine usually remains embedded in the jaw[28]. This tusk is possibly a secondary sex characteristic[3,14,26] that serves a purpose in dominance and mate selection. More likely, the tusks which contain 10 million nerve endings[3,15,26] are used as sensory organs to detect temperature[3], salt concentration[3,17,23], and possibly for locating prey[21,28].Unerupted teeth in females and juveniles are also connected to the nervous system and thus can serve a sensory function[17].



Credit: (Nweeia et al., 2012).

Ecology

Diet: Narwhals feed predominantly during the winter months[9,12], diving at a rate of 2 m/s[15] to depths of (800-1,500 m)[9,15] to hunt for fish[5], squid, and shrimp[9]. Some examples of prey include Greenland halibut[12], artic cod[12], polar Cod[12], capelin[1,9], *Gonatus fabricii* squid[1,6], redfish[6], wolffish[9], and sometimes skate eggs[9].

Predators: Narwhals are among the dominant predators of the artic but they are still preyed upon by polar bears[1,13], orcas[11,15], Inuit people[13], walruses[14], and the Greenland shark[9,11]. This is especially true for entrapment events where narwhals become trapped by ice.[13,4]

References

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