



Physical Description:

Humpbacks are mid-sized whales that grow to 40 to 50 feet in length and weigh 30 to 40 tons. They belong to a subgroup of baleen whales that are streamlined in shape, called Rorquals, meaning 'red-throated'. They possess many ventral throat grooves, called gular grooves, that expand like an accordion when feeding, exposing the pink or red skin underneath. Humpbacks have 20 to 50 of these grooves. They have many round knobs on the head called tubercles, each of which is a hair follicle, and they carry a species of barnacle that is specific only to humpback whales. Their pectoral fins are 1/3 the length of the body – the longest of any whale. They have a small dorsal fin located 2/3 of the way back and serrated tail flukes which measure up to 18 feet wide. When they 'sound,' also known as doing a deep dive, they generally have a large arch or hump to their back and expose their tail flukes.

Individual Identification:

Humpbacks are identified individually through photo identification of the underside of their tail flukes when sounding. Scientists group them by color patterns on the tail based on the percentage of black and white present.

Natural History:

Species Subtypes:

While they are considered a single species globally, humpbacks in the northern hemisphere are darker in color than those in the southern hemisphere. In the North Pacific the majority of whales have mostly dark flukes with little or no white pigmentation; in the southern hemisphere most flukes are white with little to no dark pigmentation. In the North Pacific, there are several feeding areas of humpbacks:

- ~ Russia - 100 to 700 whales
- ~ Aleutian Islands/Bering Sea – 6,000 to 14,000 whales
- ~ Gulf of Alaska – 3,000 to 5,000 whales
- ~ Southeast Alaska/Northern British Columbia area – 3,000 to 5,000 whales
- ~ California/Oregon – 1,400 to 1,700 whales
- ~ Washington/Southern British Columbia – 200 to 400 whales

Reproduction:

Humpbacks migrate to warmer waters in the winter months to mate and give birth to their young. Male humpback whales form competitive groups that fight for the right to be the escort to a female, with the hopes of mating with her. Males sing a very complex "song" in the mating grounds, but the purpose is unclear. Originally thought to be a method for attracting a mate, researchers have recently discovered that many singers are in pairs or groups of males so it may function in establishing status or social hierarchy. All male humpbacks within the same

ocean basin (ie the North Pacific) sing the same song but a song will be completely different in a different ocean basin. The song is constantly evolving and changing and all of the males seem to make the changes at the same time. The catalyst for a male changing a song may be another singer joining him. When the whales leave for their feeding areas in the spring, the males stop singing, and then pick up the song again the following winter when they return. While the song appears to be sung predominantly in the breeding grounds, some whales will begin singing and competing in the fall before leaving the feeding grounds. Other males may learn the song during that time and carry it with them to their respective breeding grounds in the winter, which may explain why males in different breeding grounds of the same ocean sing the same song.

Life Cycle:

The gestation for humpback whales is approximately one year. They mate in their warm breeding grounds during the winter months, and then return the following year to give birth. Females generally give birth every 2 to 3 years. Calves are between 10 to 15 feet long at birth and weigh up to a ton. The calf remains with its mother through the feeding season during the summer, and then the pair will separate sometime the following winter. Humpbacks reach sexual maturity around 6 to 10 years old. Their lifespan is largely unknown but is thought to be about 30 to 50 years. However, this estimate is based on whaling data and there is reason to believe that the average lifespan for humpbacks, as well as many other whale species, may be much longer than originally thought.

Range:

Humpback whales are found in all oceans of the world and migrate each year between their feeding grounds in the summer and their breeding grounds in the winter. They tend to exhibit strong site fidelity to their maternal feeding grounds, while breeding areas are a little less distinct. Although many of their specific migration movements are unknown and there is interchange between different areas, some patterns do appear to be present for known animals in the North Pacific. The overall pattern seems to be the following:

- Humpbacks who summer in the lower latitude feeding areas (Russia, coastal US, southern British Columbia) generally migrate to the more southerly breeding grounds (Asia, mainland Mexico and Central America)

- Humpbacks who summer in the higher latitude feeding areas (Gulf of Alaska, southeast Alaska) generally migrate to the breeding grounds near Hawaii and the Revillagigedo islands off Mexico.

Within this pattern there are many smaller trends:

- ~ Whales who summer off Russia tend to migrate to Asian waters in the winter.
- ~ Breeding grounds for whales who feed in the Bering Sea/Aleutian Islands are largely unknown, but generally tend to be more in the Hawaii and Mexico waters than Asia.
- ~ The majority of whales from southeast Alaska/northern British Columbia migrate to Hawaii in the winter.
- ~ Whales from California and Oregon migrate to coastal Mexico and Central America.
- ~ Whales who winter off southern British Columbia and Washington display a mix with some individuals traveling to Mexico/Central America and others going to Hawaii.
- ~ There is no documentation of whales that feed in Alaska migrating to Central America.

So far it appears that whales who winter in Central America feed almost exclusively along the US west coast.

In recent years, humpbacks have been seen more often within the Salish Sea. These inland waters traditionally were an important feeding ground for humpbacks but the individuals were wiped out by whalers in years past. Because of site fidelity to feeding grounds, the knowledge of this area as a feeding ground was collectively lost. With the population now recovering, individuals from the southern British Columbia/Washington feeding population are now beginning to search for new feeding areas and the Salish Sea may once again become important.

Diet:

Humpback whales feed on a variety of prey items including krill and small fish such as herring and sand lance. They generally fast while migrating and when in their breeding grounds. When they are in their feeding areas they may eat up to a ton of food per day. They have a series of black baleen plates that grow to 30 inches in length. When feeding, their throat grooves expand, allowing them to take in extremely large volumes of water and food.

Some humpbacks exhibit a very unique feeding behavior called ‘bubble net feeding’ or ‘social foraging’. This has been documented in Alaska, northeastern North America, and the west coast of South America. These social groups can consist of anywhere from 2 to 30 individuals, with one whale being the designated ‘bubble blower’, and others performing specific roles such as creating feeding calls or flashing the white undersides of their pectoral fins to help herd fish toward the screen of bubbles. The whales then surface together with their mouths open and engulf the prey. The relationship between individuals involved in social foraging is unknown, but genetic studies have shown that they are not related to each other.

Status:

Humpback whales were heavily hunted by commercial whalers. In the north Pacific, the population may have been depleted to as few as 1,400 animals. The ICRW (International Convention for the Regulation of Whaling) began regulating commercial whaling in 1946, and in 1966 the IWC (International Whaling Commission) placed a moratorium on the commercial hunting of humpbacks, although some subsistence hunting still occurs in some countries. Humpbacks were given further protection in the United States in 1972 by the Marine Mammal Protection Act and in 1973 by the Endangered Species Act. The population in the north Pacific is now estimated at more than 20,000 individuals and currently, four out of the 14 distinct population segment (DPS)s recognized worldwide by NOAA are still protected as endangered, and one is listed as threatened. Although the Hawaii DPS is no longer listed as endangered or threatened, the Mexico DPS is listed as threatened.

Threats:

Current threats to humpback whales include habitat loss, loss of prey, vessel impacts including harassment and ship strikes, acoustic disturbance, entanglement in fishing gear, and harvesting in some countries, such as Greenland, as well as proposed harvesting by other countries (Japan).

Fun Facts:

- The scientific name of the humpback whale, *Megaptera novaeangliae*, means ‘long-winged New Englander’.
- The longest recorded migration of any mammal was previously undertaken by seven humpback whales, including one calf. Their voyage took them from Costa Rica to Antarctica, a journey that crossed the equator and encompassed 5,160 miles!

- The new record for the longest recorded mammal migration is also held by a Humpback. Recently a female travelled $\frac{1}{4}$ of the globe from Brazil to Madagascar, a distance of 10,000 miles!
- SPLASH (Structure of Populations, Levels of Abundance and Status of Humpbacks) was the largest international collaboration for whale research ever conducted. It involved over 50 research groups and 400 researchers in 10 countries. Scientists took over 18,000 fluke identification photographs, and over 6,000 tissue samples for genetic studies.
- Humpback whales were featured prominently in the movie Star Trek IV, which dealt with the future ramifications of whales becoming extinct in our oceans.

Sources:

- www.nmfs.noaa.gov
- www.alaskawhalefoundation.org
- www.cascadiaresearch.org
- SPLASH report
- Reviewed by Erin Falcone, Cascadia Research Collective
- Thank you to Uko Gorter for use of humpback whale graphic



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