



A publication by:

NORTHWEST WILDLIFE PRESERVATION SOCIETY

Orca

Orcinus orca



Photo credit: NOAA

By Ashley Good

Orcas, also known as killer whales are not really whales at all. In fact, they are actually the largest members of the dolphin family. The term 'orca' is derived from the Latin word *Orcinus*, meaning "of or belonging to the kingdom of the dead." Despite their name and reputation, orcas are not aggressive towards each other and do not attack humans. They live in all of the world's oceans and seas, from the Arctic to the Antarctica making them among the most widely distributed mammal.

Orcas have long been a part of legends and myths. For many years, they were not understood and were considered killing machines that would attack on a whim. Since the 1960's, scientists have taken a concentrated effort to learn more about these amazing animals. The stories and misconceptions of the past have been replaced by genuine research to understand these animals and help them. Orcas are now considered to be very complex and intelligent creatures.

Most of what we know about orcas has been through the research of scientists in the Northeast Pacific Ocean, off the coast of British Columbia and Washington State.

Characteristics

Orcas have the very distinctive counter-shading colouration of jet black backs and bright white fronts that makes them easy to identify. Counter-shading is a common and effective form of camouflage for sea life such as sharks, dolphins and whales who need to keep hidden from creatures looking down at them into the dark sea as well as up at them towards the light surface. They also have a conspicuous, elliptical white patch behind each eye and a gray marking in front of their dorsal fin known as a 'saddle patch'. Orcas have a crescent-shaped blowhole near the top of their head and their mouth is filled with around 80 large cone-shaped teeth.

Orcas have a powerful tail that moves up and down propelling them through the water, a triangular-shaped dorsal fin on their back, and large paddle-like flippers. They have excellent eyesight both under water and on the surface and a thick layer of blubber that keeps them warm in icy cold waters.

The male orca is larger than the female. The males are usually 6-8 meters (19-25 feet) in length and weigh up to 6,800 kgs (15,000 lbs). The male's dorsal fin is upright and can grow up to 1.8 meters (six feet) tall. The largest orcas ever recorded was a 10 metre (32 feet) long male, weighing 10,000 kgs (22,000 lbs).

The female orca, on average is smaller and weighs usually around (8,000 lbs), is 5 -7 meters (17-32 feet) long and weighs about 3,600 kgs (3,000-8,000 pounds). The female's dorsal fin grows only half as tall as the male's to about 0.9 meters (3 feet) tall and is slightly curved toward the back.

Baby orcas are called calves and are born tail first. At birth they are about 2.5 metres (8 feet) long and weigh about 200 kgs (440 lbs).

Life Cycle

Males reach maturity by 21 years of age. The average lifespan of a male is about 30-35 years. Females reach maturity by 15 years of age and have one calf at a time. An average female will give birth to 4 to 6 surviving offspring over a 25-year period. The average lifespan of female is about 50 years but some have been known to live for over 90 years.

Orcas have been known to mate throughout the year but a peak occurs in late summer far offshore in the relatively warm waters near the surface. The gestation period is somewhere between 16-17 months, with the majority of calves being born in the winter.

Orcas typically do not mate within their own pod and do not leave their pod to stay with their mate. The mating whales will only stay together for a short time before separating to go back to swim with their pod meaning that the father does not help raise his offspring but will help raise the offspring of the female in his pod.

When the female gives birth, she helps her newborn swim to the surface for its first breath. Within a short time of birth, the calves can swim independently. Calves nurse for about a year before learning to catch their own food. Orcas do not generally leave their mothers - they swim with their family group for their entire life.

Habitat & Behaviour

Orcas can be found in all of the world's oceans and most of the seas. They can live in tropical and arctic waters, coastal and deep oceanic waters. However, their distribution is patchy with the majority of them living in cooler, continental shelf waters of mid to high-latitudes such as off the West Coast of British Columbia.

The orcas that are being studied in the BC, Washington State, and Alaskan coastal areas belong to two main groups, the residents and the transients. These two groups live in the same waters yet they never interact. It is still believed the two groups are physically capable of inter-breeding, however, genetic research has shown that this probably hasn't happened for thousands of years.

Resident orcas have a strict, matriarchal social structure linked through the genealogy of the mothers. They are very vocal and tend to form large pods of 5 to 25 animals. Their pods generally stay in the same area during the summer months, with a range of about 400 kilometres (250 miles) along the coast. They are seen frequently during the summer as they often swim along the shore to feed on fish such as salmon and herring. In the winter most residents swim further offshore.

Transients have a looser social structure and tend to form smaller pods (1-7 individuals). They do not swim near the coast as often, maintaining a roaming distance as far as 1,448 kilometres (900 miles) from the land. They tend to hunt for larger prey with a diet based mostly on other marine mammals such as seals and sea lions. Because their prey have ears and can hear them, transients vocalize far less frequently than residents do. These two groupings of pods have very different hunting styles due to the type of prey each pod hunts.

Orcas hunt strategically within their pod with various members working as a team to trap the prey. For instance, transients have been known to swim up to one side of an exposed rock where seals or sea lions are resting in order to scare them into jumping into the water on the other side where another transient is waiting in silence. Transients typically share their

catch where as sharing has only been observed between a mother and her calf within the resident communities. An adult orca can eat up to 200 kg (440 pounds) of food per day.

Orcas do not make seasonal migrations, but may travel hundreds of miles in search of food. The record speed for an orca was 55km/h (34 mph) making them among the fastest marine mammal.

There are two categories of noises made by an orca; echolocation and vocalizations.

Many whales, porpoises, and dolphins use echolocation (sonar) to obtain information about their surroundings. A rapid, high-frequency, sonar click is produced that echoes off objects in the whale's path. The orca can then interpret that echo to "see" their surroundings. This behaviour is very advantageous as it means they can "see" their surroundings clearly day or night and in clear or murky water.

Vocalizations are most common for the residents. Each resident pod has its own unique set of underwater communication calls known as their dialect. The calls are made by repeating patters of a whistles, squeals, squawks, and screams and are used for social communication.

Resident orca behaviour has been divided into four classifications: travelling, resting, foraging, and socializing.

Travelling: Characterized by swimming in one direction at an average speed of 5 knots. Residents are usually quite vocal and often surface and dive in unison with other members of their pod.

Resting: Resting is a orca's version of sleep. They cannot sleep like humans do because they need to be at least semi-conscious in order to swim to the surface to breathe. They accomplish this like other dolphin species by taking turns turning off each side of their brain. They use the "awake" side to continue swimming and breathing while allowing the "asleep" side to rest and then they switch. Resting behaviour is easily identifiable as the orcas slow down, travelling at less than 2 knots. Frequently, the entire pod will clump closely together with young surrounding their mothers and they will all rest at the same time. It is beautiful to watch as all the pod members, which can be over 20 individuals, surface in unison, taking a few breaths before diving underwater for 3-5 minutes. They are generally silent while resting. Periods of resting can last anywhere from less than an hour to over 7 hours with an average duration of about 2 hours. It has been estimated that these animals spend about 13% of their time resting.

Foraging: The most common of orca behaviour is foraging which encompasses the time spent eating or looking for food. The orcas will spread out to cover a larger area but remain travelling in the same general direction with the other members of the pod. Echolocation clicks can often be heard and residents tend to vocalize frequently where as the transients are silent until they catch their prey after which the successful pod of transients produces quite a bit of noise in apparent celebration. While the duration of this behaviour varies considerably depending on the availability of food, the orca spends an estimated 65% of its time foraging.

Socializing: Socializing is used to describe the physical interactions and displays of the orca. A whole pod can socialize simultaneously or a small group may decide to socialize while others forage or rest. Not surprisingly, socializing probably represents a form of play and tends to be more vigorous and frequent for the juveniles than for the mature animals.

The following are examples of common socializing behaviours:

- **Spyhopping:** The orca comes to the surface bringing its head completely out of the water. This behaviour is for scanning the shoreline for prey, keeping in contact with other orca, or checking for boats or other objects on the water's surface.
- **Breeching:** The orca leaps out of the water and lands with an enormous splash. This behaviour may be used to surprise prey or for fun.
- **Lobtailing:** The orca slaps its powerful tail against the surface of the water the function of which may be to scare the salmon below into grouping closer together to facilitate foraging.
- **Beach Rubbing:** Some orcas, British Columbia's northern resident pods in particular, have been know to rub their body on small smooth pebbles on beaches. The exact purpose of which has not been determined but researchers have two main guesses; the removal of skin parasites and the orcas like a good back massage as much as we do.

- Logging: The orca rises to the surface of the water and floats motionless. This behaviour may simply be a way of lounging and relaxing.

Threats

The only natural predators orcas face are great white sharks and even so they only pose a threat to the calves.

Until the 1980s, orcas were hunted commercially for their meat and oil. There was also widespread fear amongst fisherman that they were decimating their fish stocks and so killing them was actually encouraged in some areas. However, since the 1980s Canada and the United States have implemented laws to protect these great mammals. Other countries still engage in whale hunting, but the hunters must follow government restrictions.

Other significant threats include pollution, chemical contamination, boat strikes and animals being caught in nets and fishing lines. Unfortunately the orca is among the most contaminated marine mammal in the world. Being at the top of the food chain, chemicals build up in their systems. Consuming large amounts of contaminated food leads to PCB and synthetic chemical bio-accumulation in their blubber. The effects of this contamination can be a weakened immune system and impaired reproductive capacity.

In addition, the degradation of spawning habitats and over fishing has greatly decreased their food supply.

What We Can Do To Help

- Dispose of toxic substances such as antifreeze, batteries, and paint responsibly. Municipalities usually provide special disposal facilities for these types of things, as putting them down drains can be extremely toxic as many cities, including Victoria and Vancouver, only minimally treat their sewage before releasing the effluents into the water where the orcas swim.
- Go to see orcas in the wild. An orca in the wild lives on average 10 times longer than those in captivity.
- If going whale watching, make sure to go with an accredited commercial tour whose operators follow the regulations in place which minimize disturbance to these marine mammals.
- If you come across whales while boating, stay at least 100 metres (330 feet) away approaching them from the side as opposed to head on or from behind. Keep noise levels down and limit the time spent observing them.
- Support fish conservation and the protection of fish habitats

Other Interesting Facts

--- Most of the orcas currently living in captivity are descendants of those that were taken from the northeast Pacific resident populations in the 1960s and '70s. Orcas should no longer need to be removed from the wild.

--- orcas are cetaceans, marine mammals that also include other dolphins, porpoises and whales.

Where & When to view the Orca

In North America, orcas are frequently spotted in the summer months off the coast of British Columbia and Washington. Because of this, plenty of commercial whale watching operations can be found in Victoria and Vancouver, British Columbia as well as a few operating out of Seattle, Washington.

Bibliography

Web Resources:

http://www.nationalgeographic.com/kids/creature_feature/0105/orcas2.html

<http://www.orcanetwork.org/>

<http://www.wdcs.org/>

<http://www.raincoastresearch.org/orca.htm>

<http://www.kidsplanet.org/factsheets/orca.html>

http://www.npca.org/marine_and_coastal/marine_wildlife/orca.asp

<http://www.bbc.co.uk/nature/wildfacts/factfiles/91.shtml>

<http://whales.gn.apc.org/dolphin7.shtml>

Book references:

Carwardine, Mark, **Whales Dolphins and Porpoises**, 2000, Dorling Kindersley Publishing, Inc.

Ford, John, Graeme Ellis, Kenneth Balcomb, **Killer Whales**, 2000, UBC Press.

Gordon, David G. & Chuck Flaherty, **Field Guide to the Orca**, 1990, Sasquatch Books.

Hand, Douglas, **Gone Whaling: A search for Orcas in Northwest Waters**, 1994, Simon & Schuster.

Heimlich, Sara & James Boran, **Killer Whales**, 2001, Voyageur Press, Inc.