

Giant Pacific Octopus

Enteroctopus dofleini



Physical Description:

Giant Pacific octopuses belong to the class Cephalopod which means head foot. Cephalopods have arms, move by expelling water through siphons, have highly developed eyes and squirt ink to escape from predators. They can change their color and texture at will by using tiny pigment sacs called chromatophores. They do this to hide from predators or to match their background, and can even change half their body. In Giant Pacific octopuses, color can also be an indication of mood. Darker colors generally indicate irritation, red or orange indicates interest, and they are pale when they are asleep. The Giant Pacific is the largest octopus in the world, weighing an average of 90 pounds but sometimes weighing up to 150 pounds. The largest confirmed individual weighed 156 pounds. They have an arm span of up to 20 feet from tip to tip.

Intelligence:

Octopuses have the most complex brains of the invertebrates and they are widely accepted as intelligent. They can open childproof containers, solve mazes, recognize individual faces, and play. They also display evidence of memory and learning. They are great escape artists and there are many stories of Giant Pacific octopuses escaping from tanks in aquariums and preying on animals in nearby tanks. Giant Pacifics have been reported as gentle and curious by many scuba divers who encounter them.

Natural History:

Life Cycle:

Giant Pacific octopuses only live 3 to 5 years. They hatch as fully formed tiny octopus from eggs the size of a grain of rice. They drift in the plankton for a few months, then descend to deeper waters and begin to grow very rapidly. Mating occurs at the end of their lives. Shortly after mating, the males enter a senescence period and die a short time later. Females live long enough for their eggs to hatch and then die soon after.

Reproduction:

They begin looking for mates as they near the end of their lives. This can be done through sight, chemical attractants and visits to previous dens. Both males and females may mate several times. When mating, the male transfers a sperm sac to the female's mantle which she can hold on to for up to several months. She can lay up to 100,000 eggs with the average being around 68,000. The eggs are attached in clusters to the ceiling of the den and the female remains with them, caring for them and aerating them with her siphon, until they hatch 5 to 7 months later. She does not feed during this time and becomes paler and weaker as the hatching time approaches. After the eggs hatch, she dies a short time later. Approximately 30,000 eggs will hatch and of those 1 to 2 will survive to adulthood.

Range and Habitat:

Giant Pacific octopuses prefer cold oxygen rich water in the North Pacific from California to the Aleutians and over to Japan and Korea. They can be found from the intertidal zone to depths of several hundred feet but seem to prefer shallow water up to 60 feet and soft sediment. They live in dens of varying size which change as the octopus grows. These dens can consist of shells when the animal is smaller, sitting upright and holding on to the shell to keep it closed, or rock crevices, holes in rocks, kelp holdfasts, or even concrete blocks or human trash. They generally prefer a den with a smaller opening. Most of their dens have one or more 'back doors' in addition to the primary entrance.

Diet:

They appear to be primarily nocturnal and have huge appetites, feeding on crustaceans, mollusks, and fish. They drill into shellfish with the use of a radula in addition to secreting salivary acid which helps to dissolve the shell. They can also use their hard beak to chip enough of the shell away to make a hole big enough for venom to enter. They eat the soft parts of the prey and create middens of shells outside their dens. They are very efficient at converting food to octopus. They eat 2 – 4% of their body weight each day and gain 1 – 2% daily, which is equivalent to a 150 pound person gaining 3 pounds per day.

Status:

The Giant Pacific octopus is not currently listed as endangered or threatened in the United States or Canada or with the IUCN. Population numbers are not well known; however genetic testing on populations from Oregon, Neah Bay, Puget Sound, and Vancouver Island shows the genetic diversity to be normal and what would be expected for a population without a genetic bottleneck.

Threats:

Threats to the Giant Pacific octopus include predation, contaminants, recreational harvest, fisheries bycatch, and climate change.

Fun Facts:

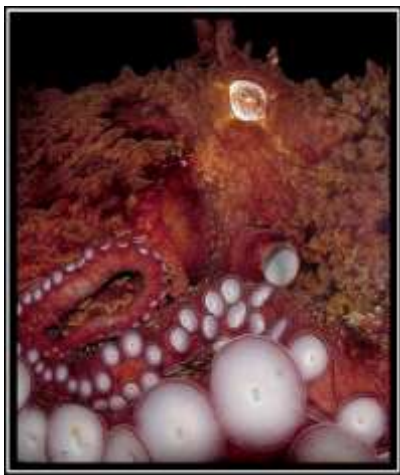
- The plural of octopus is octopuses, not octopi!
- The only hard part on an octopus is its beak. Therefore it can squeeze its body into anything the beak can fit through.
- Giant Pacific octopuses have been known to crawl out of the water to move over rock jetties.
- The third right arm of a male octopus is shorter than the left and has fewer suckers on the tip. He uses this arm to pass a sperm sac to the female when mating.
- In 2013 the killing of a known octopus off Alki Point created a public outcry. In response to petitions, Washington Department of Wildlife created a Citizens Advisory Committee which included the Seattle Aquarium, Northwest Straits Commission, National Marine Fisheries Service, Sea Doc Society and REEF, in addition to divers and sport fishers. The advisory group created seven new protected sites in Puget Sound and Deception Pass, preventing the harvest of Giant Pacific Octopus in those areas.
- Seattle Aquarium volunteer Drew Collins created a wonderful video about the life cycle of the Giant Pacific Octopus. You can access it at youtube under 'Octopus Life, Death and Birth at Three Tree Point.'

Sources:

Presentation by Shawn Larson, Curator of Conservation Research Seattle Aquarium

www.seattleaquarium.org

Octopus: The Ocean's Intelligent Invertebrate. Jennifer A. Mather, Roland C. Anderson, and James B. Wood.



Photos courtesy of the
Seattle Aquarium

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