Life History of the Dungeness Crab

Dungeness crabs are found to some extent in nearly all Oregon estuaries and out to depths of 180 fathoms (1,080 ft) off shore. However, the majority of ocean crabs will be found in 50 fathoms (300 feet) of water or less. Crabs are carnivorous, commonly eating small shrimps, clams, smaller crabs, worms, snails, fish, as well as most any other animal flesh. Adult and juvenile crabs are preyed upon by fishes and octopus.

In Oregon, most Dungeness crabs mate during the months of April through June and the females become egg-bearing or "berried" during October and November. The eggs (0.7 to 2.5 million per female) are attached to the broad flap on the underside of the female until they hatch during the winter months. The resultant larvae are free swimming for three to five months, depending upon water temperature. During this free swimming period, Dungeness crab larvae (Zoeae) are preyed upon by birds, whales, and many species of fish. The distribution of zoeae extends from within estuaries to far offshore, depending on a variety of factors including depth, temperature, salinity, and ocean currents. When the last free swimming stage, called a megalops, sheds its shell and settles to the ocean floor, it looks like a tiny crab about half the size of a dime (about ¼ inch).

Crabs are enclosed in a hard shell or exoskeleton. In order to grow, they must periodically shed this shell. A crab will molt about six times during each of its first two years of life. Once a Dungeness crab reaches about 4 inches in width, they are a mature adult and typically molt only once per year and increase is size from 1 to 1 $^{1}/_{3}$ inches in width. Two major molt cycles occur along the Oregon coast. Starting in April, and peaking in May and June, female crabs will molt. It is at this time that mating between a hard-shelled male and a newly-molted female takes place. The males shed their shells later in July and August.

When a crab is ready to shed its shell, the top of the crab shell will separate from the bottom shell along a "splitting-line" (near the edge of the underside of the shell), the back raises up like a lid and the animal backs out of the old shell. When the crab sheds its shell, they leave behind remnants of all the hard parts. This includes the external covering of the legs, gills, eyestalks, and body. During this process, the crab grows by taking in water and expanding its new shell which is very soft and rubbery. Growth will continue for several hours after shedding. During this soft shell stage, crabs are very vulnerable so they will bury themselves in sand to hide from predators. The new shell will become somewhat firm in 48 hours, but will remain springy or flexible for several weeks. When crabs are in soft shelled stages, they generally have lower meat yield and poor marginal quality.

A crab's natural life span is about 8 - 10 years. Most crabs taken in the sport fishery are age 3, but are generally 4 or more years old by the time they reach 6 ¼ inches and can be harvested in the commercial fishery. The largest male Dungeness crab verified in Oregon was about ten inches, measured across the back just in front of the spines. Female crabs are considerably smaller, but have been measured up to about 7 inches. A male crab is mature at about 3 years of age and 5 ½ inches in size.

The yearly abundance of crabs fluctuates greatly, which is mainly related to fluctuating environmental conditions. Dungeness crabs move in and out of estuaries depending on conditions such as tide, food availability, and season. Tagging studies have shown that most crabs stay in a fairly small home range, but a small percentage make extensive migrations. The majority of Dungeness crabs will often leave estuaries during periods of heavy rainfall and run-off, and may not return again until salinity is again favorable. In addition, large tidal exchanges produce strong currents which cause crabs to bury themselves in the sand, becoming available to crabbing only during slack tides.

For more information about crabs and other shellfish visit the Oregon Department of Fish and Wildlife Marine Resources Program Shellfish Web site; www.dfw.state.or.us/MRP/shellfish.

LIFE OF A DUNGENESS CRAB