



University of Rhode Island

Marine Advisory Service
NOAA Sea Grant

UNDERSTAND HIM

HE'S AN OLD TIMER

Horseshoe Crab

LIMULUS POLYPHEMUS

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FACT SHEET

- 1) This is a crab that isn't a crab! It is distantly related to spiders and scorpions. To avoid confusion, let's call it by its correct name. Limulus polyphemus. (Pronounced Lim-u-lus poly-feem-us)
- 2) The Limulus is a "living fossil" whose origin dates back to Triassic times, almost 200 million years ago, a time when the first dinosaurs and primitive mammals appeared. Few other well-known animals can claim that record. It is not easy to be a living fossil. To apply for this category, the animal can only have, at most, a few close relatives. The body form should not have changed over the years. A true living fossil's family tree must be tens, or preferably hundreds, of millions of years old.
- 3) Its tail is NOT a weapon. The animal almost never carries it in an upright position so there is little chance that people might step on the upright tail. This tail, or telson, serves one real purpose: to assist the animal in turning over should a wave tip it on its back.
- 4) Limulus is found along the Atlantic coast, spending summers in the shallow coastal waters and winters offshore in the mud. They usually walk along the bottom, feeding on sea worms and young clams. Because of this diet, professional clam diggers have claimed that the Limulus can destroy hundreds of clams as they feed. However, it has fed this way for thousands of years and we still have clams.
- 5) Limulus can reach maturity in nine to eleven years. At maturity the female is larger than the male. This is one way you can tell them apart.
- 6) Because Limulus has a hard outer shell (called an exoskeleton), it has to shed (molt) its shell periodically in order to grow. Many of the "dead" Limuli you find on the beach are not dead, but the castoff shells of molted Limuli. Once a Limulus sheds its old shell, it has a new, soft one which hardens in about twelve hours.

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- 7) Limulus has four eyes. Two small, simple eyes up forward and two larger, compound eyes (much like a fly's eyes) on either side of the shell.
- 8) To breathe, the Limulus has "gill books." Turn one over and take a look at these structures which do much the same things as your lungs. Five in number, each gill book contains one hundred "leaves" resembling parchment paper. The total surface area is large enough to permit the exchange of oxygen and carbon dioxide. In addition to permitting exchange of these gases, the gill books can sometimes be used by the animal as paddles while swimming upside down in the water.
- 9) Limulus is a true "blue blood" for, while human blood is red, the blood of this creature is a light blue. Human blood is red because it has a red pigment called hemoglobin which contains iron. The Limulus blood contains copper rather than hemoglobin thus giving the blood its blue color. The animal's blood also contains fantastically sensitive chemicals used by researchers in discovering harmful bacteria called endotoxins, sometimes found in human blood. In short, the blood of this ancient animal might well save your life someday.
- 10) Limulus has one pair of feeding legs, four pairs of walking-feeding legs, and one longer pair of walking legs that shove the body forward.
- 11) ONE FINAL WORD...
This ancient animal is in danger of becoming extinct. Its numbers are being greatly reduced due to extensive use as eel bait, for blood research, and by fearful people who throw the animal high up on the beach, leaving it to die in the broiling sun. Spawning time is its most visible and vulnerable period. The females come ashore dragging the males in tandem. They fall prey to capture and needless death. If killed before the thousands of eggs can be laid and deposited in the sand, the population will continue to decrease. Perhaps these animals should be protected during the breeding season which occurs during the new moon in May and June.

Bibliography

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