

Ever wondered about animals that glow in the dark?

Vampire squids and scary anglerfish are just two examples.

By **Howard J. Bennett** October 17, 2016

When my kids were little, they loved chasing fireflies on warm summer nights. It was so much fun, they forgot that while they were trying to catch the flickering insects, hungry mosquitoes were trying to catch them!

The ability of living things to create light within their bodies is called bioluminescence. The technique is used for three main reasons: feeding, protection and communication. Most bioluminescent animals live in the ocean, but some, like fireflies, live on land.

Some bioluminescent animals produce the light themselves, while others have evolved a symbiotic (mutually beneficial) relationship with light-producing bacteria that live on the host animal.

Bioluminescence requires three ingredients: a molecule called luciferin, oxygen and the enzyme luciferase to speed up the reaction. When oxygen combines with luciferin, the reaction produces light. Most of the light produced by animals is greenish or bluish, although some generate yellow and red light.

Here are some of the animals that have this dazzling ability:

- The vampire squid is not a vampire. It got its name because the creature, which is about the size of a football, is reddish-black and has webbed tentacles that look like a cloak. The squid's body is covered with light-producing organs that it can turn off and on to attract prey. Instead of the black ink that other squids use to confuse predators, the vampire squid produces a cloud of bioluminescent mucus from its tentacles when threatened.
- Dinoflagellates are one-celled, microscopic organisms that can be found in both saltwater and freshwater. Many dinoflagellate species are bioluminescent and emit a blue-green light when subjected to mechanical disturbances such as waves, boats and swimmers. If you stand up in water populated with these organisms, a blue-green glow would flow over your

body, making you look like a being from another planet. One of the most famous places to see them is Bioluminescent Bay in Puerto Rico.

- Fireflies, also called lightning bugs, are not flies. Rather, they are members of the beetle family. Fireflies use bioluminescence to attract a mate and to warn predators that they aren't the safest things in the neighborhood to eat.
- Female anglerfish are scary-looking creatures with huge, pointy teeth that live in total darkness up to a mile below the surface of the ocean. They vary in length from eight inches to more than three feet and can weigh as much as 100 pounds. Anglerfish are named for the fleshy bioluminescent organ that's located above their head. The purpose of the organ is both to lure prey toward the fish and to signal males for mating.
- The New Zealand glowworm is a small insect that lives in caves and humid environments in New Zealand. The animal spends most of its life in its larval, or wormlike, stage. The glowing larvae spin silken threads that hang from the ceiling of caves to trap unsuspecting prey. If you visited a cave that was inhabited with these animals, it would look as if you were gazing at stars.
- Clusterwink snails live in the warm waters near Australia and grow to about an inch in length. When disturbed, the snail produces a bioluminescent glow that makes it look like a large, green lightbulb. The glow is thought to be a defensive mechanism that frightens approaching predators.

Although humans aren't bioluminescent, glow sticks can help you look like your favorite bioluminescent animal. They also help keep you safe when trick-or-treating on Halloween.

Bennett is a Washington pediatrician. His book "The Amazing Human Body" will be published next fall.

