

Deep sea oddities: bioluminescent organisms, how they're formed and why they're i...

[Environment](#), [Nature](#)



Bioluminescence is the term used to define the chemical that produces light energy within the body of an organism. For the reaction to take place organism must contain a molecule called luciferin, which then reacts with oxygen to produce light. According to scientists, there are different types of luciferin, and they vary depending on the animal hosting the reaction. Most organisms do also produce a catalyst by the name of Luciferase, which also helps in speeding the reaction in the organism's body. Bioluminescence can be expected at almost any time and in any region or depth of the sea.

Bioluminescence is most common in deep sea and marine life, but in our daily life application, the Firefly is considered a bioluminescent organism.

The glow worms, anglerfish, jellyfish and the octopus are the best-known species perceived to be bioluminescent. Fluorescent organisms are different from Bioluminescence organisms in that, in regular circumstances they wouldn't glow in complete darkness. According to UCSB scientist, fluorescent pigments only glow in the presence of an external light source. In some cases, animals consume bacteria or other bioluminescent organisms for them to gain the ability to light up. This is experienced by the Hawaiian bobtail squid that has special light organs that are utilized by bioluminescent bacteria within periods of its birth.

Bioluminescence is not just limited to the deep sea alone. A study in the Journal of Experimental Biology did found out that crabs can see in color. This is because crustaceans live in the deep seas where there is no sunlight penetration, making them sensitive to blue and ultraviolet light.

Animals produce light by depending on their immediate needs be it when searching for a meal or mate; also some organisms produce light in the deep seas when a ship or a boat passes. The Navy is currently researching on bioluminescent creatures on how they produce light when objects move through the ocean. The study suggests that these organisms could put people and projects rate risk by revealing the location of submarines or even Navy Seals when they are swimming around covertly.

Organisms use their light to bait-prey towards their mouths or even light up intensively so that they can see their meals better. Splitfin flashlight fish produce their light by the use of symbiotic bacteria. When living planktonic prey is detected in their surroundings, their light organs open up so that they can detect and feed on the prey.

Fireflies use their bioluminescent flashes to attract mates and warn predators of the toxins that they contain. Bioluminescence can also be used to help organisms camouflage with the use of counter-illuminations. The bottom side of the organisms contain photospheres that could match the light coming from the surface making it difficult to be noticed by predators. The male Caribbean ostracod, a tiny crustacean is said to use bioluminescent signals on its upper lips to charm females. The flashlight fish, angler fish, and the ponyfish are all thought to use their bioluminescent light to tell the variance between males and females.

Scientists in are in the process of designing a genetically modified tree that could be able to glimmer in the dark and act as a sustainable source of

street lighting in a project dubbed, The Glowing Tree Project. A company called BioPop is designing lamps by the use of bioluminescent phytoplankton and selling it to people. The lamp lights up when its contents are shaken to produce light.