

## Light emitting of deep sea creature

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A deep sea generally indicates area of sea of more than 200 meters of water depth. And there is a world of darkness which doesn't receive sunlight. Deep sea creature made mechanism as emission of light in the sun. in this presentation luminous role of sea creatures and its mechanism are explained.

First one is called "counter illumination". This is used to hide themselves from their enemies. It is taken by the creatures living in the deep sea called "twilight zone", which is not too deep.

Second one is for communication. The creatures don't reflect light like a creature in a shallow sea, produces and communicates. It's also used for mutual recognition and courtship.

Thirdly, the emission is used for predation. It can be the lure which attracts other species to be eaten by them. When the emission is used for propagation, the males seek the female's emission.

To occur the bioluminescence, a luminescence phenomenon caused by a chemical reaction between a luminescent substrate (luciferin) and a luminescent enzyme (luciferase) are necessary. And many deep-sea creatures have those.

To see the emission really happen we gathered Cypridina hilgendorffii. There are two in the center of the "cold sake sea water falling drop method" and the "weak electric current way shocking way" as a way to make a cormorant Miho barrel luminous intentionally.

First, let me explain about the "cold sake sea water falling drop method". They put ice in a laboratory dish including a cormorant Miho barrel. The cormorant Miho barrel suddenly changes in temperature, which was astonishing. It is done by hanging sea water by a syringe, emitting light. It's possible to repeat the experiment many times this way.

Next, I'd like to explain the "weak electric current way shocking way". This method makes the core of the two pencils a pole, putting it in a container, and allows 20 volts of electricity run momentarily and makes them shocked, including the cormorant Miho barrel in the container. Then in a moment, movement stopped and it emitted light. But a cormorant Miho barrel is failed by the electric current amount and the number of times, so this way the experiment may be made moderate. I knew that emission of light was the existence you should have for the creatures who live in the ocean. These are the results of the these experiments and investigations at the end. Light in the sun was different from the ground, which is reaches down the shallow sea. I thought many devices by the environment were clogged. A deep sea occupied approximately 80 percent of the marine area and it's often misunderstood. So I thought I'd like to also investigate other points of view.

By these experiments above, it is noticed that the emitting is necessary for the deep sea creatures. On the other hand, there are still many aspects which we haven't research; we need to check the deep sea creatures with our own eyes.

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