

## BIOLUMINESCENT LIFE NEW ISSUE

On 22 February 2018, the US Postal Service issued a pane of 20 “Forever” stamps with ten different designs depicting creatures that display bioluminescence. The ceremony took place at the Sunrise Theater in Fort Pierce, Florida.

The featured speaker was Dr. Edith A. Widder, an internationally renowned deep-sea explorer and founder of the scientific-based conservation nonprofit Ocean Research and Conservation Association (ORCA), where she is the senior scientist. She shared her research findings. All except one of the marine creatures shown on the new stamps reproduce photographs taken by Dr. Widder.

Bioluminescence is the production and emission of light by a living organism. It is not restricted to marine creatures, but also occurs in some fungi, bacteria, and terrestrial invertebrates such as fireflies.

It can serve several purposes including counter-illumination camouflage, mimicry of other animals, for example to lure prey, and signaling to other individuals of the same species, such as to attract mates.

The subjects of each stamp are not identified by species, therefore much of the following is based on our best-guess.

Counting left-to-right from top-to-bottom, the first stamp shows the Deep Sea Octopus (*Stauroteuthis syrtensis*) based on an ORCA photo by Dr. Widder. In the place of the usual suckers are rows of flashing photophores, which the octopus cannily uses to lure its prey to certain death, or to startle intruders.

The second stamp shows a top-down view of a Midwater Jellyfish (*Halicreas minimum*). These transparent jellies are found at depths up to 300 meters (984 feet) and grow to a diameter of only four centimeters (two inches).

The third stamp shows a deep-sea comb jelly (*Leucothea* sp.?). Comb jellies are Ctenophores and not actually classified as jellyfish. They come from a completely different phylum. Their tentacles do not contain stinging cells. They are found in coastal areas from the surface to a depth of 3,000 meters (9,840 feet).

For the fourth stamp, our resident Fungi expert provides these observations. Searching the web reveals tons of pictures for bioluminescent fungi, but none really strike me as picturing the fungus on the stamp. Two come close, but I have reservations. *Omphalotus olearius* and *Gerronema strombodes* both have similar shapes, but neither hymenium (spore-bearing structure) agrees well with the stamp. In addition, several chanterelles have a similar hymenium, but the stalks for these are significantly fatter. The image is from a phot by Taylor F. Lockwood.

The fifth stamp shows a Common Eastern Firefly (*Photinus pyralis*) based on a photo by Gail Shumway. It is the most common firefly species in North America. Both males and females have light organs on the underside of their abdomens. The organ cover three segments in the males, but only one segment in the females. The insects use these bioluminescent flashes to attract and respond to mates.



The sixth stamp depicts Bamboo Coral (*Keratoisis flexibilis*). When you rub against this deep-sea coral, it releases astonishing amounts of slime and lights up like a Christmas tree. The purpose of its bioluminescence is unknown.

The seventh stamp shows a marine worm (*Flota* sp.). These free-swimming worms are often seen near the deep seafloor at depths up to 1,500 meters (4,900 feet). They propel themselves by moving their bodies, parapodia, and spines. They emit a blue glow, but scientists are not sure how this helps them survive in the depths.

The eighth stamp shows an Atolla Jellyfish also called a Coronate Medusa (*Atolla wyvillei*). It is found in oceans worldwide. The deep red crown jellyfish has 20 tentacles and one long trailing tentacle thought to facilitate prey capture. Dr. Widder created a device based on the distress flashes of this creature that has been used successfully to lure rarely seen deep-sea animals for filming.

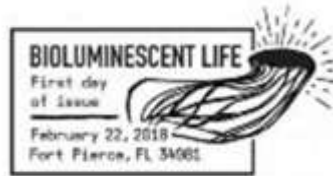
The ninth stamp shows a tiny marine worm (*Tomopteris* sp.) based on a photo by Steve Haddock. When disturbed, it erupts into a shower of angry sparks and unloads its eggs into the water before rapidly undulating away. What is unusual about this worm is that the sparks it shoots from its paddle-shaped swimming legs are golden yellow in color and not blue, like practically every other bioluminescent organism.

The tenth stamp shows a sea pen (*Umbellula* sp.). Sea pens are soft corals that get their common name because they look somewhat like quill pens. When disturbed, this particular species flashes light from its base to its head that changes color from green to blue as it flows up its stem.

Additional images in the margin show a transparent deep-sea comb jelly photographed by Gregory G. Dimijian, and the Firefly Squid photographed by Dante Fenolio.

The sheet designer was Derry Noyes, a USPS art director and former member of the Citizens' Stamp Advisory Committee.

The USPS provided two pictorial first day cancels for this issue. The black postmark is used to mark the majority of covers submitted by collectors. In addition to the issue title, date, and location, it has a drawing of a jellyfish with trailing tentacles. A digital color postmark that can be applied to certain types of envelopes depicts a swarm of fireflies in black and yellow.



Beginning with this issue, the USPS is extending its grace period for requesting first day cancels from 60 to 120 days. Collectors requesting first day cancels are encouraged to purchase and affix their own stamps. Covers should be addressed for return (a removable label is permitted) and mailed in a larger envelope addressed to: FDOI – Bioluminescent Life Stamps, USPS Stamp Fulfillment Services, 8300 NE Underground Drive, Suite 300, Kansas City, MO 64144-9900. Request must be postmarked by 22 June 2018.