LASER COMPONENTS®

Significantly Less By-catch in Fishing Nets with UV LEDs

Turtle Rescuers

Ancient Contemporaries

Turtles are considered one of the oldest living creatures on Earth. They developed during the Jurassic period approximately 200 million years ago and are, therefore, even older than other reptiles such as snakes and crocodiles. Today, biologists are familiar with 341 different types of land, sea, and fresh water turtles. Due to their proverbially long lifetime, turtles are considered to be particularly wise in many cultures. In Asian myths, they are commonly associated with the creation of the world.

The picture taken by Francis Pérez, a Spanish underwater photographer, of a sea turtle that got hopelessly caught in a fishing net went around the world. Every year, approximately 250,000 members of the same species experience the same fate.[1] These animals get caught in gillnets and end up as by-catch in commercial fisheries. Many of these nets are set up across long distances. Because turtles have to surface periodically to breathe, they often suffocate miserably.

A biological difference could save the lives of these reptiles: While many fish cannot see UV radiation, sea turtles' eyes are sensitive to long-wave UVA radiation.

Scientists at the University of Hawai'i have developed a method to significantly reduce the by-catch of turtles. In an experiment, UV-LEDs with a wavelength of 396 nm were applied to the nets at intervals of five meters. The result was immediately visible. The by-catch of sea turtles was reduced by approximately 40 percent. At the same time, the researchers noted that the amount of fish caught was not affected by the UV radiation. Economic objections do not appear to exist with this method. Experiments with green LEDs and other light sources led to similar results. In addition to acoustic signals that deter marine mammals, the LEDs could also soon be part of the so-called "intelligent fishing nets," which are designed to combine species protection and commercial fishing.

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[1] francisperez.es/world-press-photo-2017-prints/

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UVA LEDs: Tiny Lifesavers

You do not have to work wonders to save sea turtles from dangerous fishing nets. A few of LG Innotek's 3535 series UVA LEDs will do the trick. With their 3.5 mm x 3.5 mm SMD housing, they can be integrated into any installation without a problem and in a watertight packaging. With a lifetime of approximately 20,000 hours, they are suited for continuous application. The 3535 series UVA-LEDs are available in versions with normal (130°) or narrow fan angles (55° and 75°). Of course, our product range also includes other UVA models.

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