

CORAL REEF



There's a lot to discover in coral reefs at daytime. Amongst hard and soft coral you can find sponges, worms, starfish, sea urchins, mussels, slugs, snails, squids, octopuses, crab and fish in amazing colors, forms and sizes.

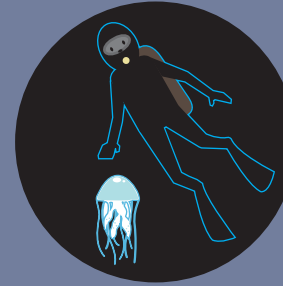
However, many things will escape your attention, until you take a closer look. For instance, a scorpionfish can merge into his surroundings by imitating the structure and color of a stone.



SCORPIONFISH

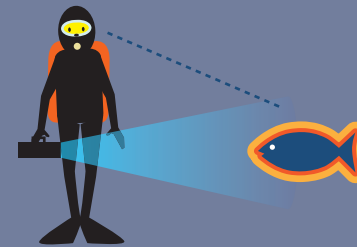
At night, underwater life can be observed in three ways:

Blackwater Diving: night diving without a torch. This way, bioluminescent organisms which produce their own light appear out of the dark.



Classical **night diving** with a torch: The organisms you see are limited to what is captured in the light cone of your torch, a very focused diving experience.

And this is the technique, by which our fluorescence photographs were taken: **Fluo Diving with blue light** and a **yellow filter**. This method makes fluorescent organisms visible, as several animals turn the emitted blue light into shades of lime-green, orange or red light. The yellow filter in front of the divers' mask and the camera absorbs the blue light. In this way only the pure fluorescence remains as a charming impression.



Although **biofluorescence** occurs in many different organisms, its biological function is less well researched.

We can't see the phenomenon during daytime because it is drowned out by the sheer brightness of the daylight.

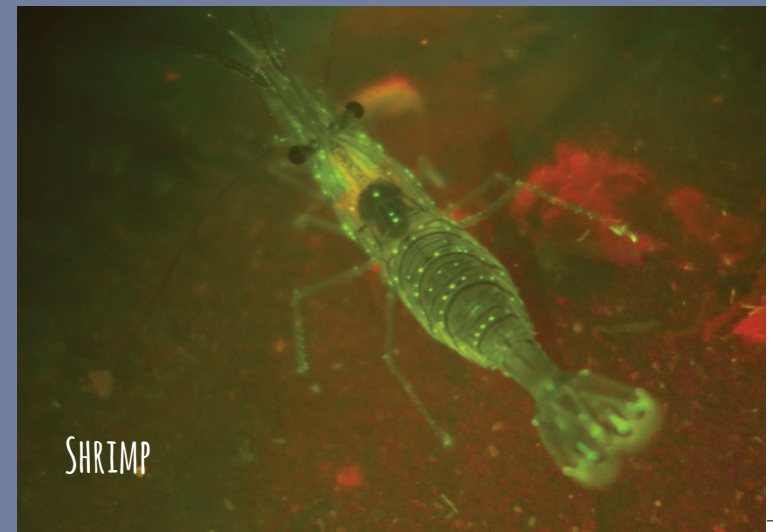
MAZE CORAL



For some years, **fluorescent proteins** are being applied as **bio-markers** to research molecular processes in living cells and tissues. Especially, red variants can be traced well into deep tissue, being used in brain research.

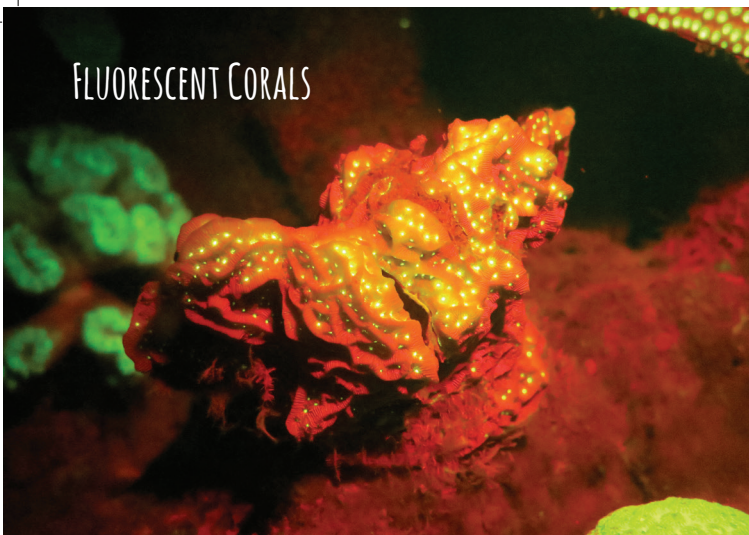
Glowing creatures can also be found in the North Sea and the Baltic Sea!

However, lower visibility creates a bigger challenge for the photographer. Anyway, a "local" follow-up project is under way...



SHRIMP

FLUORESCENT CORALS



The fluorescence of **corals** is an indicator for their vitality. It is generated by **fluorescent proteins**, which protect the corals in shallow water against UV-light. In deep water, the corals use their fluorescence to provide the micro algae that live in symbiosis with them with more light for their photosynthesis.

Some **fish** use fluorescence to expand the underwater color range. For example, a scorpionfish can show his fellow scorpionfish his presence and at the same time hide from predators, which can't detect red light.

FLUORESCENT SCORPIONFISH



Oceanographer, has developed his interest in photography to gain a surprising view on the fluorescence of marine animals.

MICHEL PIROTTON •



• DR. RUTH WINTERS

Biologist, has been fascinated by the marine world ever since her childhood. For a few years now, she dives into the diversity of underwater life herself.

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GLOWING IN CORAL REEFS

by fluorescent marine animals



Fluorescence Photography
from night dives