

# Photographing Fluorescent Corals

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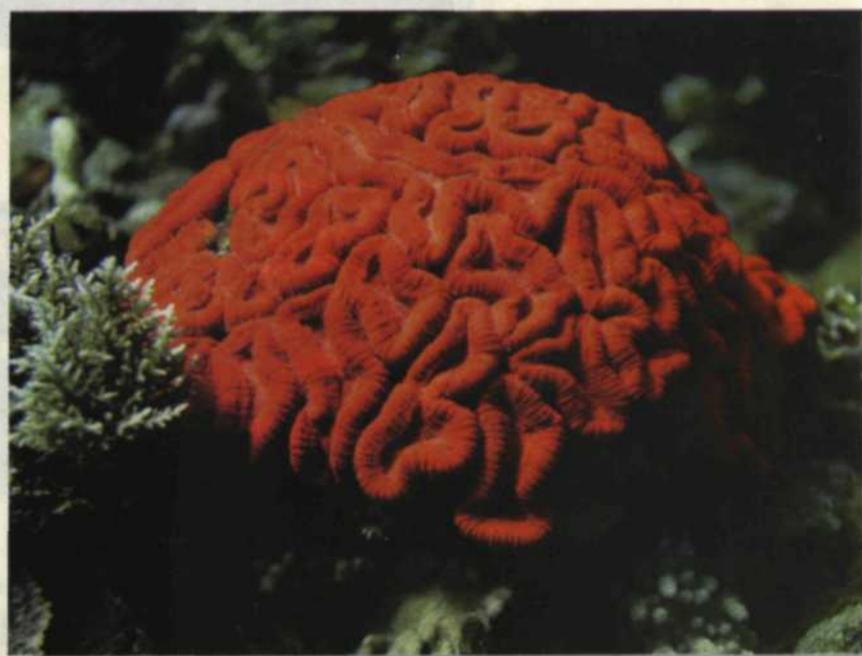
"If human eyes could see the fluorescence, then logic dictates we should be able to capture it on film."

**P**hotography plays a vital part of underwater scientific research. This visual documentation is necessary to bring the unknowns of the underwater world to all.

Until recently, underwater photography of Pacific corals, sponges and anemones that give off fluorescent light was difficult. Previous attempts to record images of these colorful animals required large, expensive, bulky equipment. A special glass filter was attached to the flash head so only ultraviolet light could pass. When the UV light passed through the filter it stuck to the subject, which converted it into visible light. A second filter was placed over the camera lens to block the UV light coming from the flash and only allowed the converted visible light through the camera filter. This may sound pretty simple, but it was really difficult to achieve the desired results. Most of the time the UV light was so reduced by plastic flash housings that the amount striking the sub-

ject was slight and the fluorescent light level was minimal.

Over the years many underwater photographers have tried to solve this problem with a variety of modifications of the original solution. Our first attempts were unsatisfactory, so we decided to try something different. Instead of modifying the solution, we went back to the original problem in search of a completely different solution. If our eyes could see the fluorescence, then logic dictates we should be able to capture it on film. We only had to identify the reasons why the human eye worked but the camera did not. First, the human eye is able to see in very low light. Second, when the image from the eye is sent to the brain, it balances



The ability to photograph fluorescent corals without washing out their unique colors is fairly simple with the right equipment and techniques.

the color in the scene. All we had to do was duplicate this process!

Thanks to new technologies, our seemingly impossible job is now feasible. Extensive research and development by all the film manufacturers has yielded high quality, fast films. Through experimentation we found the best film for the job was Fuji Super G 800, now called Superia 800. Because we used available light—no flash—this film's wide exposure latitude was necessary to capture the fluorescent colors. We tried various slide films but found they had too narrow an exposure latitude to properly capture the elusive fluorescent colors.

The technological advances of digital photography can be used as a substitute for the balance function of the human brain. Once the image is scanned into our computer, we open in an image editing program called Adobe Photoshop. There the auto balance function is used to extract the fluorescent data from the original color scanned image. When there is a white or gray object somewhere in the scene, the auto function works well. If there is no white or gray in the scene, we use the manual function to extract the data. If you are not familiar with the software's auto balance function, check out the help function, tutorial or, if all else fails, check the instruction manual! In any case, once the fluorescent colors are extracted, you can save the new image and output to an inkjet print or a film recorder for slide shows.

Since we first developed this method, we have tried super wide lenses, framers, and point and shoot cameras. They all work well. The best part is that you don't need any special camera equipment, just fast film and a computer. Remember, you will be shooting without a flash, so you need to use faster shutter speeds and wider apertures than normal. The difference is that now you will be getting pictures you have never gotten before. You will never again have to say, "You should have seen the colorful critters." You can now show them in bright, fluorescent colors. 🐟

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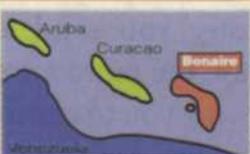
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