Fluoro fun

with The Backscatter Team

Fluorescence (often called “fluoro”) is a super fun way to get creative and weird with image making. Fluoro offers a unique and striking look that stands out from conventional images bringing a fresh and vivid twist to your work.

Fluorescence occurs when a subject absorbs light at a specific wavelength then emits light back as a different color. The result is an extremely vivid and neon look, which makes the subject appear completely differently than under white light. For example, some green plants or algae typically appear bright red when fluorescing. This is the same way a black light poster works when lit with the right kind of light. It’s easiest to see fluorescence in dark conditions with no ambient light, which is why fluoro photography and video are typically done at night.

Compared to shooting with normal white light, fluorescence transforms ordinary subjects making them appear otherworldly.

It is important to not confuse fluorescence with critters that “glow in the dark”, also known as bioluminescence. Fluorescence requires a specific type of light in order to be seen, while bioluminescence is a chemical reaction that generates light on its own, without any external light source. Think of it as the difference between a black light poster and a glow stick.

Shooting fluorescence is a fantastic creative outlet for both photo and video. The bold and vivid look makes ordinary subjects look captivating. This trippy effect gives you access to a brand new color palette that isn’t available with normal white light. The striking imagery created with fluorescence instantly makes it stand out from the crowd in a portfolio or competition.

Most importantly, shooting fluoro is good plain fun. You never know what might fluoresce, even some critters of the same species might fluoresce differently. You never know what kind of image you might capture!

You don’t even need a camera to enjoy hunting fluorescent critters, making it a perfect way for non-photographers to add a new, fun twist on night diving.

Keep in mind that not all things fluoresce, and discovering what does is half the fun!

Fluoro images are a bold way to create images using a completely different color palette.
Sony a9 III | Sony 90mm Lens | 1/1,600 | ISO 1,600 | ƒ20

You never know which subjects might fluoresce, making critter hunting more fun than ever.
Sony a9 III | Sony 90mm Lens | 1/320 | ISO 400 | ƒ16

With the Backscatter Fluorescence System, shooters of all skill levels can explore fluoro photography, using tools designed to capture bold, psychedelic fluorescence imagery. Here we will break down each component of Backscatter Fluorescence System and describe their specific job in capturing fluoro imagery.

Excitation Filters:

Excitation filters transform a normal flash or video light into a blue light, capable of both seeing and capturing fluorescence. The blue light emitted with the filter reacts with the subject causing it to glow. Blue light is safer to look at and more effective at producing fluorescence than UV light.

Yellow Barrier Filters:

Yellow barrier filters attach to ports, lenses, and filter mounting systems. Since yellow is the opposite of blue on the color wheel, the yellow barrier filter blocks out blue light, acting as a barrier. This way only the bright, neon fluorescence is visible, with no blue light in the image or video.

The Backscatter Yellow Barrier Filter Dive Mask makes finding subjects easier by blocking blue light, leaving only the glow of fluorescent critters.

Believe it or not, this fluoro seahorse image was shot during the day. This was made possible by the Sony a9 III's global shutter, which has no flash sync speed limits. The faster shutter speeds allow you to eliminate ambient light while still using settings suitable for fluorescence. Sony a9 III | Sony 90mm Lens | 1/1,250 | ISO 3,200 | ƒ11

Best Settings

To capture fluorescence images, we will need settings that will let in plenty of light to boost the fluoro effect. Here are settings and shooting tips that will help capture bold, high contrast fluoro images.

Use Close Focusing Lenses: Lenses with short working distances, such as macro lenses, will get your camera and lighting closer to the subject, creating a stronger fluoro effect.

Aperture: Use a more open aperture in the range of ƒ8-ƒ11. This will allow more light to reach the sensor and maintain a strong depth of field. Use these apertures for both photo and video.

Photography ISO Settings: ISO is largely dependent on your subject. Animals without eyes, such as corals and anemones, tend to have stronger fluorescence and can be captured using ISOs between 400-800. Subjects with eyes such as fish, shrimp, and nudibranchs tend to have a weaker fluoro effect, and ISOs between 1600-3200 are common. Stronger fluorescing subjects of either type can use lower ISO ranges than suggested.

White Balance: Set a fixed white balance of 5500K for consistent colors for both photo and video.

Video Shooting Tips: Shooting video requires higher ISOs and

Fluoro shooting requires higher ISOs and more open apertures than normally used when shooting traditional macro images. These settings help maximize the fluoro effect.
Sony a9 III | Sony 90mm Lens | 1/1,000 | ISO 3,200 | ƒ8

attention to shutter speed. Shooting at ISOs above 10,000 is not uncommon, as video lights are much less powerful than strobes. To let in more light, set frame rate to 30p and use a 360 degree shutter (shutter speed of 1/30).

Lighting Tips: Use the highest power levels on your flash and video light since excitation filters reduce light output from your flash and video light. Position your lighting close to your subject to further boost the fluoro effect.

Can You Shoot Fluoro During the Day?

Believe it or not, it is possible to shoot fluoro during the day. If the exposure settings listed above result in a black image without a flash, it is possible to capture fluoro photos. You will need to shoot in a darker environment, such as underneath a dock, in a swim-through, diving with limited visibility, or under a shadowed ledge.

Certain cameras make this even easier, such as the Sony a9 III and some advanced compact cameras. These cameras use a global shutter, which has no flash sync speed limit, meaning you can use extremely fast shutter speeds to knock out all ambient light, even during the day.

Keep in mind this only works for photos, not video.

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