

Strobes v Video Lights

by Jim Decker & Robin Dodd

One of the most common questions at Backscatter is whether you can use video lights instead of strobes for underwater photography. The straightforward answer is that a strobe will always be better when shooting photos. However, in some circumstances, you can use a video light instead. This article will explore everything underwater photographers need to know about the differences between these two types of lighting and how they work for underwater photography.

WHY YOU NEED LIGHTING

Before getting into the limitations and best uses of video lights, it's fundamental to understand why underwater photography requires a light source in the first place.

Highlight the Foreground Subject

The foreground subject is often the most critical part of the image, so getting plenty of light on it is vital to draw attention to it. Lighting the subject will also help separate it from the darker background, making it 'pop' more in the image.

Restore Lost Colors and Create Contrast

Light is absorbed and scattered as one descends underwater, losing color and contrast in photos. Red and orange wavelengths are absorbed more quickly, making underwater scenes appear

blue/cyan. Bringing a light source underwater will help restore the full spectrum of natural colors and enhance contrast.

WHY STROBES ARE BEST

Strobes Allow For Dark Backgrounds To Make Your Foreground Pop

Three camera exposure settings affect a photo's brightness: aperture, ISO, and shutter speed. Aperture and ISO affect the brightness of all light sources in the photo: ambient light, video light, and strobe light. Shutter speed, however, does not affect strobe light; it only affects constant light like the natural ambient or video lights. The flash fires faster than the camera's shutter speed, so it is not subject to the shutter speed.

With the aperture and ISO set, the shutter speed and strobe power can change independently, and neither setting will affect the other. If the strobe power does not change, but the shutter speed is



adjusted, there will be no visible difference in the brightness of the strobes. The only visible change is in the brightness of the ambient light. Conversely, the shutter speed can remain the same as the strobes change power, and the only effect on the image would be the brightness of the strobe-lit foreground subject; there would be no effect on the background ambient light.

Because of the relationship between these two



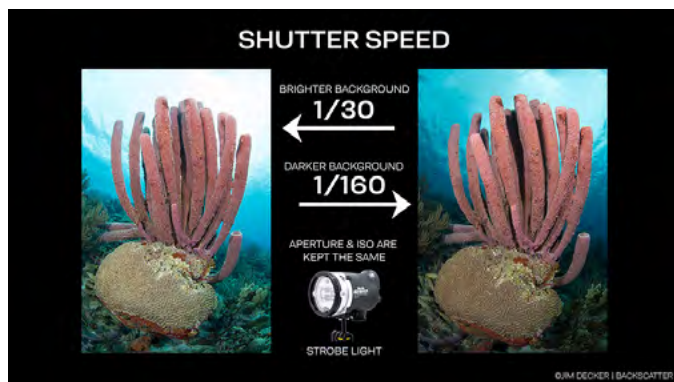
Shooting with a strobe or video light is essential for highlighting subjects against a darker background and creating eye-catching, exciting images.

Mini Flash 2 Strobe | 1/250 | ISO 100 | f16



Restore lost reds, oranges, and yellows for much better color and contrast by adding light to underwater images.

Sea & Sea YS-250 Strobe | 1/250 | ISO 200 | f16



The only difference in the images above is the shutter speed value. The strobe power is the same in both shots. The image on the left has a slower shutter speed, creating a brighter background. The image on the right has a faster shutter speed for a darker background. Strobe brightness is not affected by shutter speed, so the foreground appears the same in both images. Adjust the shutter speed for the background exposure while adjusting the flash power for foreground exposure.

settings, the photographer can create two separate exposures for foreground and background. With aperture and ISO set, dial down the shutter speed for a slightly underexposed darker blue background. With the background exposure set, adjust the strobe power for the foreground exposure. Either of those settings can adapt as the scene changes without changing the effect of the other.

This process is the primary technique professionals use to balance the foreground and background exposures when shooting in manual exposure mode with strobes, and one of the biggest reasons strobes are the preferred lighting tool for still photography.

Unlike strobe brightness, video light brightness



*Video Light. 1/60 | f10 | ISO 400
Decent exposure, but background and subject are washed out.*



*Video Light. 1/125 | f10 | ISO 400
Better background, but the subject is too dark even with max video light power.*



*Strobe. 1/125 | f10 | ISO 400
Brighter strobes allows both a bright subject and saturated background.*

is affected by shutter speed. A video light is a constant illumination source, so the camera does not see it differently than ambient light. No matter how bright the video light is, it will always appear less bright the faster the shutter speed is set.

Above is an evaluation of a comparison scene shot in 3 different ways. In this scene, the first and second shots are lit by a video light at full power (18K lumens), while a strobe lights the third shot. The first shot has a correctly exposed foreground, but the background becomes overexposed. The second shot obtains proper background exposure, but the video light is not bright enough in the foreground. In the strobe-lit third shot, the strobe brightness is not subject to shutter speed changes, so the strobe-lit subject and the ambient-lit background can be exposed separately - unlike shooting with a video light.

Balancing foreground and background exposures is much more challenging with a video light because the brightness of the video light is affected by the shutter speed. Even the Keldan 8X

18,000 lumen video light can't compete with the smaller Sea & Sea YS-D3 Strobe at the higher shutter speeds required to minimize ambient light and make darker, more saturated colors.

Strobes Are Brighter Than Video Lights

Even the brightest video lights, when set to their maximum power, do not come close to matching the brightness of the average strobe. Depending on the exposure settings and particular video light and strobe models, strobes can be over 100 times brighter than a video light - a massive difference!

This test compared the Sea & Sea YS-D3 strobe against the 18,000 lumens Keldan 8X video light and measured the results with a light meter.

With the strobe and the video light set to their full power settings, we calculated the difference required to achieve the same exposure across the test scene shot with each light. We locked in the shutter speed and aperture, set ISO to 100, and fired the strobe. We then did the same shot with the video light at full power and raised the ISO until we achieved the same exposure as the strobe-lit scene.



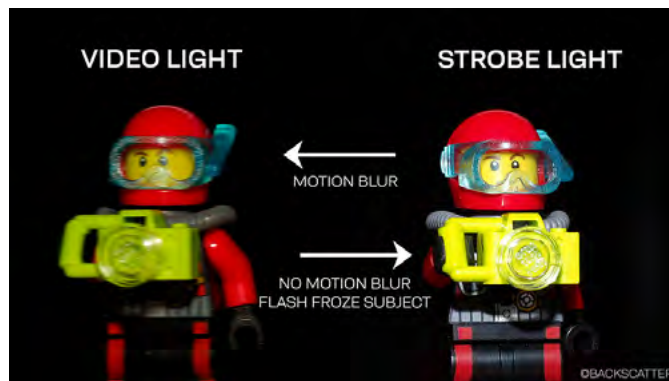
Our certified lab testing equipment shows the top-rated Sea & Sea YS-D3 strobe is 26 to over 100 times as bright as the top-rated 18K lumen Keldan 8X Video Light for photo use.

We used a light meter in the middle of our test scene to accurately quantify how much light was hitting the scene.

When shooting at 1/125, the strobe measured a difference of 4.7 stops, about 26 times brighter than the video light. When shot at the maximum 1/400 sync limit of the Sony a1 camera used for testing, the strobe measured 6.7 stops brighter, or about 104 times brighter than the video light. In both cases, this is much, much brighter than a video light, and the magnitude of that increases at faster shutter speeds.

Strobes Freeze Motion

A strobe will produce an instantaneous, bright burst of light that synchronizes precisely with the shutter when taking a photo. The flash from a strobe is (in most cases) faster in duration than the camera's shutter speed, creating the effect of



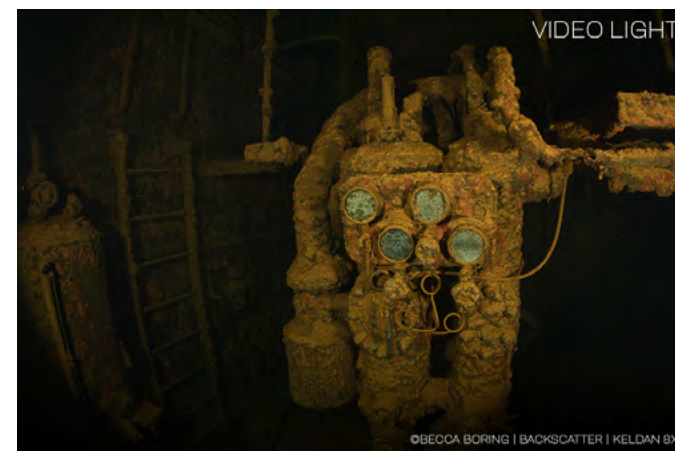
Shooting photos with a video light is more likely to introduce motion blur into your image. Photos shot with a strobe do a much better job of freezing motion because the duration of the flash is faster than the camera's shutter speed - unlike an always-on video light.

'freezing' the motion of a moving subject in the image.

Video lights are continuous light sources that provide constant illumination during the entire duration of the exposure. Because of the always-on aspect of this type of light, any changes in the shutter speed will also affect the exposure of the lights in the image. Video lights will also have a more challenging time freezing motion on moving subjects because they will be impacted more by the camera shutter speed, unlike shooting with a strobe. This factor poses an additional challenge to the photographer because they must find a shutter speed that balances the proper exposure and does not allow too much motion blur.

WHERE VIDEO LIGHTS WORK

There are certain situations where a video light can work for photographs. These will almost



Video lights may be used instead of a strobe when shooting in dark, low ambient light environments such as the interior of this wreck.

Keldan 8X Video Light | 1/60 | ISO 200 | f7.1

all be dark situations with little to no ambient light, such as during night dives, exploring a dark wreck inside a cave, or even diving deep on the shadowed side of a wall during the daytime. A video light also has the benefit of doubling as a dive light in these environments, and one can easily see exactly where their lights are aiming at all times.

Compact Cameras Can Shoot Macro With A Video Light

Video lights can also be practical for close-up macro photography on small subjects with a compact camera. Compact cameras don't need as much light because they typically have a lower maximum aperture value. The larger the camera sensor, the less effective a video light will be for photo lighting.

When shooting macro with an Olympus TG camera, the photographer must get very close to the



Shooting macro with a video light can work on Olympus TG cameras, where the camera and light must get extremely close to the subject. Backscatter Macro Wide 4300 Video Light | 1/160 | ISO 100 | f18

subject, which means the light gets close, too. This dumps so much brightness on the subject that it tricks the TG camera into shooting an ideal exposure setting for a dark background while maintaining a nicely lit foreground.

Shooting macro photos with a video light has the benefit of constantly previewing your lighting. Because the light source is always on, it will be easy to tell exactly where it aims. Just peek over the camera and look if the light is not visible on the screen or viewfinder.

A video light is also entirely automatic for underwater exposure because the camera meter can work from a constant light source but not from



Video lights can be effective for macro photos on full-frame cameras, as in this example shot on the Sony 90mm Macro Lens. In this instance, the camera's ISO had to be boosted to 640 to get the correct exposure on the subject, even with the video light at full power. Backscatter Macro Wide 4300 Video Light | 1/125 | ISO 640 | f22

a flash. Reading the meter can benefit new shooters who want to avoid dealing with changing strobe power frequently.

LIGHTS WITH A STROBE MODE

Video Lights With A "Strobe" Mode Don't Work The Same Way

Some video lights on the market today advertise themselves as having a 'strobe' or 'burst' mode that works similarly to a flash from a proper strobe. These LED video lights offer a short-duration boost to the LED lighting. The problem is that these lights do not function like a strobe does. The light from these devices only comes from LEDs on a circuit board, not an actual flash tube backed up with power from high-discharge capacitors. It is also a much slower duration than a true flash and is still



You can achieve the same shot with a strobe at a camera exposure value that creates a significantly darker background while keeping the subject nice and bright. Backscatter Mini Flash 2 Strobe | 1/250 | ISO 50 | f22



Video lights that have a 'burst' or 'strobe' mode do not behave like a strobe. They are still not even close to the brightness of a strobe, and they do not fire faster than the shutter speed, so they do not allow for separation of foreground and background, nor will they do any better than a video light when it comes to freezing motion blur.

affected by the camera's shutter speed. The LED 'burst' will result in photos that have motion blur on moving subjects if the shutter speed isn't fast



The foreground subject is often the most critical part of the shot, so call plenty of attention to it with bright, even lighting.
 Sea & Sea YS-D3 Strobe | 1/250 | ISO 400 | f11

enough and there is less separation between the exposures of foreground and background subjects.

Video lights with a strobe feature will work best with close-up macro work at close range with compact cameras.

CONCLUSION

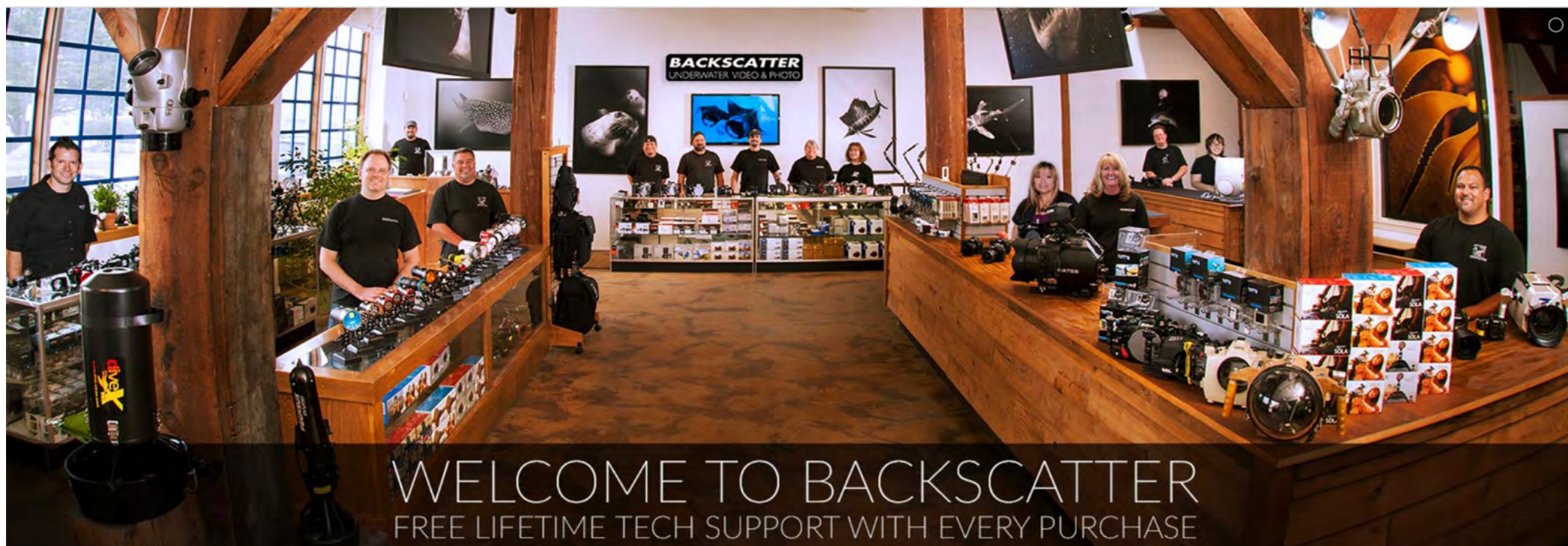
A strobe will produce the best overall results when shooting underwater photos. They are brighter than video lights, do a better job of freezing motion on moving subjects, and allow the photographer to separate strobe-lit foreground subjects from ambient-lit background elements.

A video light may be substituted in place of a strobe when shooting photos in

dark situations where there is little ambient light to compete with, and can even have some unique benefits when shooting in those environments, such as seeing a real-time preview of your lighting composition.

A simple video light can also be less expensive than a strobe, so it can be a great entry-level way to add light to your photos on a budget. A video light can be reasonably adequate on a compact camera like an Olympus TG series. It can be a practical way for newer underwater photographers to make the most of their beginner camera systems without breaking the bank.

Jim Decker & Robin Dodd
www.backscatter.com



WELCOME TO BACKSCATTER
 FREE LIFETIME TECH SUPPORT WITH EVERY PURCHASE