

# IMAGES

Making Your **STILL** and **DIGITAL** Underwater Images Better

DIGITAL 101

## Maximum Exposure

EXPOSURE TIPS FOR DIGITAL POINT & SHOOT

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One of the most difficult aspects of underwater photography is getting a good exposure. This has been a problem since the beginning of underwater photography and is still a problem, even with the advancements of digital technology. There are so many variables that influ-

ence exposure underwater — light fall-off, color, uncooperative or reflective marine life, complexity of digital camera exposure systems — that there is no clear-cut solution. But there are some general tips that will speed you through the learning curve. Since we find that the bulk of digital underwater

shooters are of the point-and-shoot variety, we're going to start there.

### SO MANY CAMERAS

The biggest problem you have to face is the fact that there are more than 700 different cameras on the market, and each has an average of 20 different menus. There are at least 10-20 different buttons on each camera, so it's no wonder that many new underwater photographers get frustrated just trying to get a good exposure.

The good news is that with digital cameras, you can keep shooting images until you get it right. The concept of SRA — shoot, review and adjust — makes the digital camera an invaluable tool for underwater photography. The key is to learn which tools are necessary to get a good exposure using the fewest adjustments.

### PASM CONTROLS EXPOSURE

All digital cameras feature an exposure system called PASM. It may sound like a strange word, but you will see it on the top of your digital camera as part of the exposure mode dial. The P stands for Program exposure, the A for Aperture priority, the S for Shutter priority, and the M for Manual exposure. These exposure systems allow you to control various combinations of the shutter speed and lens aperture to achieve a good exposure.

In Program mode the camera will decide both aperture and shutter settings for each exposure, which makes it great for available light shots. Most digital cameras have a control dial so that you can vary the shutter speed and the aperture in proportion to each other for critical adjustment. If you need a higher shutter speed to stop the action of a manta, just rotate the dial so the shutter speed increases, and the aperture opening will adjust accordingly.

If you are taking macro or wide-angle images where depth of field is critical, then

**CONTROL YOUR FLASH** This image is an example of how controlling your flash output can create dramatic lighting.



you will want to select the Aperture mode. With this exposure setting, you can select the desired f/stop, and the camera will set the corresponding shutter speed necessary to provide a correct exposure.

Action shots of moving fish and other large animals may require that you select the Shutter control from the PASM dial or menu. This setting allows you to select the shutter speed that will stop the action, and the camera will set an f/stop that gives the correct exposure.

The underwater photography world has come full circle. In the beginning, the only way to get good exposures was to use Manual exposure control. Now, with digital, you can adjust the f/stop and shutter speed independently of each other to maximize depth of field and still stop the action.

**ISO CONTROLS**

Another exposure control that you have with your digital camera is the ISO setting. With digital cameras, the ISO setting adjusts the electrical charge on the chip so that it is more or less sensitive. It uses the familiar ISO terms that we photographers are accustomed to using. When the light



**THE BALANCE** Controlling the background exposure and adjusting the flash allow this subject to "pop" in the frame.

level gets low, the action increases or you need more depth of field, changing apertures and shutter speeds may not always be adequate. The solution is to increase the ISO speed until you have acceptable parameters for your camera aperture and shutter speed. Increasing the ISO speed has lit-

tle effect on image quality. Another big advantage with digital is that you can adjust this ISO setting from image to image.

**EXPOSURE COMPENSATION**

Yet another option is the exposure compensation control on the camera. Some cameras will have an overall exposure compensation that will bias both flash and available light, while others will have separate controls for each type of lighting.

**FLASH**

The flash itself can also be used to control exposure. Many of the newer underwater digital flash units have variable power settings (up to seven options) that can be used in lieu of TTL or auto exposure systems. Ikelite and Light and Motion have taken flash control a step further by adding electronic controller boards in the housing, allowing full bias control over the flash. A big advantage with digital point-and-shoot cameras is that there's no flash sync problem, which is common in digital SLR cameras. This means that you can use a variety of shutter speeds and still sync the camera and flash.

**EXHILARATING EXPERIENCE.**



## BALANCING ACT

Achieving a balance of background to foreground has always been a challenge for the underwater photographer. The digital, point-and-shoot camera makes it easier, using manual exposure control. The first step is to take a picture and look at the LCD viewer to judge the foreground exposure. If it is too light or dark you can adjust the exposure using the camera's f/stop or the flash power setting. If the exposure is still out of range, adjust the ISO speed. One of these three controls should enable you to get a good foreground flash exposure.

Once you have your foreground exposure correct, you can then adjust the shutter speed higher to darken the background or lower if you want to lighten the background exposure. Changing the value of the shutter speed will have very little effect on the foreground exposure until you reach 1/1000 second. At that point, you may have to bump up the foreground exposure a small amount to compensate for the reciprocity failure of the chip at high shutter speeds.

Once you achieve a good balance, your images will have a good exposure as long as you don't change the distance from the sub-

ject to the camera too much. You can further tweak foreground exposures using the flash compensation control, and the background exposure with the available light exposure compensation control.

## WYSIWYG?

All of this is moot if your digital camera monitor is not giving you the proper indication of a good exposure. When you are underwater, the brightness of the monitor will tend to force you to underexpose your images, especially when you are in deeper water. In shallow water, due to the excess ambient light, it is difficult to determine if you have a good exposure. Most digital cameras today have a monitor exposure setting that allows you to set the LCD monitor darker or lighter. In most cases, you will want to try setting the monitor darker so that it reflects a truer exposure representation in deeper waters.

The best way to tell how you are doing is to compare an image that looked good on your LCD monitor underwater with the same image viewed on your laptop computer. Make sure that your laptop monitor is correctly calibrated to achieve accurate testing. If the images don't match, then

adjust the LCD monitor on your camera until the shots you take underwater closer match those on your laptop.

Film photographers used to underexpose their images a little to maximize color saturation of the image. Should you do the same with digital? We don't think so, as it all boils down to the fact that the best exposure is the correct exposure. You have plenty of room on your memory card, so if you are unsure, take several images bracketing your exposure. You can also take an image in the RAW file format and adjust the exposure later in your image-editing program.

The key to getting good exposures is knowing what exposure systems your camera features and learning how they work. Practice using all the functions and then practice again.

This is just one of many topics we cover in our new book, *The Master Guide to Underwater Digital Cameras*, from Amherst Media. It will be available in late summer from [www.jackandsuedrafahl.com](http://www.jackandsuedrafahl.com), so stay tuned. Until then, send your digital camera questions to [digitalduo@jackandsuedrafahl.com](mailto:digitalduo@jackandsuedrafahl.com) and we will try to answer them in an upcoming issue.

## EXACTING RESPONSE.



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