Perfecting the balancing act

By Mark Webster

The most appealing underwater photographs are often those wide angle scenes which have an entirely natural look to them – the foreground is colourful and well exposed whilst the background is also visible and appears to stretch away into the distance. This effect is produced by using a mixture of natural or ambient light and flash or strobe light, which adds back the lost colour in the foreground subject. To achieve this we need to master one of the most essential skills in underwater photography, which is balancing these two light sources sometimes referred to as fill flash exposure.

Modern auto-focus cameras are brim full of programme modes and it might appear that the simplest solution is to select one of these and let the camera and TTL flash control do the job for you. Whilst this can be a successful option in many cases, the camera does not always provide the correct exposure, particularly in close focus wide angle compositions where the image might include an expanse of blue water and a sunburst. In order to achieve repeatable results it is important to understand why the camera may fail in certain situations and how to master this technique manually.

If you are using TTL then you would meter the background and set the aperture for the natural light exposure and then take the shot assuming that the electronics will quench the flash. However, most of us are using Nikonos compatible flash guns with our housed camera systems which under most circumstances offer very good TTL exposure control. The problem is that no matter how complex your camera's TTL metering system may be, these strobes default to a centre weighted metering pattern – in order to make full use of matrix TTL metering you need to use the appropriate dedicated land strobe in a housing. The result of this is that if your main subject does not dominate the central area of the image then the strobe may well emit too much light and overexpose the picture. This happens often when the centre of the image contains the distant background or open water, which causes the TTL circuitry to fire the strobe at full power as it receives no reflected light from the subject.

With experience you will recognise the compositions that are likely to result in over-exposure from your own camera/flash combination. Some flash guns have an adjustable power output in the TTL mode which allows you to reduce the level of a full

Balancing light from inside a cave can be awkward. Use centre weighted or spot metering to take the blue water reading and bracket the flash exposure. Nikon F90X, 16mm fish eye, Subal housing, F8 @ 125th, YS120/30, 100ASA.

Silvery fish shoals present another problem, that of reflection from their scales. For this situation you need to determine the balanced exposure and then ensure that the flash lights the subject obliquely, so that any reflection does not come back towards the lens. Nikon F90X, 20mm, Subal housing, F8 @ 125th, YS120/30, 100ASA.

Working in temperate waters means working with lower light levels. Balancing the flash output can be more of a challenge unless you have multiple manual powers on your gun. Practice hand holding the gun at a distance behind the camera to reduce the output. Nikon F801, 16mm fish eye, Subal housing, F5.6 @ 30th, YS120/30, 100ASA.

Close focus wide angle shots can be quite difficult to balance. Try to include the sun in the frame which will allow you to use a smaller aperture for the foreground subject. Nikon F90X, 16mm fish eye, Subal housing, F16 @ 125th, YS120/30, 100ASA.

In tropical waters you can expect the sun to dominate the exposure. Meter off to the side of the sun or perhaps use a surface feature like this boat to partially obscure it. Closing the aperture will darken the blue of the water and require more output from the flash to illuminate the foreground. Nikon F90X, 16mm fish eye, Subal housing, F11 @ 125th, YS120/30, 100ASA.

power dump which is one way of bracketing the exposure. If you don't have adjustable TTL powers you can achieve the same effect by adding diffusers to the front of the flash to reduce output. Another option to consider is adjusting the exposure compensation settings on the camera, but this is fiddly and will often result in an underexposed background. For me the easiest method is to resort to manual flash exposure, which provides finer exposure control and is easier to bracket several exposures.

For this you will need a guide number chart on the side of your strobe and understand how to use it! First you take a light reading for the background exposure which for example gives you a reading of F8 @ 1/60th. Then you must calculate the flash to main subject distance using the guide number, which we will assume is at 30cm (1ft) and will be F11. So now we have to reduce the output of the flash to match the exposure of F8. If you have adjustable manual power settings on your flash gun then it is simply a matter of turning the power down one stop. If you don't then you must

This is a classic balanced light composition. The sun is slightly hidden by the reef so the background exposure must be based on the diver's torch. Select a suitable aperture and shutter speed and concentrate on balancing the flash output to just highlight the colour on the reef. Nikon F90X, 16mm fish eye, Subal housing, F8 @ 60th, YS120/30, 100ASA.

physically move the strobe back behind the camera to a distance which will give an exposure of F8, in this case probably 45cm (1.5ft) or so. If you are using long flash arms then simply extend them back behind the housing, if your arms are not long enough then you will have to detach and hand hold the strobe. Be aware of the direction you are aiming the strobe as it is easy to miss the subject when it is not in your direct line of site. This technique requires some practice until you are truly familiar with the power output of your strobe but the results are worthwhile.

As always, practice makes perfect and it is worthwhile keeping a record of your successes and failures until you begin to recognise those situations where you can rely on automation or you need to adopt those old fashioned manual methods.

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