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Close up photography - Why is it so easy?

by Peter Rowlands

Close ups are by far the simplest and most effective form of underwater photography.

As discussed in the first article on Basics, the three main variables you have to get right for a technically correct photograph are:

1. Focus
2. Shutter speed
3. Aperture

Close ups are so simple because, in most cases, you can preset and forget the first two of these variables and the third doesn't have to be altered too much. If you've got a TTL camera and flash system, you don't even have to worry about the third!

Electronic flash is essential to restore the colour and detail in your subject and, in most situations, provides the total light for the exposure so no allowance needs to be made for available light. For simplicity's sake, the flash position should be kept fixed to simplify exposures.

The first two 'variables' which can be preset are:

1. Shutter speed

The maximum shutter speed you can use is governed by the electronic flash and, on the Nikonos 1 Va and V, it is 1/90th sec but because the flash is providing all of the light for the exposure, the shutter speed is almost irrelevant, even with cameras which can be used with a higher shutter speed.

Preset the shutter speed to the fastest setting your camera will allow for electronic flash and forget it. Using a slower shutter speed will make virtually no difference to the exposure.

2. Focus

With Nikonos close up equipment such as close up lenses or extension tubes, the focus is preset to make sure you are in focus where the frames indicate. Altering the focus will in fact make little difference to the focus position but don't complicate things. Preset the focus according to the manufacturer's instructions and forget it.

With reflex cameras you will be able to see the exact point of focus so you will not have to worry about correct focus.

3. Aperture

Because the flash is providing all of the light for the exposure, the only variable to get right is the aperture.

If you are using a TTL camera and flash system such as the Nikonos V or MotorMarine II, the internal electronics will even adjust the light output for you - regardless of the aperture you use.

To understand the importance of selecting the right aperture let's assume we're using a manual flashgun so we have to set the aperture to get the right exposure.

When working at such small

flash to subject distances, the guide number method (guide number/flash to subject distance = Aperture) of calculating correct exposure basically still applies but in practice it's better to do a trial and error test.

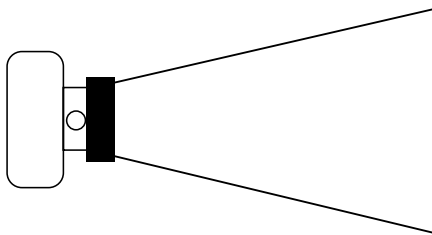
This involves taking identical shots but varying the aperture from F2.8 down to F22. The resulting slides will show the correct aperture for that type of subject. With close ups, you won't need to go through the whole aperture range because the wider apertures will most certainly be over-exposed so bracket your first shots from F11 to F22 to find the correct one for the tone of subject you are photographing. The exact aperture will vary depending on the tone or reflectance of the subject so repeat this test on three subjects of differing reflectance such as a white sea urchin or starfish, a neutral tone subject such as a light green kelp and a dark subject such as a sea cucumber.

Having done this simple test, you are set up to take 36 out of 36 perfectly exposed frames per film and you only need to alter the aperture to take the reflectance of the subject into account.

Close up equipment for non reflex cameras

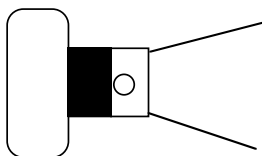
Two main devices enable the standard lens on a Nikonos or MotorMarine II to focus closer than normal:

1. Close up lenses



These optical devices are placed in front of the prime lens and enable them to focus closer - usually about 10" in front of the lens. They can be taken on and off underwater which gives useful versatility.

2. Extension tubes



These physical devices have no optics but just place the prime lens further away from the film. They are only available for Nikonos cameras.

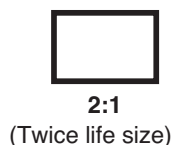
In theory, the further away a lens is from the film, the more light will be needed to get the right exposure but, in practice, because the flash to subject distances get smaller the longer the extension tube you use, the effect is thankfully virtually counteractive.

Extension tubes bring you into focus much closer than close up lenses.

Reproduction ratios

In order to quantify the performance of close up devices (extension tubes in particular) the frame area covered is compared to the 35mm film frame size.

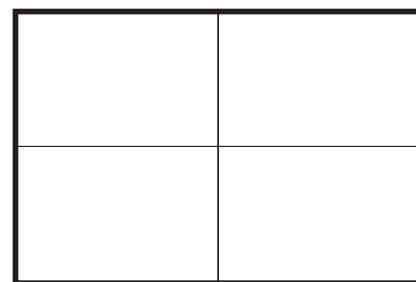
A 1:1 extension tube will take pictures of subjects the same size as the 35mm frame i.e. 24x36mm.



2:1
(Twice life size)



1:1
(Life size)



1:2
(1/2 life size)

A 1:2 extension tube will take pictures of subjects four times the area of the 35mm frame i.e. 48x72mm.

A 1:3 extension tube will take pictures of subjects nine times the area of the 35mm frame i.e. 72x108mm.

A 2:1 extension tube will take pictures of subjects half the size the 35mm frame i.e. 12x18mm.

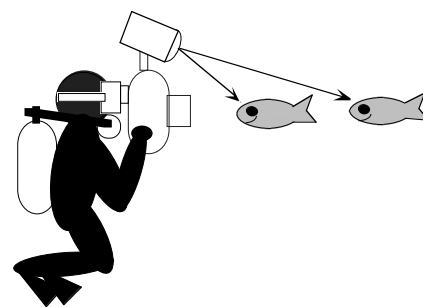
Reflex viewing

For those underwater photographers who use a land camera in a housing, you will be able to have the versatility of a macro lens which lets you focus on anything from infinity down to around 6" from the lens.

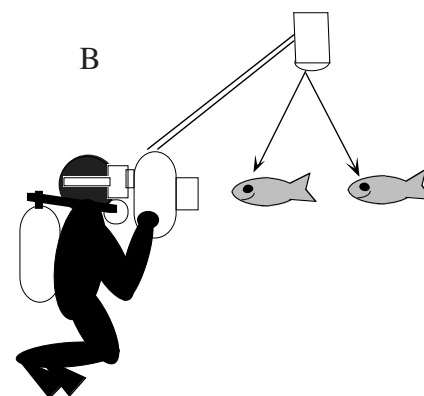
The first two variables of shutter speed and focus are still not a problem but, since the flash to subject distances are going to vary considerably, so too will the aperture. As before, if you're using a TTL system, the correct exposure will be sorted out for you by the system's electronics but, for manual exposure systems, you will have to set the correct aperture.

To simplify what can be a difficult area, it is best to mount the flash over the subject and forward of the camera so that the flash to subject distance doesn't vary much, even though the camera to subject distance varies considerably.

A



B



The flash to subject distance in A will vary considerably as the camera to subject distance varies but will not in B.

The big advantage of a reflex camera system is being able to see the exact point of focus through the lens as well as being able to frame the subject to your complete satisfaction but this comes with an increased price tag.

In the next issue we'll look at wide angle photography and see why it helps improve your underwater photographs.

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