

Back to basics

Digital SLR underwater

by Peter Rowlands

Digital SLR (single lens reflex) cameras are now becoming much more popular as their prices fall, specifications increase and accessory lenses become available to make them perform like a traditional SLR film camera.

They offer several distinct advantages over the entry level digital cameras which were discussed in the last issue of UWP and now that housings are becoming readily available these digital SLR cameras (DSLR from now on to save my typing finger) are offering a real alternative to film cameras.

The main advantage is that there is no significant shutter delay. That means when you press the shutter you get the shot immediately. With entry level cameras the shutter delay can be at least a second although this can be reduced by half pressing the shutter release button to let the camera perform most of its function and, when you finally fully press, the shutter the delay is much reduced but is still evident.

The shutter delay was the main

reason why I decided to 'invest' in a Nikon D100. Initially with my Olympus C40 entry level camera I was prepared to put up with the delay because I was learning about digital photography and I didn't take shots of fast moving subjects. As I became more familiar with the technology, the shots I wanted to take were being limited by the shutter delay so I went for the D100 but still kept the C40 as a backup.

The decision to upgrade is not cheap! There's the camera and housing as well as additional lenses needed to build a system to rival film cameras but the pivotal point for me was the introduction of the 10.5mm full frame fisheye lens. This, for the first time, gave the equivalent performance of the 16mm lens on 35mm film.

The reason Nikon produced this new lens is because the image sensor in a DSLR camera is smaller than the 24mm x 36mm size of a film frame. The main reason for the smaller chip size is economy. "Full frame" chip cameras have been around for some



A move up from entry level to digital SLR photography is quite a leap in terms of finance, size and weight but it does allow you to take almost any photo you want underwater because it is a true system camera.

The arrival of the 10.5mm full frame fisheye and 12-24mm wide angle zoom helped restore the full lens range for underwater use.

time but at a much higher price and I will not be discussing these cameras in this article because I am hoping to commission an article for the next issue on the reasons for going up to full frame.

The Nikon D100 and most other DSLR cameras retained their original lens mount so that existing lenses could be used but because the chip size was smaller the angle of coverage/focal length was reduced/increased by a factor of 1.5. For sports photographers on land this was manna from heaven. It meant their 300mm telephoto suddenly became a 450mm with the added benefit of no increase in the maximum aperture. No wonder





The electronics in DSLR cameras are capable of adjusting colour balance over a greater range compared to entry level cameras. Add the ability to shoot and work fast in RAW format and you have total control of your underwater images.

they embraced the digital age so swiftly.

Underwater, however, is a different matter because, when photographing large objects such as wrecks we want to shoot with the widest angle lens possible to keep the amount of water between camera and subject to a minimum. The advent of the DSLR camera with a 1.5 increase in focal length effectively robbed us of a full frame fisheye because the traditional 16mm lens became

a 24mm. As soon as I saw the 10.5mm lens it confirmed to me that Nikon were committed to the development of the DSLR as a true system camera. The 10.5mm came after the 12-24mm lens which was another new lens giving the equivalent of an 18-36mm on 35mm.

With these two lenses in place, my 60mm and 105mm macro lenses were still useable and one could argue had actually been made more

useful because they became approximately 90mm and 150mm respectively.

The other advantage of a DSLR which should be obvious by now is that they can take interchangeable lenses so you can have the capability to shoot virtually any subject you want.

Another advantage of a DSLR camera over an entry level one should be the availability of TTL flash metering but here we get into some black magic country.



D-TTL flash exposures are really only available with the Nikon land flashguns seen here with their Subal housing but I prefe to shoot manually with an Inon Z-220

For decades Nikonos compatible TTL flashguns have been the norm and have served us well on both Nikonos and housed camera systems. It therefore came as a bit of a shock to learn that the D100 was only TTL compatible with a new range of Nikon land flashguns and that the Nikonos flashes could not only not give TTL but may actually damage the electronics in the camera! The brainwashed among us accepted this move forward

but then Fuji came out with a DSLR which worked in total harmony with Nikonos TTL flashguns so why couldn't Nikon have done that?!

As I explained in the Editorial in the last Issue of UwP I am actually happy to be back working with manual flash exposures but if you feel that TTL flash is an important feature then look very carefully at the specification of the camera you are considering.



With Compact flash memory cards available up to 4 gigabytes, this gives you around 400 RAW format images.

much bigger than a JPG so an entry level camera might take up to 20 seconds to store them. During this time you cannot take another picture. A DSLR camera has the electronic capacity to save these larger files and still let you take more shots. The number of extra shots you

can take is not limitless unfortunately. The camera lets you take more shots because it is using its “buffer” memory to hold the files whilst they are being saved to the memory card. The D100 lets you take around four images in quick succession then you won’t be able to take any more shots for approximately 20 seconds while the files are saved to disk. In my experience I have never “overrun” the buffer but I can imagine times when I would i.e. humpbacks and sharks where photo opportunities are limited to very brief swimpasts.

The ability to fire the motordrive on a 35mm SLR camera with no buffer problem is a major advantage in these situations but that is where

the advantage definitely ends because you will only have 36 shots. With a DSLR you can have an almost limitless number of shots because you can simply buy a larger capacity memory card. I believe the maximum capacity of a Compactflash card is 4gig so if a 1 gig card will hold approximately 100 images, a 4 gig will give you up to 400 images! 35mm film users stick that in your pipe and smoke it.

The DSLR is not, however, perfect. Entry level cameras are much lighter, cheaper and less bulky and they have a nice large LED screen to view which shows the exact image you are about to get (shutter delay permitting). DSLRs on the otherhand are more expensive and bulkier and they have traditional flipping mirrors so you will only see the final image once you have pressed the shutter. In practice this is not a big deal as your image appears almost instantly on the LCD screen on the back of the camera.

For underwater use the DSLR optical viewfinders are not ideal. They are designed for use on land where you can get your eye very close to the viewfinder. Underwater with a mask makes the viewing image much smaller and makes manual focusing very tricky but the capability of the modern autofocus systems makes manual focusing, certainly for me, a

thing of the past.

Whenever I ‘invest’ in a new camera system my partner Debbie always gives me a knowing look when I try to justify my purchase by saying “And this system is all I’ll ever need”. She’s heard it too often (especially with computers!) but for once I really do believe that the DSLR format camera provides all I need now and for the future.

As a result, I will not be writing the next article because I’m not thinking of upgrading to a full size chipDSLR (FSCDSLR!). The problem is that I will have to proofread it and I might start to see limitations in my DSLR!

Time will tell.

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Guidelines for contributors

The response to UwP has been nothing short of fantastic. We are looking for interesting, well illustrated articles about underwater photography. We are looking for work from existing names but would also like to discover some of the new talent out there and that could be you!

The type of articles we're looking for fall into five main categories:

- Uw photo techniques** - Balanced light, composition, etc
- Locations** - Photo friendly dive sites, countries or liveaboards
- Subjects** - Anything from whale sharks to nudibranchs in full detail
- Equipment reviews** - Detailed appraisals of the latest equipment
- Personalities** - Interviews/features about leading underwater photographers

**If you have an idea for an article,
contact me first before putting pen to paper.**

E mail peter@uwpmag.com

How to submit articles

To keep UwP simple and financially viable, we can only accept submissions by e mail and they need to be done in the following way:

1. The text should be saved as a TEXT file and attached to the e mail
2. Images must be attached to the e mail and they need to be 144dpi
Size - Maximum length 15cm i.e. horizontal pictures would be 15 cm wide and verticals would be 15cm.
File type - Save your image as a JPG file and set the compression to "Medium" quality. This should result in images no larger than about 120k which can be transmitted quickly. If we want larger sizes we will contact you.
3. Captions - **Each and every image MUST have full photographic details** including camera, housing, lens, lighting, film, aperture, shutter speed and exposure mode. These must also be copied and pasted into the body of the e mail.