

The Nikon D7000

By Alex Mustard

At first glance, the new D7000, Nikon's latest SLR, appears simply to be the successor to the D90/D80/D70 series, and a little below serious underwater photographers. But this is a significant misjudgement. Not only is it now Nikon's highest megapixel (16.2 MP) DX SLR, introducing a new EXPEED 2 processor, a new 2000 pixel RGB metering system, a new 39 point Multi-CAM 4800 auto focus system and full 1080p HD-video. But also, and unlike its predecessors such as the D90, it is packed with pro-camera features including as 14 bit analogue to digital conversion, flash synch with UW strobes up to 1/320th and a 100% viewfinder.

For my money, the D7000 is currently the best beginners Nikon SLR AND also the best choice for even the most serious Nikonian wanting to use DX lenses such as the Tokina 10-17mm. Make no mistake, this is a very important camera for Nikon totting underwater photographers.

So how does it perform underwater? I got the chance to put the camera through its paces with UWP editor Peter Rowlands on a trip to the Red Sea. Nauticam launched its NA-D7000 housing at DEMA in November and have already started delivering housings to customers. The one I kidnapped was a pre-production unit, but impressively dive ready, giving me the chance to test the camera underwater before most of the major websites had even completed topside reviews. Kudos Nauticam.



The D7000 may be small in size, but it is packed with many pro-level features, such as 100% viewfinder, 14-bit A/D converter and 1/320th flash synch. As well as 16.2MP sensor and full HD video.

Tech Specs

The D7000 has certainly moved upmarket in build quality (with a magnesium-alloy chassis) and price from the D90 and out specs the similarly priced, and still on sale, D300s in almost every important area. The headline grabbing features are high-res sensor, full HD video and a highly useable ISO range of 100-6400. The camera scored particular well in the DXO Mark tests of image quality, but is not a total bargain, costing approximately \$1350 USD, £1050 GBP, €1200 Euros.

The D7000 has double SD card slots, the second slot can be used as an overflow, a backup or for sending different file types (e.g. JPGs or movie files). The camera features a new battery, the EL-EN15, which lasted all day in the Red Sea (4 dives) shooting video and using the pop-up flash to



The Nauticam NA-D7000 is loaded with controls and has a next generation feel compared to previous Nauticam housings I have used.

drive TTL strobes. However, most users would feel reassured by buying a spare. Unfortunately, older Nikon batteries are not compatible with this camera.

The Nauticam NA-D7000 has a next generation feel, with many minor improvements from Nauticam's previous Nikon housings, while maintaining the brand's already loved design hallmarks. It is more compact too, fitting the camera snugly.

To describe it in one word - it is loaded. Loaded with controls to give you access to all the camera controls. Loaded with excellent engineering, loaded with intelligent ergonomic solutions. The impression continues inside, Nauticam clearly put a lot of emphasis on the performance of controls, they'll always add extra gearing to make our life easier in those precious moments underwater.

The most important controls on an underwater

housing are the shutter, aperture and shutter speed. Nauticam have worked hard on these primary controls since D700 and D300 housings, which were already better than many brands, but not yet leading. The shutter now features a 'high tactility' or two stage shutter release, with a curved lever to fit around your finger. This impressive mechanism offers excellent feeling of the biting point of AF.

One negative is that there is no window for the data screen on the top of the D7000, although all the stats can be called up on the larger LCD screen with the INFO button. And once you are used to that, you'll probably prefer it. I always enjoy Nauticam's separate image review lever, much easier to flip with your left thumb than a push button. And Nauticam's new two latch system for closing the housing is very well made and easy to use. You don't need the strong fingers my Subal's system needs. It is a big improvement over the three snappy metal latches on the D700 and D300 Nauticams.

The Nauticam housing is based around optical flash synch, but electrical flash synch is possible through a single synch socket. I tested both, shooting a pair of Inon Z240s triggered optically (with and without TTL) and a pair of Subtronic Alphas attached with a Sea & Sea electronic cable splitter.

Wide Angle

I was keen to see how the Nikon D7000's new sensor performed in terms of detail, colour, dynamic range and noise. Unlike the D90, the D7000 has the 14 bit A/D converter (first introduced on the D3) and produces 14 bit RAW files. This, combined with processing from the new EXPEED 2 chip, promises strong performance across the board for image quality.

A continuing area of interest in digital sensors is their ability (or not) to capture the beauty and atmosphere of a sunburst underwater. The root of the problem is that slide film was naturally predisposed to dealing with excessive highlights, which is what a sunburst is. Digital sensors have a more linear response to different intensities of light and once it gets too bright the sensor is overwhelmed. The D7000 seems well disposed to move the game on a little, as the last few generations of cameras all have.

One of the things I like about all the post D3/D300 Nikons is their picture controls, which are standardised across the range, so the colour response of one model is similar to another. I adjusted the D7000 to the same settings as I use on my D700 and as a result, I was really happy with the colours that the D7000 produced from the first image.

One of the strengths of the D7000 is its high ISO performance,



The D7000 achieves excellent image quality at 16MP, while producing highly useable images across a range of ISO settings. Nikon D7000 + Tokina 10-17mm. Nauticam NA-D7000, Nauticam 4.5" mini dome. 2x Subtronic Alphas on manual. 1/80th @ f/11. ISO 200.

which is one of the very best of any non-full frame SLR. Noise on the D7000 builds gradually with each successive rating, but even in the RAW files is never ugly and would certainly print really cleanly. I took some cave shots at ISO 1600 and



Sunbursts are a challenge for digital cameras, particularly at depth (when we get a nasty cyan halo too). I was impressed that the D7000 captured the rays and the ball of the sun here, without the need for a lot of underexposure, which robs the image of a pleasing water colour. Nikon D7000 + Tokina 10-17mm. Nauticam NA-D7000, Nauticam 4.5" mini dome. 2x Subtronic Alphas on manual. 1/250th @ f/14. ISO 200.

3200, which although there is clearly noise, they would be perfectly useable full page in print. Its performance has caused me to recalibrate what

I thought possible for a DX high megapixel camera at high ISO.

A big surprise was Live View. As a Nikon user I have got pretty used to Live View being a waste of space, with seemingly endless click-clack-clunk of shutter lag whenever you try to take a picture. The D7000 is very different and live view will take pictures almost instantly as long as it is in focus. So we can either focus and then shoot, or what I favoured with a wide angle lens, focus and lock the camera in manual focus – meaning there is no lag. This makes live view really useful and I used it quite a bit when shooting wide angle from low angles where I couldn't get my eye to the viewfinder.

Macro

My main interest in macro was testing the performance of the optical TTL metering controlled by the new 2016 pixel RGB sensor and the autofocus, which also uses the new Multi-CAM 4800 DX system.

I found the TTL was very reliable with a wide range of macro images, shot against different backgrounds, although I had to dial in +0.7 flash exposure compensation (with my Inon Z240s). Another important feature of the D7000 is that the flash will synch to 1/320th, which is always valuable when wanting to reduce ambient light, such as in controlling sunbursts or

shooting strong black backgrounds in macro. The synch speeds with underwater strobes for similar cameras are: D90 – 1/200th, D300s – 1/320th, 7D – 1/250th and 550D – 1/200th.

The D7000 trumps the D300s in most specifications, but the notable exception for underwater work is autofocus. The D7000 uses a new Multi-CAM 4800 DX autofocus sensor compared with the D300s's Multi-CAM 3500 DX. But don't be fooled by the D7000's bigger name: the D7000 has 39 points including 9 cross type sensors, while the D300s has 51 points and 15 cross type sensors (the significantly lower specified D90 has just 11 points and 1 cross type sensor). The D7000 performs well, although marginally inferior to the D300s, I feel that most of the time I would be hard pushed to spot a difference.

The D7000 does not have a dedicated AF-ON button, but the AE-L/AF-L button on the back can be customised to function as AF-ON, which simultaneously disables the AF function of the shutter release. This mode can be very useful for focusing, then locking focus supermacro, fast action subjects and other conditions where the camera's AF might hunt. I use it frequently.



The D7000 has impressive TTL and AF (courtesy of new 2000 pixel metering and Multi-Cam 4500), which makes taking patterns from moving fish very simple. Nikon D7000 + Nikon 105mm VR. Nauticam NA-D7000, Nauticam flatport. 2x Inon Z240 strobes on TTL. 1/320th @ f/16. ISO 200.

Video

I am not a videoist, but Peter joined me on the Red Sea leg of the trip to help me assess the video capabilities of the D7000. The good news is that D7000 video image



Coming from a full frame camera I did enjoy shooting DX again, having that extra magnification and/or a little bit more depth of field. Nikon D7000 + Nikon 105mm VR. Nauticam NA-D7000, Nauticam flatport. 2x Inon Z240 strobes on TTL. ISO 200, f/16 @ 1/250th.

quality is really impressive. On our last trip to the Red Sea in June, Peter used both Nikon D300s and Canon 7D cameras. The 7D wiped the floor with that Nikon. At a minimum, the D7000 levels the playing field with



The Nauticam housing provides good access to video controls, but unless conditions are very controlled (such as with the use of a tripod) a video SLR has inferior ergonomics to a video camera for actually getting the video sequence.

Of course that is only part of the story. Peter is keen to point out that the major failing of Video SLRs is not their image quality, but in their ability to actually get the shot. He remarks that the best image quality in the world has little value when you cannot nail the sequence due to handling limitations. The strength of video SLRs is in highly controlled shooting situations. Underwater filming is, most of the time, the exact opposite.

That said the D7000 does have some video features to get excited about. A vid-SLR first is that autofocus can be active during filming. With static subjects the autofocus did an excellent job in moving between and foreground and

background subject (like most video cameras do) which is very useful for establishing or reveal shots to start sequences. To achieve a similarly smooth focus pull with only manual focus would take considerable skill. With moving fish, it does a decent job, but does loose focus at times, which could ruin a sequence. Suggesting it is less useful with these subjects.

Another annoyance with the D7000's video mode underwater is that manual white balance cannot be set in live view mode. You must turn off live view, activate preset white balance and take a photo to set it. Then return to live view and start recording. The D7000 also does not have a full manual exposure, although the manual movie settings do allow both shutter speed and ISO to be adjusted manually.

Conclusion

The D7000 is an excellent underwater camera that fulfils many briefs for Nikon users underwater. As the replacement for the D90 it is currently the best model for those wanting to get into Nikon SLR underwater photography. But more serious shooters should not dismiss it: the D7000 is also the best DX Nikon out there. The D7000 brings impressive image quality (which is much more than the extra resolution from 16MP) very useable high ISO

performance and full HD video to Nikon shooters. I would choose one every time over the D300s (and obviously any other DX Nikon).

There is little doubt this is an important camera for Nikon shooters and Nauticam have certainly stolen a march on their competitors by getting such a quality housing available so quickly. That said, there are some other impressive housings in development and if you don't need to dive with the D7000 immediately, you might want to wait and see those released in early 2011. But having tried the Nauticam in a range of conditions, the Nikon D7000 and Nauticam housing were an impressive combination for underwater photography, that takes some beating.

Alex Mustard
www.amustard.com

Many thanks to Nauticam and their dealers, Camel in Sharm and the CDWS in Egypt.
Click here for a short video clip shot with the D7000:

www.youtube.com/watch?v=xl0R37CbInk

The D7000 is the first Nikon I have found live view to be useful underwater. If you lock the focus, there is no shutter lag. I did quite a bit of wide angle using the screen instead of the viewfinder, especially at low shooting angles. Nikon D7000 + Tokina 10-17mm. Nauticam NA-D7000, Nauticam 4.5" mini dome. 2x Subtronic Alphas on manual. 1/100th @ f/13. ISO 200.

Canon's video quality, shooting 1080p at 24 frames per second (with H.2624/mpeg-4 video compression). Peter actually commented he thought it was slightly better.



Seahorn Snoot Award Winning Images!
by
Kay Burn Lim
1st Prize in Portfolio Category
Timor Leste Dive Photo Contest 2010



Scuba Symphony- Your Ultimate One-Stop
Diving and Underwater Imaging Solution!
S103A Centrepont Bandar Utama
47800 Petaling Jaya, Selangor, Malaysia
Tel: +603077107197 Fax: +603-77251197
Email: scubasympphony@gmail.com
Online Shop: www.scubasympphony.com

Seahorn Snoot are now available from:

Reefphoto & Video, USA: <http://www.reefphoto.com>

Fotosub, Italy: <http://www.fotosub-shop.it>

Onderwaterhuis, Netherlands: <http://www.onderwaterhuis.nl>

Scuba Supply Sweden: <http://www.scubasupply.se>

Digital Dive, Germany: <http://www.digital-dive.de>

Underwater Visions, UK: <http://www.uwvisions.com>

Cameras Underwater, UK: <http://www.camerasunderwater.co.uk>

Splash Underwater Imaging, Philippines: <http://www.splashuwimaging.com>

Oceanic Focus, Singapore: <http://www.oceanicfocus.com>

Diver Channel, China: <http://www.diverchannel.com>