

Nikon D4 Underwater In Iceland

with Alex Mustard

I am sorry that I have not had a chance to write much for UWP recently. I've even heard rumours that I've had a falling out with the Editor! So I am pleased to be back in these hallowed pages with a field report on Nikon's new flagship SLR, the D4, which I had the chance to put through its paces in Nauticam's new NA-D4 housing.

The D4 camera is brand new and is still backordered at most retailers. Despite this, Nauticam already have a working pre-production housing and since the D4 is promoted as pushing limits, I headed up to the cold waters of Iceland to hopefully give it (and me) a thorough workout.

A brand new Nikon flagship is a rare treat and the new technology it ushers in is of interest all Nikon shooters because much of it will be handed down through their range (almost immediately so, in the case of the much anticipated D800). The D4 is aimed at the professional shooter, promoted on speed, accuracy and reliability. But Nikon's "ultimate imaging machine" comes with a scary

price tag (\$6000 USD). The headline specs are 16MP FX sensor, ISO 100-12800 (expandable), updated AF system, EXPEED 3 image processing allowing shooting at 10 frames per second for 100 RAW files, full HD video (including uncompressed HDMI output) and much more.

The raw stats suggest a significant, but not revolutionary, upgrade on the D3 series. However, shoot the D4 and you quickly realize that small improvements across the board add up to big returns. This is not a measurebator pleaser, but a photographer's camera. Shoot the D4 and it is much larger step than I expected on paper. For actually getting the shot, capturing that decisive moment, this is demonstrably the most capable camera I have ever used. But is the D4 the ultimate underwater camera?

Nauticam's NA-D4 also represents an evolutionary, rather than revolutionary design, which I believe is the correct approach. The D4 is a professional tool and I am sure all users want a system that will remain



The Nikon D4. 16MP, 10FPS, expanded ISO 50-204800 and full HD video. Built like a tank!



The Nauticam NA-D4



I favoured AF-C for both wide angle and macro, using the 3D tracking mode for macro and Auto-Area mode for wide angle. This worked well even with rectilinear lenses, where focus can be crucial for corner sharpness. Nikon D4 + Nikon 16-35mm. Nauticam NA-D4 housing, Zen 230 dome. ISO 800, f/14, 1/50th.

as reliable as possible in two or three years time. The NA-D4 utilises many design solutions already tried and tested in production on existing Nauticam housings. Expected retail price is \$5100 USD.

Nauticam DNA permeates the design: confidence inspiring port lock and housing latches, thumb paddles and levers to access important push button controls, user interchangeable viewfinders and their new multi-selector control (which was not connected on the test housing I tried).

Nauticam have built an enviable reputation for putting in the extra effort with housing controls to make shooting their housings as easy as possible. A good example on the NA-D4 is the ISO lever, which falls beneath your left thumb and greatly facilitates changing ISO, without removing your eye from the viewfinder. This control actually operates a push button, low down on the rear of the camera. This is a particularly useful control on the D4 because the camera performs so well over such a wide range of ISO values that you change ISO frequently, varying it as just another control of exposure.

The most important controls on any underwater housing are those that access the shutter, shutter speed and aperture (and also change other settings when used with menus and push buttons). The fine performance of these primary controls is usually a major differentiator between a box that keeps your camera dry and a fine housing that increases both the chances of getting the shot and the enjoyment of using it.

The NA-D4 uses Nauticam's double-gear shutter release that gives excellent fine control. I really like the aperture control wheel (front or secondary control dial), which is a step on again from the last Nauticam I reviewed, the NA-D7000. It is perfectly positioned to be easy to move with



one finger and turns freely and precisely, even when wearing gloves (with numb fingers inside them). The shutter speed (rear or primary control dial) is also very impressive and easy to rotate with just your thumb. I find it is easier to reach when I have my left hand on the other handle, than when I hold the housing in just my right hand (this may be because I had spacers fitted to the handles).

The four thumb paddles (two each side) provide ergonomic access to some of the camera's most important controls. On the right these operate AF-ON and video record and on the left image review and INFO. I use AF-ON focus frequently (where autofocus is not activated by the shutter button, but only by the AF-ON button). I find this very useful for big animal photography, split levels and super macro. Video record is not essential on



The D4 produces stunning images, moving the game on significantly from the cameras it replaces, the D3 and D3s. But costing twice as much as the D800 does not make it twice as good as an underwater camera. Nikon D4 + Nikon 16mm. Nauticam NA-D4 housing, Zen 230 dome. ISO 800, f/14, 1/160th.

the D4 because through a custom setting we can use the shutter release to start and stop video recording (when in video mode). The INFO lever is also a welcome addition, much more easily reached than a button placed low on the rear of the camera. The INFO button is particular important on the NA-D4, which lacks a window for the camera's top LCD screen.

One annoyance with the D4 controls is that autofocus modes are controlled from the old M-S-C switch (a change introduced with the D7000). This is less easy to use underwater than the old switches on the back of the camera (that D200, D300, D2 and D3 users will be used to). Memory cards can be changed with the D4 in the housing. But to change the battery you need to remove the camera from the housing and take it off its tray.

Video controls are easy to access, making it simple to switch to liveview mode for both video and still shooting. Autofocus in liveview is very impressive, as good as the best compact cameras and liveview shutter lag is short. However, I still think it is best to shoot most video with fixed focus (using the AF only to acquire focus).

The test housing came with a single electronic synch socket and dual fibre-optic synch ports. Apparently the fibre optic ports can be exchanged for electronic ones. Personally, I would like to see at least two electronic ports as standard on a pro-housing. I know many people use fibre optic synch these days, but many do not. Especially as the D4 does not have a pop-up flash and therefore requires a LED-microflash to trigger the fibre optics (although this will allow faster frame rates than using a pop-up flash would).

Furthermore the D4 has many options for connectivity, including uncompressed video output via the HDMI connector and an Ethernet connector, which allows the camera to be controlled remotely (theoretically from anywhere in the world via the internet, including from an App on iPad and iPhone). This has interesting possibilities for remote and polecam work. I would like to see some more connectivity options on the production



Details of levers for Image Review, INFO and ISO, conveniently positioned by Nauticam to fall under the right thumb, rather than having to push buttons.

Nauticam housing.

Waiting in the water as the camera is passed down to you, this is an intimidatingly large and expensive system. But get it underwater and it sheds its bulk, feeling well balanced and easy to use. Surprisingly, perhaps, the feature that immediately stands out on the D4 is not a new one. The D4 uses the Multi-CAM 3500-FX,



Dynamic range is very impressive at low ISOs and reduces little as ISO increases. Nikon D4 + Nikon 16mm. Nauticam NA-D4 housing, Zen 230 dome. ISO 250, f/13, 1/400th.

by name the same AF unit as on the D3 series, D700 and D800. However, the algorithms and processing behind this have been significantly updated and the performance is very, very impressive. The AF improvement from D2 to D3 was definitely smaller than D3 to D4.

The AF system is particularly good in low light, low contrast



he D4's autofocus is amazing for macro shooting, being particularly good in low light and through teleconverters. I've already got shots of moving subjects I would have missed with other cameras. Nikon D4 + Nikon 105mm. Nauticam housing. Subsee +5 dioptre. 2 x Inon Z240 strobes. ISO 200. f/29, 1/250th.

situations (it could almost have been designed for underwater use) and the improvements are particularly noticeable when using teleconverters or macro lenses close to minimum focus. Despite diving in dark northern waters, I found myself often shooting

macro without turning on my focus light.

For macro my favourite AF mode remains 3D tracking with AF-C. The tracking is improved by the new metering system that allows the camera's autofocus to track an object as it moves around the frame based on its colour, shape and pattern. A particularly good use of this feature is to focus on the subject and then re-compose the frame, using the 3D tracking to keep the "moving" subject sharp. In wide angle I found that Auto-area AF just worked all the time. I actually tried this on macro too and it was very impressive, although I still prefer the greater feeling of control offered by 3D tracking.

Flash-synch is officially 1/250th, although 1/320th works perfectly with underwater strobes. The D4 also offers a 1.2x crop mode (quite a few people like the Canon 1D series 1.3 crop with fisheye lenses) and this will synch to 1/400th. The DX crop mode (approx. 1.5) will synch to 1/500th.

As an aside, there is much excitement about the 16MP DX mode of the D800, but having tried the DX mode on the D4, this feature is limited underwater by how small the viewfinder becomes in DX mode (much smaller than the viewfinder on a dedicated DX camera).

The headline stats of the D4 involve its combination of megapixels, frames per second and ISO sensitivity. 16MP was chosen because that is what the professional shooters asked for. Prevailing opinion during the D4's development was that the current cameras (12MP D3 and D3s) actually had enough resolution for all publishing in books, magazines, newspapers and online and rather than more pixels photographers wanted better ones. With the D4 Nikon has delivered better pixels and also 33% more of them.

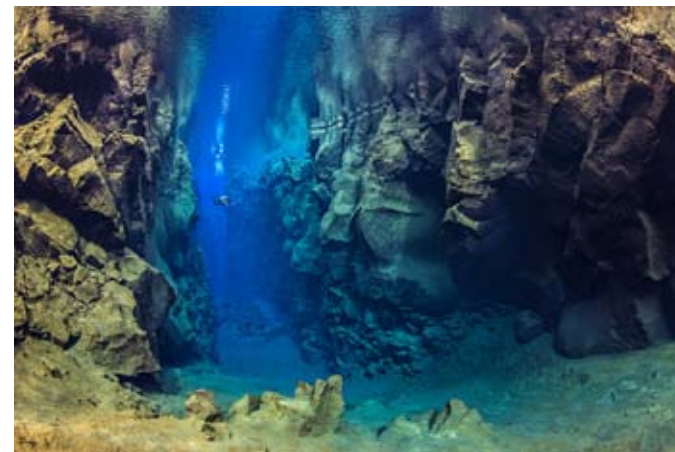
A modest rise in pixels means bigger



Iceland provides the chance to test the D4 and NA-D4 in tough conditions. Both performed faultlessly.

advances in frame rates and high ISO performance. Shooting full-sized RAW files, the D4 can take 10 frames per second for 10 seconds without pause. Underwater this is of little use for coral reef photography, but could be highly desirable when shooting action like the sardine run, sailfish or fleeting big animal encounters. It should also prove useful for behaviour photography, using continuous lighting and higher ISOs instead of flash. Maybe we can get that frogfish feeding, now?

The ISO range is hard to get your head around (the expanded range is ISO 50 to ISO 204800). At ISO 1600 and below the images are completely clean. At ISO 6400 you need to pixel peep to see any noise (which in any case looks natural). Even at ISO 12800 they are completely useable in print. Noise is quickly banished by post processing. D4 files seem very flexible in post production. Underwater I did find I got more noise



The D4 produces stunning images at high ISO without noise and with lots of dynamic range. Despite this scene looking bright it was not in reality in Iceland. Nikon D4 + Nikon 16mm. Nauticam NA-D4 housing, Zen 230 dome. ISO 1000, f/14, 1/80th.

in the darks canyons of Iceland than I saw in photos under more normal (land) lighting conditions at the same ISO settings.

Anyway, I think we are too focused on noise when discussing high ISO performance. The latest cameras are all so capable, I believe the more important impact of increasing ISO is a loss of dynamic range of the image. This is where the D4 impresses me most over the D3 series - its ability to retain highlight and shadow detail at higher ISOs while still delivering strong colours and rich blacks.

In conclusion the D4 is a fantastic camera underwater, but its skill set exceeds our needs underwater. For underwater photographers that photograph in deep or dark places, or shoot action (like the sardine run or big animals, which are often at high latitudes) then the D4 will significantly



The author shooting with the D4 and Nauticam housing in Iceland.

increase their capability to realize new shots. It shoots excellent macro too and despite being a high ISO king delivers leading dynamic range at low ISO. It is also built to take a professional workload and will produce files that exceed all publishing requirements.

However, alongside the D4, Nikon have also released the D800 with 36MP. A Nikon that offers 20MP more than the D4, for half the price. The D800 comes with almost identical AF and high ISO performance good enough for most applications. The D4

currently boasts world bests in frame rate and ISO sensitivity, but these are not features that all underwater photographers require. If you know you need optimum performance here then you probably already know you need the D4. Otherwise the D800 is smaller, cheaper, lighter and has pop up flash to drive optical TTL. Its 36MP look excellent value.

The D4 is an amazing camera, one that flatters the photographer producing excellent image quality irrespective of conditions. Nobody that buys a D4 will regret it. However,



Nikon has already released two FX cameras this year and there are rumours of a cheaper, third one coming soon. But is FX best underwater? In a word, no. FX works well underwater but requires more discipline to shoot than DX, requiring the best lenses and domes to realise its potential. High magnification macro is more of a challenge too. A big problem is getting good corner sharpness with non-fisheye wide angle, which requires a large dome port and keeping the lens stopped down. Nikon D4 + Nikon 16-35mm @ 16mm. Nauticam NA-D4 housing, Zen 230 dome. 2 x Inon Z240. ISO 1600, f/13, 1/200th.

the D4 costs twice as much as the D800 and it is hard to conclude that the D4 is twice the underwater camera.

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