Nikon D100 Retrospective

(Digital Sunbursts with *both* kidneys…)

by Don Silcock

When Nikon released their first prosumer DSLR, the D100, in June 2002 it was a game changer in that for the first time "affordable" digital SLR technology was available to serious amateur photographers who use Nikon equipment. The subsequent wide range of underwater housings that were released meant that at last the significant advantages of digital photography were now available underwater.

As I write this at the end of 2005 it is interesting to ponder just how much has changed in the past 2.5 years – Canon has emerged as a very serious player in DSLR's and has tempted many long term Nikon shooters to cross over to the "dark side". Canon's wide range of DSLR technology and sensor formats, plus a very nice set of lenses is very tempting….but Nikon has fought back strongly, if rather slowly!

The D70 is a very affordable camera with one significant advantage over the D100 for underwater use – it's ability to synchronize with strobes up to a very useful 500th of a second. The D2X is a terrific camera, but at a big price, plus you will pay a premium for a housing so overall you are looking at very serious money to go this route – although the crowd of admirers may make it worth it!

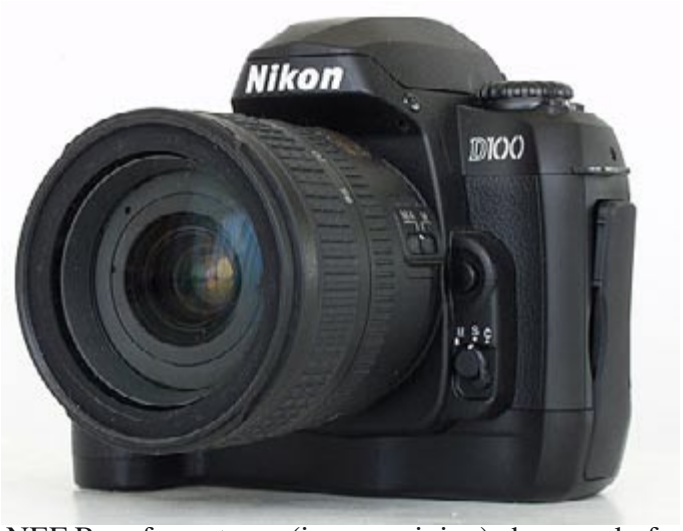
At long last Nikon have finally announced the D200, the true successor to the D100 and the digital equivalent of the wonderful F100, which had most of the usable functionality of the mighty F5, but only half the size and price! If the D200 performs as expected, and Nikon have too much at stake for it not to, it will create significant upgrade demand from the many D100 users.

So as we all ponder our next move in the digital minefield I thought I would take a look back at the D100 and see if I could quantify what it did really well and where it's real weaknesses are. What prompted me was a recent trip to Raja Ampat in Irian Jaya, Indonesia where, after owning D100's for over 2.5 years I realized that I now knew the true performance boundaries of the camera when used underwater. Which led me to think about just how many people have actually reached the same point….I also thought that with all the D100 & housing set-ups that are bound to become available in the next 6 months or so, it may provide a reasonable guide to those digicam owners contemplating a DSLR upgrade.

D100 Strengths

Nikon put a great deal of effort into the D100 and it was positioned as having most of the functionality of the earlier D1 DSLR's, but with higher resolution (more pixels) and a much lower price. It was a great success for them and a lot were sold.

Based on the F80 film camera the D100 gave real SLR performance with a six mega pixel sensor that matched the resolution of film upto A3 and images produced by the D100, particularly using the



NEF Raw format, are (in my opinion) sharp and of publishable quality.

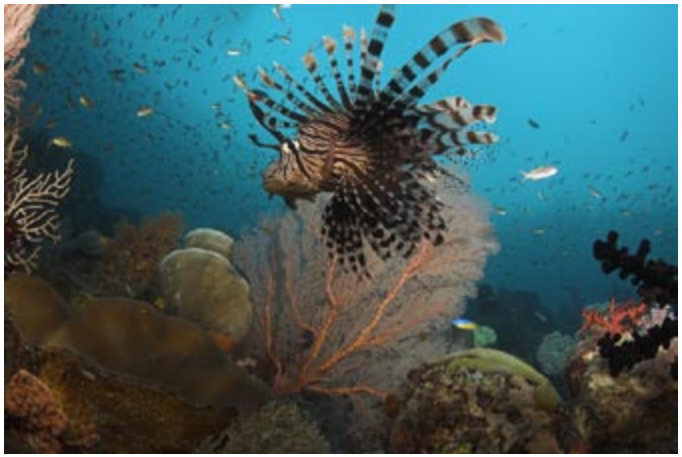
In short, in the right hands, the D100 is capable of producing stunning images.

D100 Weaknesses

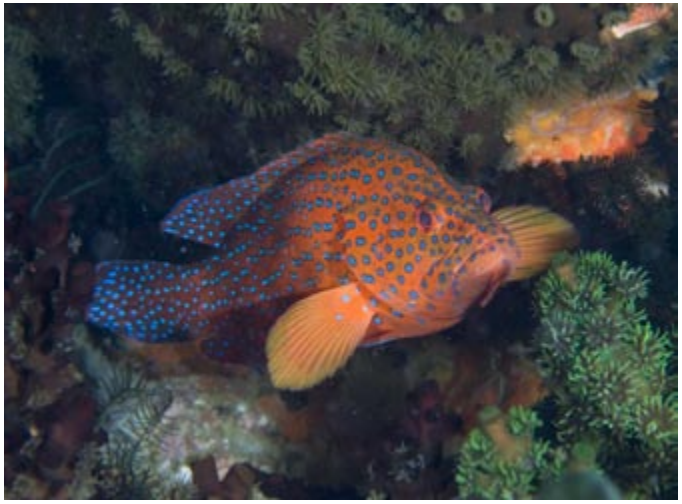
Probably the weakest point of the D100 is it's dynamic range, which dpreview.com (Vincent Bockaert) defines as "the largest possible signal divided by the smallest possible signal it can generate. The largest possible signal is directly proportional to the full well capacity of the pixel. The lowest signal is the noise level when the sensor is not exposed to any light, also called the noise floor".

What this really means to us underwater photographers is that it can be very difficult to get a good result when shooting wide angle with the sun in the frame as the D100's sensor cannot record detail in the shadows without grossly blowing out the sun and turning it a sickly shade of cyan. For macro and general fish photography I don't see this dynamic range limitation as an issue as it is pretty

rare to get the sun in the frame and here are two examples from the D100 taken on the Raja Ampat trip.

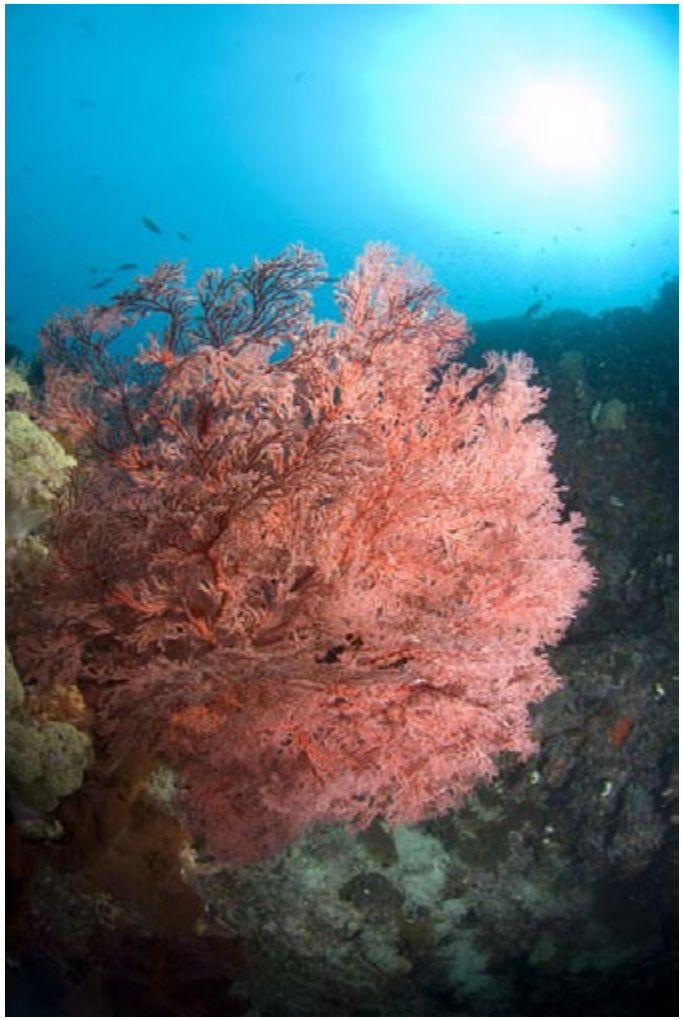


D100, Subal D10, Sigma 15mm lens @ f11, 1/60 & ISO 200 – Manual

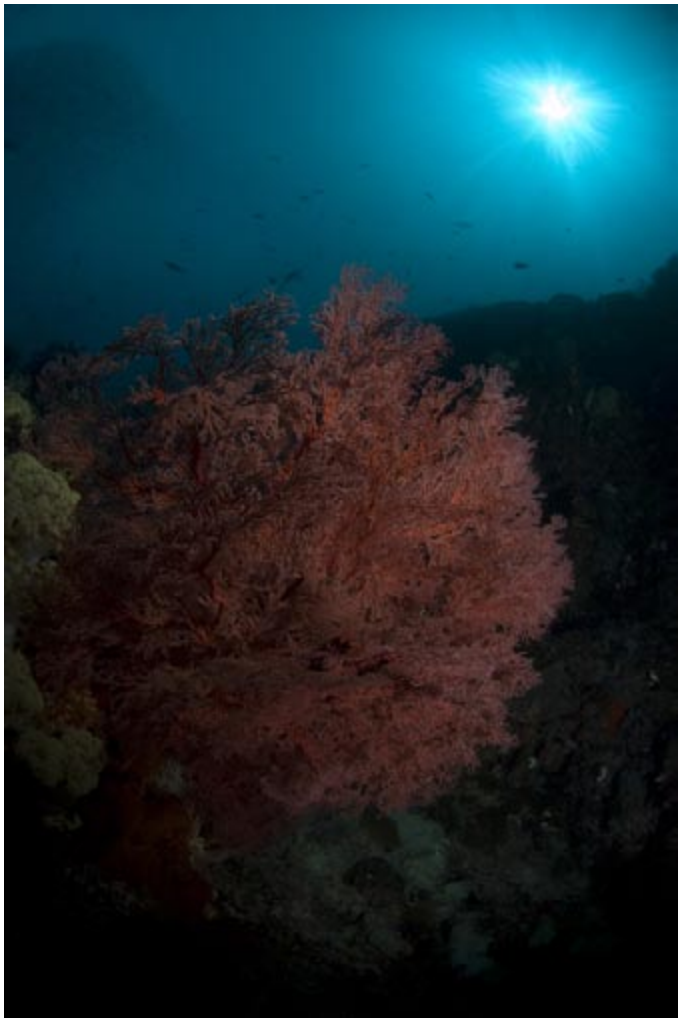


D100, Subal D10, Sigma 28-70mm lens @ 70mm f10, 1/60 & ISO 200 – Manual

However, it can be a real issue with wide angle and here are two examples of the D100 at it's worst during the same trip:



D100, Subal D10, Nikon 10.5mm lens @ f10, 1/180 & ISO 200 – Manual



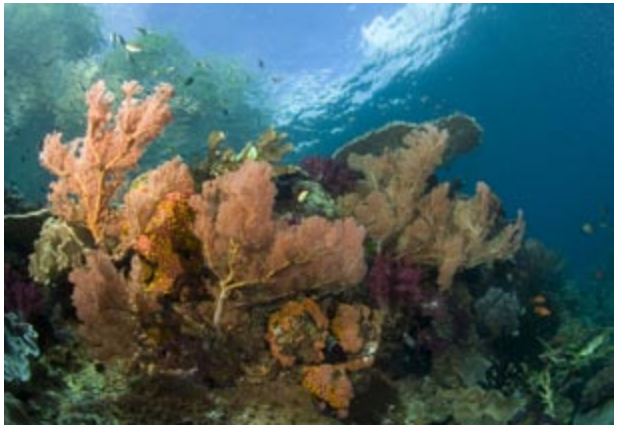
D100, Subal D10, Nikon 10.5mm lens @ f22, 1/180 & ISO 200 – Manual

In the first image I exposed for the coral @ f10, but blew out the sun, whereas in the second I stopped right down to f22 to get the sun under control – but lost all details in the shadows. This is typically where everybody either starts logging on to B&H Photo to work out the upgrade cost or

heads for the bar to drown their sorrows.

I don't pretend to have an answer to the dynamic range limitations of the D100's sensor, my argument is that it ***is*** possible to work around them and get very pleasing wide angle shots provided you really understand the limitations.

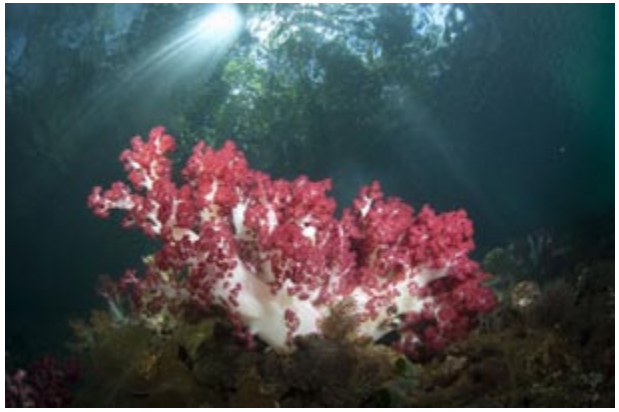
The simplest way to deal with the limitations is to avoid them – shoot with the sun behind you so you don't get the extremes of bright sunlight and details in the shadows. Here is a good example of doing just that at Mike's Point in Raja Ampat:



D100, Subal D10, Sigma 10.5mm lens @ f13, 1/60 & ISO 200 – Manual

If you are shooting into the sun's general direction then you will need two powerful wide angle strobes such as the Ikelite 200's that I use, because the only way to get a good result is to close down the f stop and put the shutter speed at the maximum setting of 180 on the D100.

Stopping down on the f stop brings the sun under control, but the small aperture means you need powerful strobes to punch through and illuminate the subject. Here are two examples:



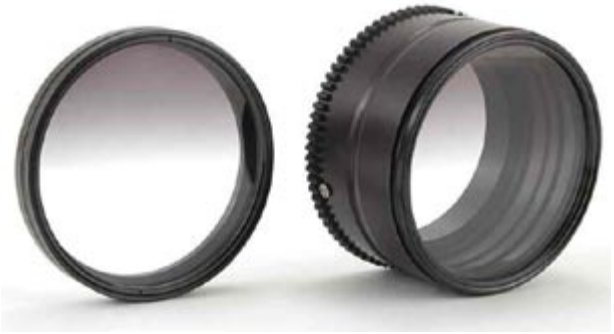
D100, Subal D10, Sigma 10.5mm lens @ f7.1, 1/180 & ISO 200 – Manual

D100, Subal D10, Sigma 15mm lens @ f16, 1/180 & ISO 200 – Manual

An alternative approach, which I personally have not tried yet, but certainly warrants investigation is the use of neutral density filters to bring the desired image within the dynamic range of the D100. Developed by Berkley White of Backscatter in California, the concept is to use the commonly available filters with a specially made adaptor on wide & super wide-angle lenses.

A neutral density filter is a glass element that has part of the element blacked to block incoming light and is available with either a "hard line" where the blocking stops or a "graduated" transition from dark to clear. The graduated filter is the one used for underwater and the adaptor is required to rotate the graduation into the right position depending on where the sun is.

The housing's zoom is utilized to rotate the filter, so specific rings are required depending on the actual camera, lens & housing combination.



There are a variety of graduation grades - from clear-to-a-half-stop to as strong as clear-to-4-stops reduction in power and using a 2 stop filter would make it possible to expose the foreground at f8 @ 1/180 to bring out the colors whilst simultaneously bringing the sunburst under control at f16 @ 1/180.

Of course, there is no free lunch and once it's mounted and set up you are limited to that type of photography, however the results appear impressive. More information is available on Wetpixel on the following link:

http://wetpixel.com/i.php/full/backscatter-neutral-density-underwater-filter-system/