

Getting the Blues

by Alexander Mustard

Background blues are a very important component of tropical diving images, yet the techniques for getting the most pleasing blues rarely seem to be discussed in much detail. This article is here to redress the balance.

First, conditions are crucial. The richest and most vibrant blues occur when the water is clear and the sun is high and bright. Digital cameras are certainly more forgiving in this respect than film cameras and can produce good background blues in a wider range of conditions, but it remains very important to seek out the best conditions. On any dive and depending on the lens there is usually one or two perfect angles that will produce the most pleasing blues and I spend much of the first few minutes of my dives hunting for them. Only then going on to look for subjects to drop in front. Late in the day or early in the morning the blue of the water lacks its sparkle, although these times are very suitable for darker more moody water colours.

Exposure is also crucial. All the cameras that we use underwater were originally designed for land photography and their metering systems are programmed for that environment. As a result a camera's metering will generally

over expose our background water. As a general rule of thumb an underexposure of 2/3 of a stop, relative to a matrix/evaluative metering reading of the scene, tends to produce the nicest blues. Or most of the time F8 @ 1/60th sec on ISO 100 usually gets you pretty close in the tropics!

We can further refine the exact shade of blue according to our tastes. Most photographers favour rich deep blues, which add drama, impact and moodiness to underwater images. These deep colours look particularly good next to warm coloured, brightly lit, foreground subjects (such as a yellow fish, and orange sponge or the classic red soft coral). Deeper blues may require further underexposure. Underexposure is also required when the sun is in the frame as it helps to hold the detail in the sunburst and restrain the size of the sunball (see my article in UWP Mag 25).

When I am shooting balanced light fish portraits my own taste for blues is for slightly lighter, brighter but still rich blues. To find these I usually have to dive shallower (particularly over white sand in the 5-10m depth range) and underexpose less. These blues give a cleaner and more vibrant look, which I think suits this type of subject more than deeper moody blues.



In filter photography we can control our blues with our camera angle. Here I chose a downward camera angle to produce a rich deep blue behind the turtle. Nikon D2X + 16mm. Subal Housing. Magic Filter. F3.5 @ 1/50th.

Digital considerations

None of this is really that new. These rules have been pretty much the same since the days of film domination. And at first glance things might seem easier now. Back then different film stocks rendered quite different blues - Kodachrome for natural blues, Fujichrome for saturated blues and Ektachrome for rich royal blues – and it could be a challenge to choose the correct stock for a particular dive. Digital offers an advantage, it seems, through variable white balance and saturation (available in RAW files), which offers us a sliding scale of adjustment tuneable to the exact conditions.

But there is one important difference for shooting blues in digital imaging that is linked to this adjustable white balance. On digital it is important that we get plenty of white light from our strobes onto our subject. This ensures that we (or the camera, when set it to Auto-WB) can use a low colour temperature value for the white balance and therefore keep blues blue. This was never an issue on film as the “WB” of the film is fixed. Irrespective of the foreground lighting the blue was always blue. On digital if we change the WB to adjust the subject’s colours then we inevitably affect the blue.

This is a potentially confusing principle, and not one I have heard discussed before. So to aid comprehension, let me put it another way. If I am too far from a subject, I will not get enough white light from my strobes onto it. As a result the subject appears too blue. No problem, I think “I can fix that in the RAW converter”. And indeed by increasing the colour temperature value in the converter I can remove the blue from the subject. Unfortunately this same adjustment also acts on the background, sucking the richness from the blue. Even if you



I find that slightly brighter mid-blues work best as backgrounds for fish portraits. Nikon D2X + 105mm. Subal Housing. Subtronic strobes. F10 @ 1/125th.

don’t shoot RAW, you will find that the camera will do a similar thing in Auto-WB.

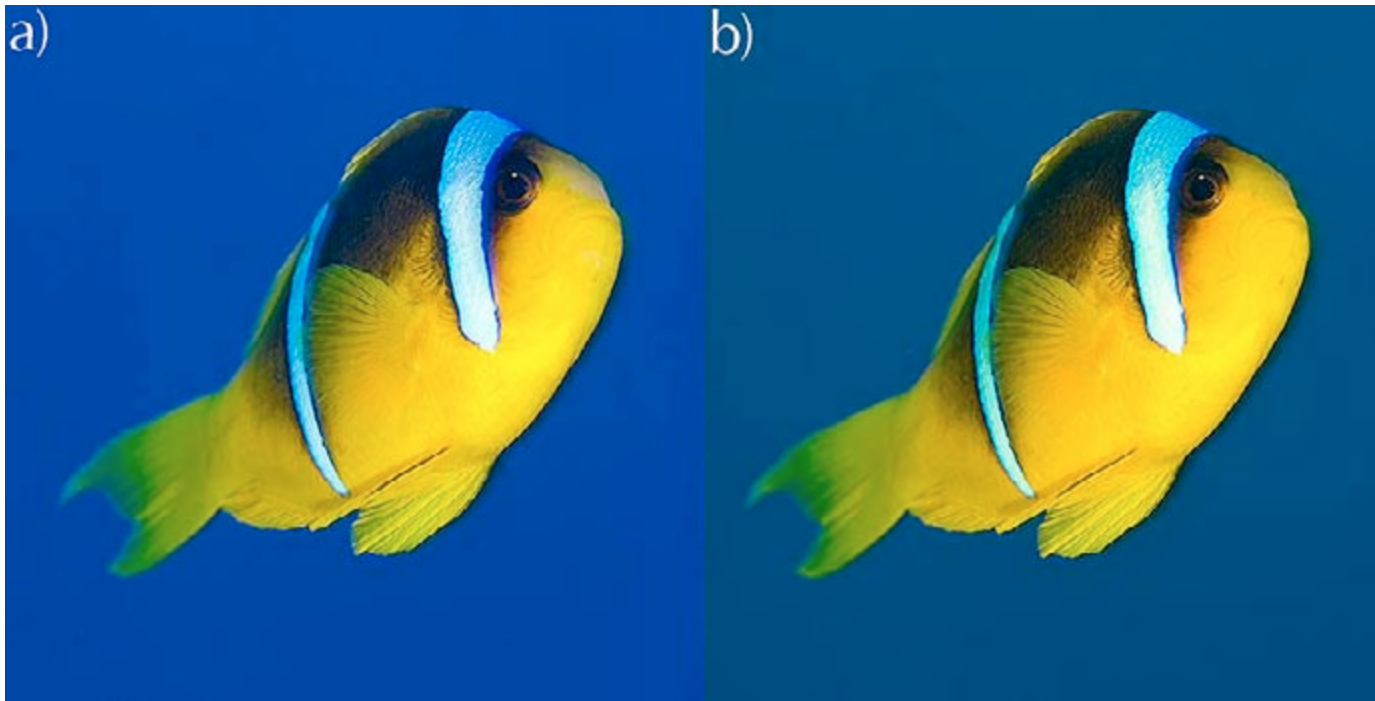
The result may be subtle, but it can be enough to just take the edge off really pleasing blues in many digital images.

The result of over correcting WB is that



Clear water and bright sunny conditions are required to produce rich blue water backgrounds. Nikon D2X + 10.5mm. Subal Housing. Subtronic strobes. F8 @ 1/80th.

blues tend to look washed out (see the example of the stripy snapper). Colour correcting JPGs in Photoshop (or similar functions such as Enhance in iPhoto) usually has a slightly different effect – rather than washing out blues it tends to make



This image compares the blues on an image processed with a) a cool colour temperature and b) with Cloudy WB. Cloudy WB is a popular setting for underwater photography because it warms up images. However not only does it warm up the light on the subject, but also warms up the water creating a slightly muddy colour. Nikon D2X + 150mm. Subal Housing. Subtronic strobes. F7.1 @ 1/60th.

blues muddier (adding too much red to the image) or increasingly purple (too much magenta). Any quick browse of the internet will reveal that both washed out blues and red/purple blues are becoming increasingly common trend in underwater images.

The solution to getting rich blues backgrounds in our high tech digital images is to get our underwater photography basics right and get as close to our subject as possible.

Other digital factors

There are other consequences to this line of thought. Certain WB settings such as “Cloudy” have become popular with underwater photographers because they add a pleasing warming effect to underwater images – which as described above helps to overcome problems of not getting enough white light onto the subject. The downside of this setting is that it will also warm up a nice pure blue to a reddy-greenish blue. A better solution is to use a cooler WB setting (around 4500K) and ensure we get close enough to the subject so that we do not



Underexposing blues by about 2/3 of a stop (-0.7) compared with a matrix metering of the scene helps produce the deep blues that underwater photographers favour. Nikon D2X + 12-24mm. Subal Housing. Subtronic strobes. F7.1 @ 1/60th.

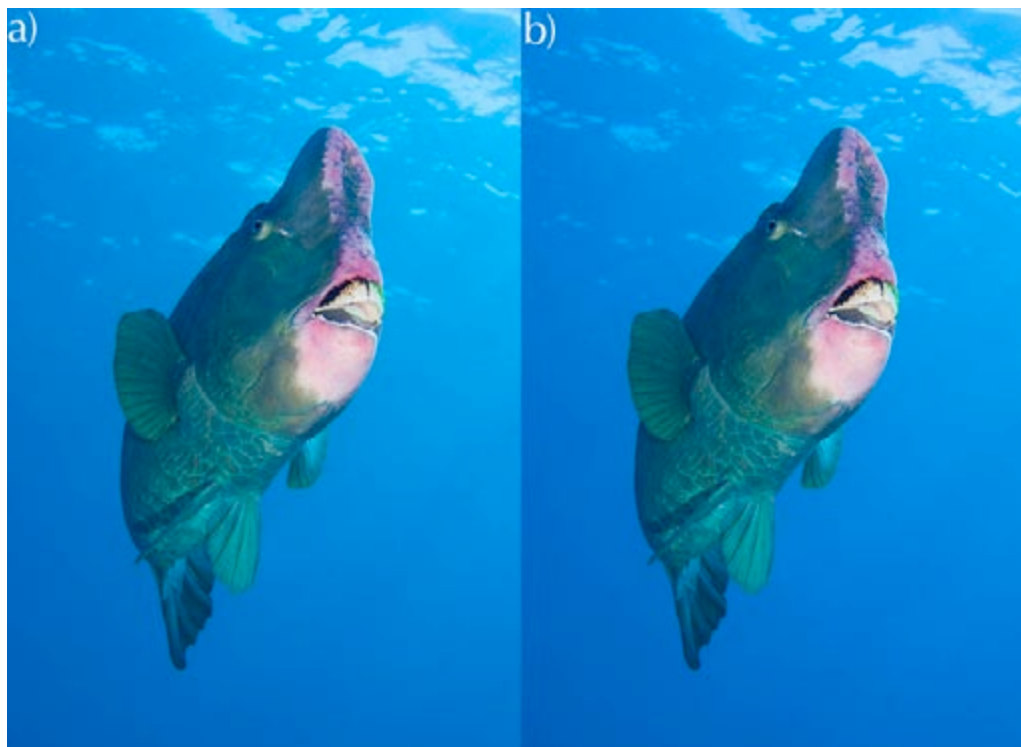
need the warming crutch of Cloudy-WB.

It also follows that warm colour balanced strobes will also help produce richer blue backgrounds because they allow us (or the camera)

to set cooler colour temperatures in the white balance. Brands such as Subtronic and Ikelite are well known for having warm coloured light and therefore will produce bluer backgrounds compared with a cooler strobe such as Inon, when the WB of both images is set on the subject.

Another factor that affects the blue colour recorded by the camera is the brand. The venerable Fuji S2 was well known for producing greeny blues, while Nikon's latest DSLRs, the D2X and D200, produce richly saturated blues not dissimilar to those produced by Fuji's Velvia and Provia slide films. Canon DSLRs tend to produce less saturated blues, and have the advantage of being cleaner with very smooth tonal gradients. Most of the time these characteristics can be changed in the RAW converter, but to my eyes at least there is no denying that each of the manufacturer's has a look.

Filters also help to produce pleasing, deep blues because they block much more blue light relative to warm colours, thus slightly under exposing the blue. Interestingly, different underwater filters also produce different blues. The UR Pro CY filter tends to produce deep royal blues and the Magic Filter produces purer mid-blues, although not as dark. In available light photography it is hard to control the exact exposure

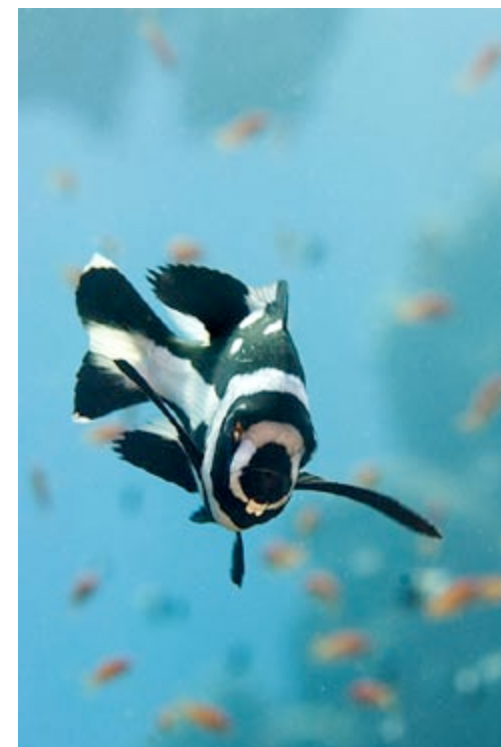


We can use post processing in Photoshop to fine-tune blues to our tastes. Here I used the Selective Color tool to change the original a) to b). I simply increased the magenta and decreased the yellows in the Cyans to produce a subtly more pleasing water colour. Nikon D2X + 28-70mm. Subal Housing. Sea & Sea strobes. F5 @ 1/250th.

of the blue relative to the subject as both are illuminated by the same light source. But we can get quite a lot of control by changing the camera angle to alter the brightness of the blue - shooting down into deeper water to get darker blues and slightly upwards to get lighter ones.

Post processing blues

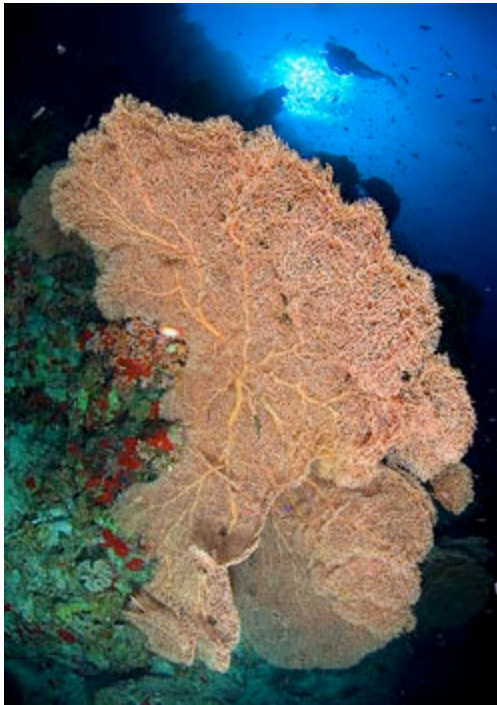
Of course the RAW conversion is not the end of the line for digital processing and Photoshop offers us many ways to improve the blue in our images. As always with Photoshop there are many ways to achieve an effect, but the one I would like to discuss here is one of the simplest to use - the new "Selective



This is a common problem with digital images. I was too far away from this snapper when I took this image. As a result the image was too blue. I adjusted the WB in the raw converter to get rid of the blue cast on the subject, but this also sucked out the blue from the background, producing an unattractive washed out look.

Color" tool introduced (under Image>Adjustments) in Photoshop CS2.

The Selective Color tool allows us to alter the hues of the blues and cyans in the image without



Early morning or late afternoon dives produce much more muted water colours, which can often create a pleasingly moody effect. Nikon D2X + 10.5mm. Subal Housing. Subtronic strobes. F8 @ 1/250th.

having to go to the effort of masking off the open water section of the image (assuming that there is not a lot of blue or cyan in the subject). If the background is predominantly cyan then use the tool to select the Cyan colours in the image, and if it is blues then select the blues. To adjust the cyan colours try increasing the magenta in the cyans to produce a richer blue colour. It is also worth reducing the yellow in the cyans to

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remove any green tinge to the water. To adjust the Blue colours again increasing the magenta will deepen the blue and removing the yellow will tend to make the blue more vibrant.

There is a caveat with this technique, and that is to go easy on the magenta particularly if the images are going to be printed/published in CMYK. Overly rich deep blues on the computer screen can have the tendency to print purple because they contain too much magenta. Although a good CMYK conversion will avoid this problem.

Conclusion

In conclusion, there is certainly some irony in the fact that the flexibility provided by adjustable white balance in digital imaging actually makes it more important to get our basic technique correct under the water if we want to produce great blues in our digital images. And while post processing can help us achieve pleasing blue backgrounds in all conditions the best blues will always come from finding the perfect angle in the ideal environmental conditions.

Alex Mustard

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