Techniques & Tools

by Dr Alex Tattersall

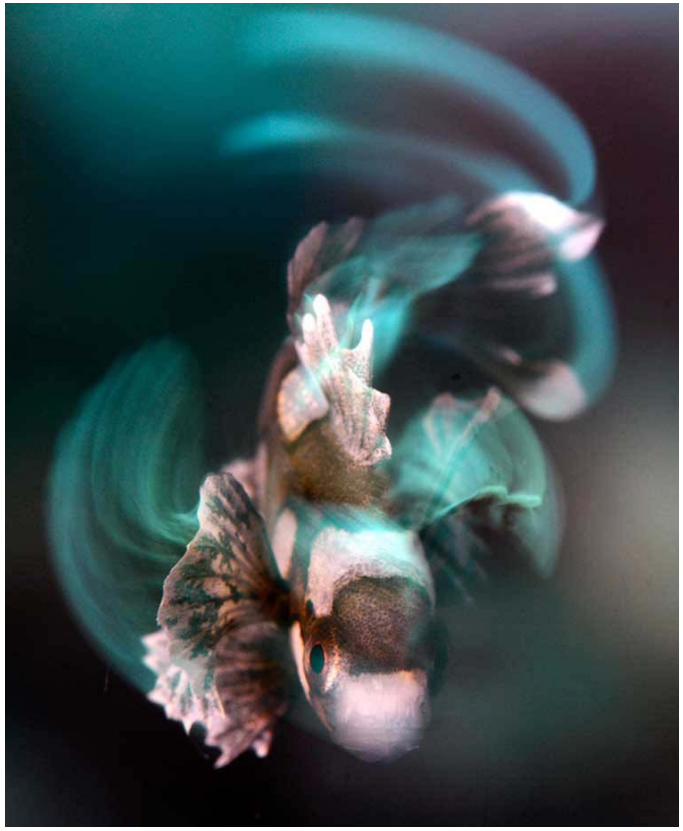
Techniques

I recently returned from leading a macro photo workshop in Puerto Galera, the Philippines, where benign conditions, shallow diving and splendid subject matter (special thanks to dive guides Kris and Taxe at Atlantis Dive Resorts) gave us all ample opportunity to practise our creative techniques.

As my default settings on DSLR for macro have always been around the F22, 1/200, ISO 320, giving consistent results, I had to make a conscious effort to step outside of the comfort zone. Whilst the techniques I am going to discuss below are not in any way revolutionary and I'm quite sure the more experienced of readers among you will have experimented with them long ago, they were new to me and I was glad to push the boundaries of my own photography further. In this part of the article, I plan to cover slow shutter speeds, shallow depth of field and creative negative space. In the second part, I will look at tools for creating original and memorable images.

Slow shutter speeds and panning

I had previously tried slow shutter speeds on the fast-moving feeding mackerel of Marsa Alam but only recently realised why these had all failed in my eyes. All the photos looked like the fish were swimming backwards. The reason was down to the synchronisation of the flash on the 1st curtain, in other words, the flash going off when the shutter opened. The effect then was that the flash would fire and freeze the movement of the fish, the fish would then move, and the movement would appear in front of the fish, giving the impression that the fish were moving backwards. Switching to rear curtain sync resolved this and allowed for the movement to happen before the subject was frozen by the strobes.



This technique warrants further exploration with other fast moving subjects.
Nikon D7100, Nauticam NA-D7100, 105mm VR macro, 1/10, F22, ISO 320, 2x INON Z240.

Inspired by a shot I had seen by Christian Loader, I was on the lookout for a juvenile multispotted sweetlips and we came across one on the second day of our trip. I bedded in, determined to spend the next hour with this frustrating little fish, to get the shot that was in my head. Still a work in progress but the subject matter suits this technique perhaps better than any other I can think of. My results are here, the swoosh of the fins being captured by the slow shutter speed with the flash freezing the subject at the end of the motion.

Nikon D7100, Nauticam NA-D7100, 105mm VR macro, 1/10, F22, ISO 320, 2x INON Z240.

At the end of a long dive in Anilao, I saw an anemone playing host to a large number of small fish. With a slight current running, the fish were all lined up nicely, in a perfect formation for me to try out some panning. Again, this was a new technique for me. Starting at the tail, I released the shutter and then panned the lens down the length of the fish and then the flash fired on the rear curtain. I quickly realised that the shot was much more effective when the camera was tilted on the diagonal so I continued in this way until I got a shot with which I was pleased.

Slow shutter speed is certainly a technique that I will be playing with more this year.

Backgrounds and negative space

If I look back over my own photographic development in the last eight years, I see an interesting trend which I also see in many of the photographers I work with. When I began, I was very subject driven, almost stamp collector-like, and would take a photo of a fish I found interesting with little regard for the attractiveness of its surroundings. As I collected images of different subjects, when I came across that subject again, I was able to invest more time and effort into trying to create a more attractive image, this being as much in the form of an interesting look or behaviour from the subject as in thinking about the beauty of its surroundings.

Negative space for me now is all-important. So important in fact, that I will regularly pass over a poorly positioned, rare subject if I can find a common subject in a particularly good location 'negative-spacewise'. Take the common pyjama nudi for example, a subject I will usually pass-over as they tend to be in difficult to reach, non-photogenic places and have been photographed ad-nauseum. The image shows the subject in a photogenic background worthy of time investment to achieve a pleasing shot.

What pleases me most about negative space and backgrounds is that when you have these in mind when taking a shot, you will know that the image you are creating has not ever been shot before and will not ever be shot again. Close-up portraits of whip coral shrimp for example do little to excite me now as I'm quite convinced that most if not every angle of this rather one dimensional critter has been covered. When negative space becomes a major feature of the image, creativity can be unlimited.

Lovely coral heads make for an excellent multidimensional background, this slug is worth the time investment. Nikon D7100, Nauticam NA-D7100, 105mm VR macro, 1/200, F22, ISO 320, 2x INON Z240.

By way of example, anemones provide some of the most photogenic of backgrounds, giving shapes, beauty and depth to an image. The close-up portrait of the porcelain crab in the first image is one that could easily be imitated; the undulations of the anemone in the second image makes it special. That is what I now seek to achieve with my images as far as possible.

The same anemone offers a richness of photo opportunities, framing subjects against the textures and colours of the skirt. The image below demonstrates how the negative space is as important as the subject. Here also the shadow of the anemonefish and the texture on the anemone skirt were achieved by unbalanced light, i.e. more strobe output on the right side with minimum output from the left.

A portrait of a porcelain crab, nice subject, nice negative space, but nothing very original. Nikon D7100, Nauticam NA-D7100, 105mm VR macro, 1/200, F22, ISO 320, 2x INON Z240.

Undulations and texture make for an original image. Nikon D7100, Nauticam NA-D7100, 105mm VR macro, 1/200, F22, ISO 320, 2x INON Z240.

Shallow depth of field

If we have full manual settings on our camera, we have the luxury of being about to control the depth of field we want in our images. Again, nothing revolutionary about this, but for me, this was an exercise in the rarely practised. All things being equal, adjusting aperture settings to gradually open the aperture (decrease the F-stop number) will gradually decrease the depth of field in the image. Note that depth of field in images will also decrease as magnification increases.

Manipulating depth of field allows us to use areas of bokeh to add interest to the image. It has the added benefit of allowing us to blur an unattractive background, of key importance to keen 'muck divers' like myself. The filefish below at Giant Clam muck divesite, Puerto Galera, was positioned against a very unattractive background as the first image shows.

By using a shallow depth of field both through F-stop changes and by increasing proximity I was able to blur this out and create a more attractive photo. Needless to say, with narrow depth of field, precise positioning of the focus point and a steady technique are both paramount to success. I used single point autofocus on the back button for this shot and moved the focus point manually to the top left third where I wanted the eye to be positioned.

Shallow depth of field can make the same subject and background into a very different image. Compare the images below and the effect that DOF has on the resultant impact of the shots. I'll be trying more of this but with greater mindfulness as to the role of bokeh in each of the shots.

An unattractive background calls for some creative technique.
Nikon D7100, Nauticam NA-D7100, 105mm VR macro, 1/200, F22, ISO 320, 2x INON Z240.

Opening the aperture and increasing magnification can help blur unattractive negative space.
Nikon D7100, Nauticam NA-D7100, 105mm VR macro, 1/200, F9, ISO 320, 2x INON Z240.

(Right) Closed aperture results in subject and much of the background in focus
Nikon D7100, Nauticam NA-D7100, 105mm VR macro, 1/200, F25, ISO 320, 2x INON Z240.

(Far right) Opening the aperture has a very different effect on the image.
Nikon D7100, Nauticam NA-D7100, 105mm VR macro, 1/200, F9, ISO 320, 2x INON Z240.

Detail on imperial shrimp.
Nikon D7100, Nauticam NA-D7100, 105mm VR macro, Nauticam SuperMacroConvertor, 1/200, F29, ISO 320, 2x INON Z240.

Uncropped. At full magnification with both eyes in plane of focus. The SMC, like any strong dioptre, merits good thought about the bokeh areas of the image which can absolutely make or break an image.
Nikon D7100, Nauticam NA-D7100, 105mm VR macro, Nauticam SuperMacroConvertor, 1/200, F29, ISO 320, 2x INON Z240.

Tools

I currently have two favourite tools for creating memorable images; the first for increasing magnification and the second for varying light.

Magnification

For magnification, I dedicated this trip to Nauticam's new supermacro convertor SMC.

I had previously used both F.I.T. and Subsee diopters both of which I rate highly. These still have pride of place in my macro toolbox since the SMC occupies a place of its own and is an advanced tool not suitable for all experience levels of underwater photographer.

It is a very powerful dioptre which requires competent diving skills and some thought in terms of subject selection. I used it with the Nikon 105mm VR lens on the D7100 and, as a hardened 'macro-head' found it a pleasure to use.

Distance to subject was far enough as not to cause an issue with lighting, and provided I was able to stabilise myself adequately in front of the subject the very high contrast helped focusing for both camera and photographer.

Focus was set to back button, mostly with AF-S single point auto-focus, the point being positioned in the desired part of the frame before setting up the shot. I would often focus on a static object close to the subject with the rear lever. When I'd achieved the magnification I wanted, I moved into the subject slowly and rocked gently forwards and backwards until I had the subject in focus in the viewfinder. Needless to say, a magnifying, enhanced viewfinder assisted this hugely.

The SMC will give a good range but as the camera lens approaches 1:1 magnification, the subject becomes

Nauticam SMC with mid-range zoom lens on mirrorless camera – Whip coral shrimp – with thanks to Doug Anderson
Olympus OMD-EM5, 12-50mm lens, Nauticam NA-EM5, Nauticam SuperMacroConvertor, 1/200, F11, ISO 320, 2x INON Z240.

greatly magnified with little distortion or chromatic aberration visible even at these high magnifications. Depth of field of course becomes noticeably narrower at these magnifications so good control and steadiness of the camera are absolutely paramount. This as much for the quality of the image, as for the protection of the marine environment.

It is however important to note that the SMC will not work well with all lens combinations. It works very well with compact cameras such as the Sony RX100, most midrange zoom lenses on DSLR and micro 4/3 (such as the 12-50mm Olympus kit lens), and longer macro lenses. Shorter macro lenses such as the Sony 30mm and the Nikon 60mm AF-S macro lenses are not among those that give an optimum performance with the Nauticam SMC.

For those fascinated with tiny detail like myself, the SMC coupled with a good sensor and lens offers discoveries not visible to the eye. New and interesting photo opportunities abound.

Making the mundane special.
Nikon D7100, Nauticam NA-D7100, 105mm VR macro, Retra LSD prime, 1/200, F29, ISO 320, 1x INON Z240.

Lighting

My favourite toy for controlling the light shape at present is undoubtedly the Retra LSD Prime. Although it is quite a heavy piece of equipment, it is thoughtfully and robustly made and significantly easier to use than another other snoot I have tried previously. The focus light from the strobe is concentrated, making it easy to see where the light will fall in the frame. With a long arm it is relatively straightforward to get

Nikon D7100, Nauticam NA-D7100, 105mm VR macro, Retra LSD prime, 1/200, F29, ISO 320, 1x INON Z240.

Magnification and precise lighting to isolate one polyp.
Nikon D7100, Nauticam NA-D7100, 105mm VR macro, Retra LSD prime, 1/200, F29, ISO 320, 1x INON Z240.

Scorpionfish with LSD Prime
Nikon D7100, Nauticam NA-D7100, 60mm macro, Retra LSD prime, 1/200, F29, ISO 320, 1x INON Z240.

pleasing results.

What I love about this type of technique is how it can turn the mundane into the truly special. Nudibranchs on unattractive sandy backgrounds can breathe new life with the LSD prime.

The last two shots demonstrate how, with some thought, precise lighting can produce interesting results.

The LSD prime comes with several different shape inserts to vary the size and shape of the light emanating from the strobe. One of the options is a dual hole which suits a static fish with two distinct eyes such as the scorpionfish.

I hope this brief demonstration of the SMC and LSD show something of their potential in the creative process. They are both tools that will always be traveling with me on underwater photo trips and workshops in the future.

If you fancy exploring some of these techniques with me, my next workshop is to Manado and Lembeh, 16-26th March 2015, some spaces are still available with bookings through Oonasdivers.

Dr Alex Tattersall
www.uwvisions.com

www.oonasdivers.com/workshops/931-underwater-photography-workshop

Don't settle for 2nd best

Film - No Filter
No White Balance

Digital - No Filter
Manual WB

Magic Filter
Manual WB

Digital cameras have opened up new possibilities to underwater photographers. For available light photography manual white balance is an invaluable tool for restoring colours. But when you use it without a filter you are not making the most of the technique. You're doing all the hard work without reaping the full rewards. These three photos are all taken of the same wreck in the Red Sea. The left hand image was taken on slide film, which rendered the scene completely blue. The middle image is taken with a digital SLR without a filter, using manual white balance. The white balance has brought out some of the colour of the wreck, but it has also sucked all the blue out of the water behind the wreck, making it almost grey. The right hand image is taken with the same digital camera and lens, but this time using an original Magic Filter. The filter attenuates blue light meaning that the colours of the wreck are brought out and it stands out from the background water, which is recorded as an accurate blue.

www.magic-filters.com