

Back to Basics

By Alexander Mustard
with Giles Shaxted

Like most people, I have a love hate relationship with technology. Technology allows me to do things that wouldn't have dreamed possible a few years ago. I am currently in Grand Cayman and while I've been here I've been able to plug my laptop into the phone line in my hotel room and download UWP 18. Frankly, I think its very cool to be able to pick up the magazine while I'm away and have time to read it and put the latest tips into practice. If only my other magazine subscriptions followed me round the world! Anyway, I thought that Deb Fugitt's pike blenny reflection photo on the cover was fantastic and took a moment to send a quick email to the Editor to tell him. So where's the bad side of the technology? Well, Peter has a quick and devious mind and moments later my computer was flashing up that I had mail. Clearly keen to stop me enjoying my vacation, the Ed had a suggestion for an article. Here is an extract from his email "I think our readers would be interested in seeing shots taken with the most basic equipment. Some complain that's it's

all very well for your contributors with their expensive equipment...". So that is what this article is about. Going back to basics, in terms of the technology of underwater photography, and asking the question "Do we really need the most expensive and advanced technology to capture a range of pleasing underwater images?"

The plot



Fortunately, I happened to have the ideal tool with me: an Olympus C220 digital compact camera and PT-013 housing. This is about as simple as UW digital gets! The box lists its



Giles with the little Olympus! The camera is tiny compared with the twin strobed

fantastic features: 2 megapixels and 3x times optical zoom and that's it! The camera was donated to YUP - the Young Underwater Photographers' Group (www.yup.digideep.com) by Ocean Optics and is shared between the members. I had brought it to Grand Cayman so that fellow YUP member Giles Shaxted could try it out. Giles, who has previously worked as the photo-pro at the well known dive centre Fisheye, and has been shooting digital underwater since before I knew what a megapixel was, seemed an ideal accomplice for this project.

To keep the technology basic, we chose not to add an external flash or any of the supplementary lenses that are available, using the camera in its most basic form. The whole thing is tiny, small enough to slip into a BC pocket when either of us was shooting with other cameras. We also thought it would be unfair if we took the camera repeatedly to the most exotic dive sites in Cayman, diving endlessly until we had perfect shots. So we decided to use it only when we were shore diving, and in total made 5 dives and one snorkel trip! Oh, and we only dived it on Fridays - Giles's



Macro shooting is usually handled very well in fully automatic mode. The large, well shaded LCD screen makes it easy to accurately select an interesting composition. Olympus C220. 5mm lens. 1/100th @ f13. Automatic (GS).

day off! Finally, we decided to limit our use of Photoshop in preparing the pictures you see here to auto-levels, minor backscatter removal and sharpening after resizing.

The evaluation

Both of us are used to cameras that offer much more flexibility and control, so we were sure that our photography with the C220 was going to be limited by its

technology. Its lens covers a standard mid-range, ideal on land, but neither wide enough for scenery nor tight enough for macro underwater. And its flash, coming from within the housing, is ideally placed for lighting up backscatter and not powerful enough to illuminate large subjects. The other major limitation of many digital compacts is shutter delay - a seemingly endless period of time that starts when you press the shutter, and waits until the



The night-time flash mode was used here to lengthen the exposure time and balance the ambient light with the flash-fill on the Scorpionfish. Olympus C220. 5mm lens. 1/25th @ f8. Automatic (AM).

fish has swum away before actually taking a picture. Clearly this was going to cause problems with moving subjects. That said, we felt the best evaluation was to try to take all the different sorts of images that we would have done using our more usual mounts; the sorts of images that any owner of this sort of camera would want to take. Below is a list of the 5 types of shots we decided to try, starting with the easiest, technically speaking, and

finishing with what we considered nigh-on impossible:

- 1) Close-up, flash-lit image of a slow moving subject
- 2) a fish image illuminated with a balance of flash and ambient light
- 3) a wide angle scene
- 4) a moving animal behavioural image
- 5) a split level shot

Close-ups with flash

Sitting on the benches outside the Dive-Tech shop at Turtle Reef, before our first dive, we decided to start by playing to the camera's strengths and shoot close-ups lit with the camera's flash. Small camera to subject distances would reduce backscatter and allow the internal flash to illuminate the subject, and the single light source (the flash) would be easily controlled by the camera's metering. We started using the classic approach of shooting from as close to the subject as possible (with the close-up function turned on) often with the lens zoomed out to get the subject in the frame. This worked well. Sometimes, at such close distances the flash would overexpose the subject, despite its auto control. The exposure can be compensated through the menus, but this is a bit fiddly to do for each new subject and we mostly used two other approaches. The first was to increase the flash

to subject distance, by moving back a bit and zooming the lens in to get the same shot. The second approach, that I favoured, was to slide my finger across the flash a bit, cutting off some of the light. I know that sounds crude but it worked really well and can be done very quickly. Despite what I have said above, the camera performed much better than we expected and from our first shots the pictures were correctly exposed and well lit. The lens was not really capable of true macro, smallest area the camera could photograph was about the size of a postcard, but I am sure that a supplementary lens would solve this.

Balanced light fish photography

After a long photo-dive it was very pleasant to get out of the water, have a shower and warm up in the suntrap behind the dive shop. Soaking up the rays, we decided that although we could continue with the close-up technique and produce a large number of pleasing pictures we had to forge on and next on our list was fish photography. This, we felt, would be a high priority for most photographers. A lot of fish photography can be done with the macro technique, but to make things a bit tougher we wanted balanced light fish pictures - flash lit shots with blue backgrounds that show the fish as they look underwater. Achieving balanced light is an area where we thought we would expose the limitations of a predominantly automatic camera that does not provide the differential manual control of ambient light and flash exposure. In UWP 18 I wrote that we either need wide apertures or long exposures to



Again a long exposure, produced in auto using night-time flash mode, has produced a pleasing blue background with this French Angelfish. Olympus C220. 5mm lens. 1/15th @ f8. Automatic (AM).

get nice blue backgrounds in all but brightest, shallow water. The easiest way to get blue backgrounds with the Oly was to shoot slightly upwards increasing the amount of natural light coming into the camera, and to lengthen the exposure using the night scene flash mode. This is a slow flash synch mode, where the camera slows the exposure time down to correctly exposure the ambient light. Slow moving fish like scorpionfish

were now easy. The problem with most fish is that they swim, and this makes them much more tricky to shoot with a camera with significant shutter delay. Half pressing the shutter as you are framing the shot cuts the delay in half, but it is still considerable and there are no miracle cures. Therefore fishy images need to be planned; I guess it is a bit more like shooting a Nikonos for fish photography than zapping free swimming fish with the rapid autofocus of a modern SLR.

Picking the right subject is the key to success: territorial fish tend not to move about too much. Alternatively, look for fish that are busy doing something. The French Angel, pictured, was busy stuffing its face with a sponge. So while not everything is possible with shutter delay, get the right fish at the right time, use night flash mode and fish shots with blue backgrounds become point and shoot simple.

Wide angle scenery

A big bowl of pasta later we relocated to Sunset House for afternoon and evening dives. Discussing our progress over a chilled beverage, we knew wide angle was always going to be a tough challenge without a wide angle lens! In order to fit the entire subject into the frame we would need to back away. But this would cause two problems. First the extra water between the camera and the subject would reduce the clarity of our images. And second the longer light path would mean we had no hope of lighting the subject with the internal flash of the camera. Indeed, shooting through so much water, and with such a small distance between lens and flash seemed a perfect recipe for backscatter. It was clear that the only pleasing scenic images we



The internal flash is only going to light up backscatter and not the main subject, so for wide angle it is best to shoot with only available light. Shooting in black and white is a good way to disguise the lack of colour! Olympus C220. 5mm lens. 1/60th @ f2.8. Flash Off (GS).

could get would be with available light.

In shallow water (less than 5m) we found that the auto-white balance of the camera allowed us to produce reasonably colourful shots. We could have added coloured filters to help us take coloured images deeper than this, but we felt that filters were

not basic equipment and chose not to use them. Instead, deeper, we concentrated on monochrome images. Underwater images can look particularly striking in black and white, especially when you use the direction of the available light advantageously when composing the shot. In generally light underwater downwells from above. Often a slightly downward camera angle makes best use of ambient light to achieve even illumination of the subject. The Olympus has both Black and White and Sepia-toned monochrome modes, but if these features are not available their effect can be easily achieved afterwards in Photoshop.

Behaviour

One of the projects I was working on in Grand Cayman was photographing reef fish spawning, particularly that most Caribbean group of fish the Hamlets. I was keen to get as much time with the fish as possible so I did a deal with Giles: if he would waste a couple of Friday nights watching fish instead of hitting the apres SCUBA, I would come out for a beer later in my trip. Seemed like a good deal to me! Not many people have watched hamlets spawn, so Giles spent most of the first dive getting familiar with the behaviour while I shot on my D100. When we returned a week later, Giles knew exactly what to expect and was able to show me the cracking shot of the barred hamlets in a spawning embrace that you see here, before I had even seen one pair spawn!

Rather like fish photography, capturing “the moment” of behaviour takes patience and careful observation. The shutter delay of the camera makes



The key to getting split-second behaviour shots, such as these barred hamlets mating, is to observe the activity, without taking photos, until you can predict what is going to happen and be ready for the shot. Olympus C220. 5mm lens. 1/100th @ f13. Automatic (GS).

the whole process even harder and makes being familiar with the sequence of natural events is essential to getting the shot. But I think that the image Giles produced of the hamlets shows what can be achieved.



You can not know your camera too well. Giles knew that the Olympus could take half frame shots and used this feature to produce a split level image in the camera. Olympus C220. 5mm lens. 1/80th @ f8. Flash off (GS).

Split levels

On the second Friday morning we decided to snorkel at the Wreck of the Pallas to make use of the shallow water to take some colourful available light wide angle. The Pallas is a cracking snorkel, where you walk up the beach and then drift down through

the waist deep lagoon through coral gardens and wreckage with the mild current. About half an hour into the snorkel, Giles stuck his head out of the water and told me he could do a split level with the Olympus. I knew he was talking rubbish. Split levels are just one of those shots that require specific technology - a large dome port and a wide angle lens. The Olympus had neither. But Giles had other ideas, and having studied the instructions he illustrated probably the most important lesson of using any camera: to really get to know the technology. The Olympus has a curious feature that they call "2 IN 1" that allows you to combine two half frame images, taken successively, in one frame. With careful use of this feature Giles created the split level shot of the Pallas, that you see here, in camera. If we had allowed ourselves to make more use of Photoshop, it would be the work of moments to hide the line between the two halves of the frame. One advantage of this technique is that because you take the two half of the frame separately you can easily solve the problems of the different exposures and focus required for above and below the surface and also the magnification effect of the water. A victory for imagination and application over technology!

Conclusion

Technology has always dominated underwater photography, and probably always will. It is no coincidence that the pathfinders of British underwater photography contained a large proportion of engineers who build their own technology before it was commercially available. And I'm sure that the same was true around the

world. Few would argue that for certain shots you need certain equipment. But both of us were amazed by the range of images we could produce in just a couple of days with the little Oly. I am not going trade in my DSLR, or anything, but never before has the most basic technology available for underwater photography been so capable. Now is a great time to be starting underwater photography.

**Alexander Mustard
and
Giles Saxted**



The authors (Giles left and Alex right) enjoy a bit of après SCUBA. Note how we again used the night-time flash mode to capture the background lights of the disco!!

What links these sites?



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