

DIGITAL PHOTOGRAPHY

skills °

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OCTOPUS HAVE A MARVELLOUS ABILITY TO BLEND IN WITH THEIR SURROUNDINGS. THEY CAN IMITATE THE COLOUR, TEXTURE AND PATTERNS OF THEIR ENVIRONMENT SO WELL THAT TO THE UNTRAINED EYE THEY'RE INVISIBLE. WHEN PHOTOGRAPHING SUCH A SUBJECT, THE OBVIOUS PROBLEM IS MAKING THE SUBJECT STAND OUT, UNLESS OF COURSE YOU'RE TRYING TO HIGHLIGHT THEIR CAMOUFLAGE EXPERTISE. IF YOU LET THE OCTOPUS KNOW THAT YOU CAN SEE IT, CHANCES ARE IT WILL REACT LIKE A BLUSHING ADOLESCENT, IMMEDIATELY LOOSING ITS COOL AND REACTING IN A VERY FLUSTERED MANNER, PERHAPS SWITCHING TO A WHITE SHADE OR FLASHING VARIOUS EMOTIVE COLOURS ACROSS IT'S BODY.

This problem of making your subject stand out isn't restricted to octopus. Many marine subjects have built-in camouflage to some degree; the white belly/dark back of a shark, silver trevally reflecting their blue midwater home, tasselled scorpionfish with edge blurring growths, leafy seadragons with their superb faux kelp suits. Even the massive whale shark from above can look like a school of dancing fish. Virtually any object or animal can be made to stand out more from it's environment by using a few simple photographic techniques.

CONTRAST, CONTRAST, CONTRAST! The silvery white surface or plain blue water column are ideal backdrops for camouflaged subjects. The idea is to place yourself so that the subject is contrasted against the blue backdrop of the ocean. This isn't always possible. A flounder or other sand dweller will rarely rise above the sea floor. And you'd never want to be guilty of snatching up your reef dwelling octopus friend and throwing it up for a cheap and impatient attempt to get something 'different'. Fish that travel across the reef or swim in open water are obvious candidates as they're already positioned in your blue water studio. You may need to hunker down in the reef, but you should be able to shoot up enough to get a lighter blue background for your subject.



Kelvin Aitken is a Melbourne-based professional photographer and diver passionate about the big blue and the big sea creatures to be found out there. He's dived from the Arctic to the extremes of the South Pacific

and if there's a new marine dive adventure to be experienced or invented, he's always the first to put up his hand. He's also dived the southeastern Australian continental shelf and photographed shark species nobody knew would be found out there. Kelvin is a BBC Wildlife Photographer of the Year marine category winner and his unique work is on www.marinethemes.com

The simple single rule is to make all or part of your background at least as light as your subject or lighter. This is done by shooting up at your subject, even if only slightly. You can still incorporate some reef or other marine life but allowing your main subject to be isolated against the plain ocean background will make your subject jump out. In a previous article we spoke about avoiding a full sunburst with digital images. It looks garish and, in almost every situation, detracts from the main subject. Your eye keeps wandering to that bright nuclear explosion. By thinking about your background and deliberately composing with your background in mind will help you to avoid the glaring white hole. You can place your subject over it or just use a less extreme part of the surface flare.

Sometimes there's no alternative other than to shoot down. Again, the answer is to provide a contrast. A dark object against a lighter background, a light object against a darker background. Shooting a black subject against a black sponge can give you a boring image. Even a small amount of contrast will work for you. Tonal contrast is not the only form of opposites that work, colour contrast works as well. A red urchin on a yellow sponge, even though tonally similar, will work well because of the contrasting colours. A basic knowledge of the colour wheel will help here. The opposite colours are: red/cyan, green/magenta, blue/yellow. So a yellow trumpetfish will jump out against a blue background. A red glassy fish will contrast well against a cyan background and a pink or magenta object will jump out against a green background. Yellow has a light tonal quality so will work well against a dark background. Red is a



Shooting down can work if there's contrast between the subject and background. Here the humpback whale's dark back contrasts with the lighter coral reef.

dark tone so will work well with a light background such as sand or light coral. You don't have to remember all of this, you'll see that some of your images will 'work' better than similar images with a different background. When you see something that works, remember the combination and employ it next time you dive.

HUNKER DOWN Even reef dwelling critters can be placed against a lighter background with a little effort. On a sandy bottom you can dig a small depression to get your lens as low as possible. Lying flat isn't a natural position when scuba diving, but you'll discover a whole new view of the reef from a low position. If your lens port is offset from centre, rotating it upside down may give you a lower vantage point. Taking advantage of dropoffs and the natural rise and fall of the reef will also enable you to get ultra low.

If you have a 'point and shoot' digital camera then you don't need to squint through a viewfinder. Place the camera as low as possible onto the reef, even upside down if that gets the lens lower, and compose from a distance. Even if you can't see all or any of the viewfinder, the camera's display can tell you if you need to have another go with a slightly different aim. This works well with slow moving or sedentary subjects such as shells, urchins, sea stars, stonefish, etc. Try it on your next dive. Instead of shooting down at a small bottom dwelling subject, use your imagination, available equipment and reef topography to shoot across to or up at the critter with the intent to provide at least some lighter background or an uncluttered blue water backdrop. If you find the background is black or too dark, lower your shutter speed. With practice you can shoot as slow as 1/8 or even 1 second if the camera is propped against a solid object.

This isn't a guaranteed 'gold medal' technique. There are none. But it will add variety and create a whole new depth to your images, especially adding impact to subjects which wouldn't normally be viewed in such a way.

SPLIT PERSONALITY Gimmicks and gadgets make the world go around. Without new technology to add bells, whistles and shiny bits, our consumer-centric world would collapse. When a new snorkel hits the market, what more can it do than the first snorkel which was a bit of bent garden hose used by US Navy divers? OK, it has a comfy mouthpiece and a bit of draining hardware but even those are old additions. A pink mousetrap with a cheese applicator and spring depressor is still a mousetrap. Like the long dead King Solomon said, 'there is nothing new under the sun'. That goes for photography as well.

Split photographs are in this category. When a certain magazine photographer started to show split or under/over underwater photos, imitators went into a frenzy trying to figure out how it was done.

I know of one photographer who spent a couple of years to exactly copy the hardware and technique to produce identical shots of the same subjects in the same location. I'm not sure if this sort of



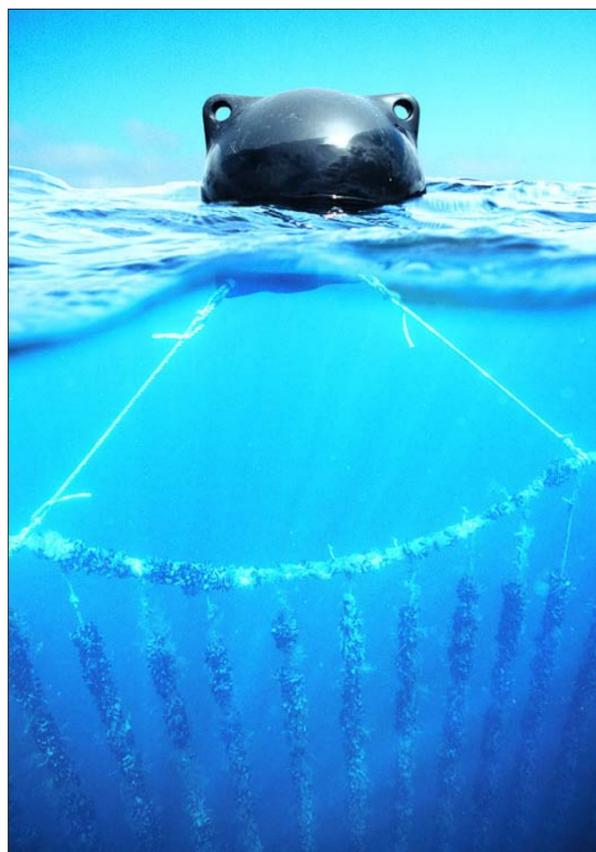
Top: Colour contrast at work. Tonally the fish and background are rather similar but the colour contrast with great impact as the red fish and cyan background are opposite on the colour wheel. Bottom: Which fish jumps out the most? The one with the clean silhouette. While both images show the fish clearly, the second one jumps out much more, with the reef framing the fish instead of swallowing it up.

imitation is flattery or creative laziness! What many do not realise is that the magazine photographer was copying a very old and tired commercial technique – 30 years ago you could roll into any half decent camera store and buy a split filter. There are lots of other basic commercial ‘tricks’ and gimmicks yet to be picked up by underwater photographers, primarily because it is just plain hard work to transfer a land-based gimmick to the underwater world. However, since split shots are sometimes useful in recording a marine situation (do you photograph a mangrove tree above or below the surface?) then lets look at the basic problems and solutions to above/below views.

The three technical issues to get under control are:

- 1 Matching the focus above and below the surface.
- 2 Matching the exposure above and below the surface.
- 3 Placing the camera in the right position.

To begin with, most split shots need a wide or ultra wide angle lens because you’re trying to fit what is essentially two images into one frame; the above water part and the underwater part. In previous articles it’s been explained that a wide or ultra wide lens needs a dome port to overcome chromatic aberration on the edges of the



This was shot on an mussel aquaculture farm for a commercial client. The wind slop made it very difficult, particularly as I had to swim to maintain position. A split and a 1 f-stop neutral density filter worked in this situation.

frame. We also know that a dome port, when used underwater, creates a virtual image about 1.5 times the dome’s diameter in front of the dome. That means that the lens ‘thinks’ that infinity is around 300-400 mm in front of the dome. When you’re taking a split shot, the upper half of the image isn’t affected by this as it’s looking through air and not the much denser medium of water. Therefore, only one half of the image will be correctly focused.

There are two simple solutions to this problem. Either use a lens with a huge depth of field or place a diopter adjustment filter over half of the image. The first option only works with fisheye or full frame fisheye lenses. And even then it’s not an ideal solution,



Even a small upward angle can help. Notice the dark fin tips and white underbellies of these whales are contrasted against the plain mid toned open ocean and surface.

especially with small domes as the subject underwater may be much closer than infinity requiring an even greater depth of field. I’ve successfully produced split shots with super wide lenses but it was pushing the limits of the optics to get tack-sharp images from underwater foreground to abovewater background. A typical depth of field required with a 22cm dome is 9cm to infinity. And that’s with the primary underwater subject being over 1.5m away. An f-stop of around f22 is required to pull it all into focus, leaving you with slow shutter speeds even in bright sunshine.

The simple solution to pulling sharp focus with both halves of your shot is to use a diopter adjustment filter over half of the lens. Depending on your dome port diameter, you’ll be using either a +2 or +3 filter. So wander on down to your friendly camera store and buy a split filter in your diopter. Screw it on the front of your lens, ensuring the edge of the filter is horizontal. There you have it, a device to give you tack sharp images above and below water at the same time even with wide apertures, allowing you to crank up the shutter speed to freeze the action.

Your first efforts with this set-up will quickly reveal the second problem; matching exposure. Due to the density of seawater and the varied reflectivity of your underwater subject, an exposure difference varying from 0-2 f-stops will become apparent. If you’re shooting in very shallow water with a bright sandy bottom and light toned



The light underjaw, sandy sea bed, shallow depth and bright sunshine allowed me to get away with a 1/3 neutral density filter. I could have used none, but I’m a bit fussy about these things!

subject, you may get away with no exposure variation. But a bright, sunny light-toned topside subject (white diveboat) with an underwater mid to low tone subject (coral head) will produce either an overexposed upper half of the image or a badly underexposed lower half.

The solution is to place a neutral density gelatine filter over the upper half of the image. Various filter manufacturers make neutral density filters in incremental f-stop ratings. I find a 1 f-stop filter is a good place to start. Make sure the gelatine filter you buy is large enough to cover the width of your front lens element, cut it to fit and utilise the marvel of ‘blue-tack’ technology to fix it in place. There you have it, your whizz-bang split image kit!

Of course, the above is a very basic solution to this problem. There are many refinements you may need to implement. What about vertical vs horizontal shots? You’ll need to open your housing and move everything around. Or you can spend a few nights fitting everything into the cannibalised rotating ring of a polarising filter and rig it to rotate with your zoom or focus gear. What about split shots that aren’t a straight 50/50 split? Suddenly your split filter will start to show up across the centre of the frame where previously the water meniscus on your dome covered it up. So you need to use a smaller split filter, take it out of the mounting ring and adhere it directly inside the front lens filter mount without it touching the front lens element. Like shooting through a wire fence, the

closer it is to the front element the less visible it is as it’s pushed further out of focus. What if you’re shooting in a variety of positions, some over very shallow sandy bottom, some over deep water with dark reef? You’ll have to change your neutral density filter to suit.

Another simple solution is to combine both the optical filter and the neutral density filter in one. You’d buy a -2 or -3 split filter and sandwich it with your gelatine filter or, even better, take it down to your local optician with a 6-pack as a bribe, and get him to dye it in a neutral tone. This combo filter is then placed on the top half of your lens, pulling the topside focus in to match the underwater focus. If you become a split fanatic, you’ll probably end up with a few of these in different density ratings and sizes to suit various lenses and tonal situations. If you win the lottery, you can always get an optician to grind you a lens to suit your dome which fits snugly inside the threaded filter thread on the lens barrel.

Finally, you’ll need to place your camera in the right position. This usually means that the optical centre of your lens and dome must be dead level with the water surface. There’s a few ways to do this. In shallow water, kneeling or lying in position provides a simple solution. In deeper water you’ll need to increase your buoyancy in order to hold your housing in the right spot, often accompanied by some frantic foot-sculling to keep upright and in position. If you’re going to spend some time at this, you may want to rig up a small frame with flotation

tubes of some sort to support the camera in the right spot, reducing stress on your arms.

It will quickly become obvious that even with slight surface movement it will be a hit and miss affair to keep a consistent water line across your shot. Any slop will also make it much more difficult to hold the camera steady, so non-filtered ultra wide lenses will begin to show camera shake. You’ll also start to get splashes and drops on the upper dome surface. Maybe a tilted horizon or meniscus is OK and the drops are OK as well, adding a bit of ‘art’ into the final image. Like the first fashion photographer to stuff up a shoot by taking everything out of focus, just call it art and double the bill. If you want to keep the upper dome area drop-free, apply a water repellent to the dome. This will make the water run off quickly and reduce drops to a minimum. You can get fancy stuff like Rain-x or just use Mr Sheen. But nothing beats a boat just behind you with a friend holding a dry towel!

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