

Perhaps it is time to take our underwater photography to the next level...art.

The images you see here were taken on a dive which my notes describe simply as 'nothing special' and the subjects are frequently encountered on almost every dive made in the Indo-Pacific. In addition to that, most of the shots show only a part of the animal and to those unfamiliar with marine life it's not even obvious that they were taken underwater. I ask myself "Does that matter?".

Only yesterday a non diving family member and veteran graphic designer caught sight of a couple of these pictures. He was catapulted into over excitement and rendered speechless to discover that the photographs were taken underwater. If a visual image can elicit such a reaction in someone then have I achieved my aim even if the subjects rarity or natural history is, at that time, inconsequential to its audience.

The confusion I feel melts away with the realisation that the lack of stimulation I felt during the dive forced me to think harder about the subjects available to me. In future I will try and look at familiar sightings in a new or different way. I will move right around a subject and avoid simply shooting the side at which I have arrived and think about what the subject looks like on a very basic level then try and convey its structure or its movement in my image. My new years resolution will be not to exit the water with film unexposed.

Techniques to try when faced with a mundane or seemingly uninspiring topic include closing the aperture or increasing the shutter speed on your camera to produce a black background, removing many indications that the picture was taken underwater. It's not always essential to shoot in strict portrait or landscape format so twist the camera to produce the composition you are aiming for.



Experiment with light by positioning your strobe or strobes at an interesting angle and if your set up includes two strobes consider switching one off and use shadows to your advantage. Resist the temptation of smug acceptance when that delightful 'ping' of TTL reaches your ears and push your system a little harder.

As a cautionary note, I have a friend who is a technically perfect photographer but his pictures are unsuccessful because, in my opinion, they lack passion. Do not lose sight of what you are trying to achieve or forget the passion that

led you to take up underwater photography. If your own pictures inspire you then you have reached the nirvana of underwater snapping.

So, what have I done about it? I've just been for a shore dive here in Cornwall at the end of November (not a fan of the cold) with my camera, my best friend and my new set of eyes. I can't wait to see the results.

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**[http://
www.cornishdiving.co.uk](http://www.cornishdiving.co.uk)**

Fluorescence photography underwater

By Pete Horsley

Often referred to as Ultra Violet photography, but strictly speaking in the application used here should be called Towards UltraViolet Photography.

How frequently in this computer age have you come across the term “What you see is what you get” Wizz ee wig. This nearly always applies to photography but as you will see where fluorescence is concerned it has no meaning.

What is fluorescence?

A substance is said to be fluorescent if:

“The substance emits light or electromagnetic radiation having absorbed radiation or light of a shorter wavelength. Provided that the luminescence ceases within ten to the minus eight seconds after the excitation is removed”

This in short means that if you illuminate a substance with a certain colour of light, the substance will generate light of a different colour. Unlike conventional photography where you are recording an image produced by reflecting light off its surface, fluorescent photography records the image of the light produced by the substance itself.

Enough science, Why take these images at all? For me it started last year when I saw some stunning shots taken by the maestro himself David Doubilet.

Somewhat inspired by these images I set about trying to reproduce them for no other reason than I thought they would look good in my portfolio, little did I know what I was embarking on.

Like many things in life you jump in with both feet not having given any thought or research into what you are attempting to do. My plan of action was to set up the



camera and tripod on the sea bed, illuminate the subject with what I thought was Ultra Violet light and do a very long exposure.

First mistake, a Nikon f100 in a Subal housing is a very light piece of kit, even in the calmest of waters off the Southern coast of Egypt it moves dramatically at the slightest hint of water movement. Long exposures are not possible.

Second mistake, was my light correct? My source could only just illuminate a white card placed less than a cm from it. I now have my doubts whether it was powerful enough to excite Fluorescence.

My conclusion after these first tentative steps was that I didn't know what I was doing, back to the drawing board.

My first break came a week or so after my return when I received an e-mail from Mark Webster to say he had come across some information on Fluorescent Photography relating to the testing of pipeline welds under water. This was the start of the learning curve. Having mastered the differences between Fluorescence, Phosphorescence, Infra Red Luminescence and Bioluminescence it became clear that not everything I had done was wrong, there was in

fact a million to one chance that I may have got an image from my attempt if I had perfect laboratory conditions. This of course was not going to happen in one lifetime so I needed to narrow the odds.

The type of fluorescence I was seeking not only occurred under true Ultra Violet light but could also be stimulated by light at the low end of the visible light spectrum. Visible light having a wavelength between about 400 and 700 nanometers. I needed to find a light source that could produce sufficient power in the 400 nanometer range. It was at this stage that Mark pointed me in the direction of the Nightsea web page.

Dr Charles Mazel had already done all the experimentation and development I

expected to have to do and was marketing the equipment Package necessary to get the images I was trying to reproduce. The basic kit contains :-

Ultra Blue Hand Torch- This allows you to find your subject

An Exciter Filter- A custom made filter to go over your existing flashgun to allow only the wavelength you require to exit the gun.



Above. Normal Light and Ultra Blue Light images of the same subject. All the remaining slides were taken with Ultra Blue Light at the specification below..

Nikon F100 in a Suball housing
with 105 macro
Camera filter: NightSea BB62
barrier filter inside housing
Electronic flash: Sea & Sea YS120
Flash filters: NightSea BE3 exciter
filter
Film: Fuji Sensia 400ASA
F-stop: f8/f11/f16
Camera focus: Operated in
autofocus mode using NightSea
DarkLight to provide illumination,
then activated focus lock when
ready to take picture and snapped
shutter when DarkLight turned off.



A Barrier Filter - A filter that fits over your lens to filter out all the reflected exciter light from the subject. Thus leaving only the luminescence produced by the fluorescent subject.

A Blueblock Mask Filter- This filter fits over your mask so you can see the fluorescence underwater.

A Dark Light- This is a spotter torch that is mounted on top of the camera, when turned on it remains on for approximately five seconds then turns off for one and a half seconds.

Fluorescence is a very weak

phenomenon and requires total darkness to allow the camera to capture the effect and do it justice. Armed with this basic equipment and with a little practice some extraordinary results can be obtained. The technique I have developed is suitable for housed reflex cameras, but this type of photography is not limited only to this set up. It doesn't require modification to your existing system and can easily be adapted to fixed focus systems, although by far the best results are obtained when you are working in Macro.

Having attached your filters to

camera and flashgun, fit your mask filter and begin your dive conventionally with your normal dive torch. Your first dives will be quite awkward as you have to learn the method of operation, so I would suggest you pick a patch of sand surrounded by pieces of coral heads. Settle on the sand having checked you are doing no damage to the coral or sand dwelling creatures and have a look around, you will be working in near total darkness so familiarize yourself with your surroundings. As with any coral reef you do not want to cause irreparable damage just to capture an image.

Put your mask filter in place and turn on your Ultra Blue torch and turn off all other torches (including your buddies). The reef will spring to life, when you do this for the first time it takes your breath away.

Everywhere you look on the reef there are the most amazingly complex creatures glowing at you, get in close and you can see fractal shapes of every description.

Now try and get that image.

The phenomenon although appearing bright to the human eye is low in power to the camera so you will find that you have to get your flash gun very close, working 1:1 or 2:1 produces very good results. TTL doesn't work well for these images so I would suggest using manual throughout. I found the trick is always to bracket your shots. Using a 400ASA (Fuji Sensia) film, three images of the same subject shot at f8/ f11/f16 usually will produce one well exposed photograph. The fastest synchronized shutter speed will limit the amount of stray visible light getting to the film. Turn on your dark light and during its on period focus the camera, in my case I had the camera set on autofocus, while holding the shutter release at its half way position to maintain the focus, wait for the spotter to go out, in total darkness fire the camera. It is as simple as that.

In reality holding perfectly still until total darkness is a technique that requires practice. At the relatively large apertures being used your depth of field is very shallow so any forward or backward movement quickly takes the shot out of focus. Develop the film conventionally, there is no need to push or pull the film. As you can see from the two images of the Mushroom Coral it takes on a wholly different texture when photographed in the Towards Ultra Violet. A variation in aperture doesn't always result in what you would expect, one stop under exposure can produce a totally



different looking image. The results shown here were taken at 1:1 and appear a bright green in colour. This, as explained by Charles Manzel, can be due to the distance the lens is from the subject, the further away you are the more red is filtered out by the water so if you go close to the subject a totally different colouration could result.

Has it all been worth it?

It isn't often you achieve everything you set out to do but I can say that this time it happened for me. I am very pleased with the results, they provide an excellent alternate image during a lecture and can stimulate interest in shape, form and colour, all of which as photographers we look for underwater whether we are aware of it or not.

Something that was unexpected however was how Fluorescence can change a mediocre nightdive into something that resembles a firework display at Disney Land. If you want to try something a little different give it a go, you will be amazed at just how



much life exists on what appears to be a piece of dead coral.

Pete Horsley

Further information can be found on www.nightsea.com