


Underwater Photography

a web magazine from Ocean Optics

August 2001

A vibrant underwater photograph showing two divers in full gear swimming horizontally over a diverse coral reef. The water is clear and blue, with sunlight filtering down from the surface, creating a shimmering effect. A large school of small, bright orange fish is visible on the right side of the frame. The divers are positioned in the center-left, moving towards the right. The coral reef below them is colorful and textured, with various species of coral and sponges.

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Simple close ups
Pool practice
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Lembah Straits
Dome ports
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2 digital cameras reviewed
Classifieds

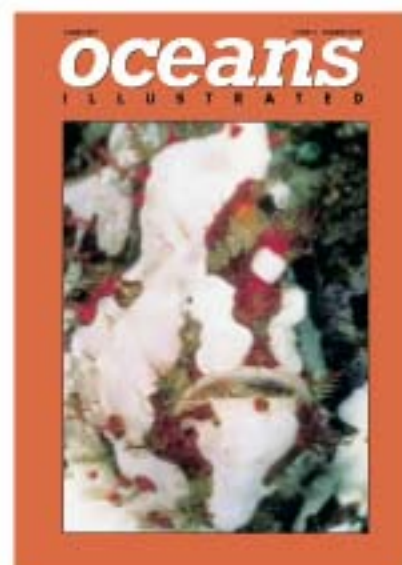


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From the publishers of DIVE MAGAZINE

Underwater Photography

a web magazine
from Ocean Optics
August 2001

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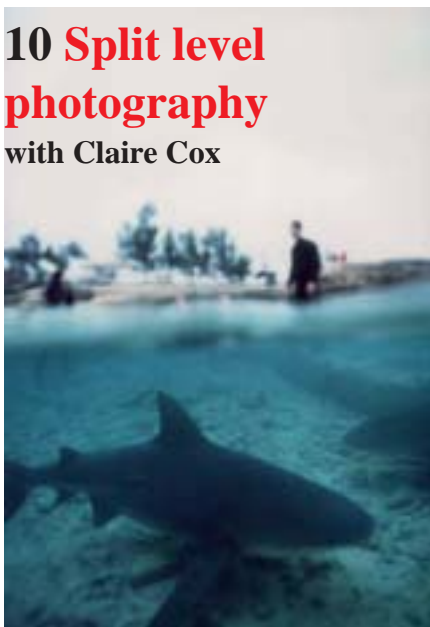
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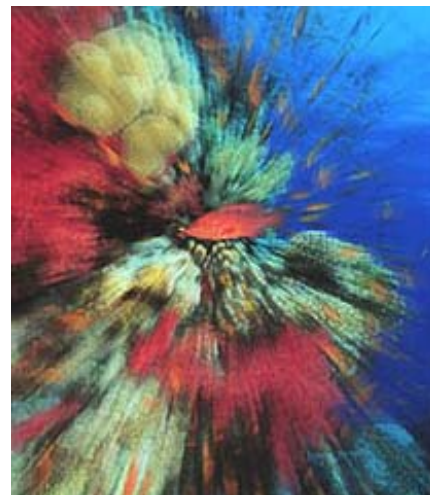


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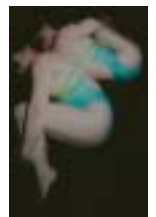
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New products

Nexus Wet Lenses

An interesting and inexpensive solution to getting closer are Nexus Wet Lenses. These simple close up lenses push fit onto the outside of your housing port. They don't interfere with autofocus or reduce the light passing through the lens as teleconverters do and aren't stuck to your lens like normal close up lenses when you really need infinity focus.

Equipped with a lanyard so you can easily carry them until needed, they are available in 90mm, 100mm and 110mm fittings for Nexus ports, Subal ports and some Sea and Sea ports.



For full details phone Ocean Optics on 020 7930 8408 or e-mail optics@oceanoptics.co.uk

Inon Ring Flash

There's increasing interest in using ring flashes underwater, but up to now almost nothing has been available off the shelf. Those that are in private use have been built to order as one offs.

The attraction of ring flashes is the quality of light they produce, the lack of shadows and the ability to lose the strobe arms and work with a very compact point and shoot macro rig which makes many shy animals much more approachable.

Inons Quad Flash is an innovative new strobe that combines the build quality you expect from top end designers, while benefitting from lower manufacturing costs enabling the Quad to offer an outstanding specification at a surprisingly modest price.

The Quad uses four small flash tubes set at 90 degrees to assure even coverage. Naturally it is TTL compatible with Nikonos and most housed Nikon cameras. But the Quad also boasts important features for adding creativity to your shots including a choice of Full, Half and Quarter power for more subtle lighting than TTL which is often quite harsh. A nice feature is the built in rotating shade that allows you to mask off two of the flash tubes for adding shadows. There's also a clip on diffuser to



soften the light further or for reducing power by an extra stop - giving Quad users a total of four manual power settings. A built in focusing light lets you see your subject and is automatically turned on when you activate the camera.

The Quad mounts to ports approximately 90mm in diameter including 105mm ports for the Nexus and some Sea and Sea housings. It is threaded on the front to accept a dedicated wet lens that doubles the magnification of your camera lens. Even this bears the hallmark of Inons attention to detail - it's actually a doublet meaning it has two elements. Usually close up lenses use a single element. The

doublet yields higher image quality.

The Quad has a mounting point for use with normal flashgun arms allowing it to be swung in and out of place rather than mounted directly to the port or for use as a conventional strobe. It uses Sea and Sea Nikonos fit TTL cables. Power is from 4 AA batteries.

The Inon Quad Flash is one of the most exciting additions to underwater lighting in a very long time. Currently one is on test with top British photographer Charlie Hood and a full report is expected soon.

For full details phone Ocean Optics on 020 7930 8408 or e-mail optics@oceanoptics.co.uk

Underwater Photography events

Underwater Photography Week

9~15th September 2001

With award winning, professional underwater photographer Paul Kay BSc FRPS diving from M V Porpoise based near Oban.

The absolute emphasis for this week is on underwater photography. This will be the aim of all diving, and dives will be chosen with photography foremost in mind!

Participants will all stay at Orlig, a comfortable bungalow used by many divers, about a mile from the boat. Everyone will stay here ensuring plenty of time for learning about or discussing underwater photography. The basis is self-catering.

The diving is for 5 days, 2 dives/day within reasonable distance (the Garvellachs, etc.). Longer trips are possible but at additional cost. 10 air fills are included.

Diving will be from the M V Porpoise, an Offshore 105, run by experienced photographer/skipper Dave Ainsley. All dive sites are well known to Dave, who will ensure that the appropriate dives for are chosen to match light and tidal constraints. Suggested lenses and subjects will be covered by pre-dive briefings.

The week can be as formal (structured) or informal (polishing of technique) as participants require - with a small group all together, there is ample time to cover as many aspects as required!

The cost for the week (only transport to Seil Island - 10 miles south of Oban - and food is not included, nor of course film or processing!) based on a full boat (12) that the week needs in order to run economically is £350.

To book please contact Paul Kay on (01248) 681361 or email paul@marinewildlife.co.uk

Visions 2001

October 27/28th 2001

Visions in the Sea, the annual, two-day underwater photography conference staged in London by Ocean Optics, will have a new look for 2001.

Now in its fifth year, the conference at Imperial College, Exhibition Way, South Kensington, on the weekend of October 27 and 28, will focus on specific aspects of underwater photography, including understanding light, creative flash, innovative close-up techniques, finding the picture, how to capture fish on their best behaviour and wreck photography.

This years speakers include Linda Dunk, Martin Edge, Mark Webster, Paul Kay, Charles Hood, Alex Mustard, Nigel Motyer, Jack Jackson and Constantinos Petrinou.

For full details see page 6.

Tony White's tours

"To meet the requirements of an increasing number of underwater photographers, international award winning underwater photographic journalist Tony White has established Sea Of Dreams, a company set up specifically to provide specialish underwater photographic workshops and trips to some of the world's top dive destinations.

All trips will be accompanied by Tony White and will be designed around the photographic needs of the individual. Including daily E6 processing and expert guides. the 2001/2002 programme includes trips to Indonesia, Mozambique, Kangaroo Island South Australia, the Southern Red Sea and Turkey details can be found on www.seaofdreams.co.uk or contact Tony on 020 8318 9226"

Isle of Man Splash-In

16-19 August 2001

Entrants are given a film to be exposed during the weekend for judging anonymously by the audience on Sunday evening.

There are prizes in 6 categories - macro, standard, wide, humourous, wealth/variety of marine life and diver activity. There is also a beginners prize and the best overall shot. The audience is mainly entrants and partners or friends, though the general public are invited to join in.

Film can be collected before the evening dive on Thursday 16th or anytime thereafter and returned for processing by Sunday lunchtime on 19th.

The evening starts with a buffet at 7pm and judging starts at 8pm. There is a short interval while the votes are counted and then the awards are presented.

The competition is sponsored so entry is a minimal cost (usually £5) with an extra charge for the buffet. Local dive clubs help with space on boat dives for visiting photographers.

For further information contact Eddy Corrin 07624 495285, John Gulland 01624 834548 or Geoffrey Clark 01624 621358.

If you would like an underwater photo event publicised, please e-mail details to events@uwpmag.co.uk Next publication date is 1st Oct 2001.

We would also like to hear from anyone who has relevant dive sites news for underwater photographers i.e. a new E6 processing facility, photo course etc.

NEW LOOK FOR VISIONS 2001

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The speakers dealing with these topics include:

Linda Dunk

Linda Dunk, the first woman chairman of the British Society of Underwater Photographers. She won BSoUP's open portfolio competition in 1994, 1995 and 1996 and was second in the Society's beginners' portfolio competition in 1993. Having enjoyed being in the business of taking pictures of the marine world for over ten years, Linda is keen to encourage more women to become active in this challenging but rewarding field.



Martin Edge

Martin Edge, who has a great passion and flair for teaching the skills of underwater photography and, probably more than any other person today, has improved the general standards of taking pictures in the sea. His book, "The Underwater Photographer", is now in its second edition and continues to be a popular guide to successful underwater photography. Martin has led innumerable photo expeditions around the world.



Mark Webster

Mark Webster, an established underwater photographer and photo-journalist, has an impressive list of successes in international events and has represented the UK four times at the CMAS World Championships of Underwater Photography, winning silver and bronze medals and third position overall in 1996 plus two top ten



placings in 1998, the latter year in which first book, "The Art and Technique of Underwater Photography", was launched. During the last ten years, Mark has hosted regular photography workshops in Red Sea and has gained a reputation for passing on his skills and advice in an informal and productive manner.

Paul Kay

Paul Kay, British underwater photographer of the year in Dive Sights 2000, runs underwater photography courses and workshops with an emphasis on the

understanding of the basic photographic techniques relating to underwater photography. Living in North Wales, he is a great enthusiast for diving in British waters as well as warmer parts of the world. He has been a freelance photographer for over 11 years and works in industrial and illustrative photography, produces stock landscape, environmental and underwater images and writes illustrated articles.



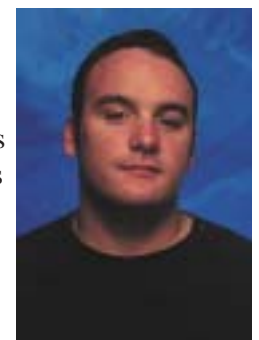
Charles Hood

Charles Hood, won the top prize and the title of underwater photographer of the year in Dive Sights 2000. He is constantly experimenting and breaking new ground with his approach to taking images in the sea and has a vast experience of taking pictures in British waters as well as overseas. He was one of the first to use two synchronised TTL flash guns underwater and took numerous awards at BSoUP and other international competitions before changing his focus to taking pictures that sell.



Alex Mustard

Marine biologist Alex Mustard, a new speaker at Visions, has a natural eye for a good picture as well as the scientific background to be able to find and photograph all types of life in the sea and to make his dives particularly productive. He uses his marine biological knowledge to enhance his photography and will be passing on the secrets of his success by describing his approach



to photographing life on coral reefs. He believes that greater knowledge of the animals found on coral reefs and how a coral reef ecosystem works will add an extra dimension to our photography.

Jack Jackson

A highlight will be a talk on adventure photography by Jack Jackson, who has worked everywhere from the Arctic to the tropics, both on land and underwater. He is a regular contributor and lecturer at the London and Birmingham dive shows as well as travel shows in London and top venues in Europe and the Middle East. He is the author of hundreds of magazine articles and 14 books, eight of which deal with underwater subjects.



Nigel Motyer

Nigel Motyer is an engagingly irreverent underwater photographer whose self deprecating style belies an immensely successful portfolio. Nigel is highly respected as a natural history photographer. His work ranges from the local waters of the Emerald Isle to high octane diving in Cocos, where he received his first sharkbite. Nigel is widely published with images in Dulken, Tauchen, Diver, Dive, Sport Diver



and Sub Sea Magazine and has extended his international reputation with third place in the Blue Dolphin competition and second place in the World Underwater Photography Championships .

Constantinos Petrinos

This year, the first day of the conference will conclude with a social evening during which popular Greek photographer Constantinos Petrinos, who is gaining a growing international reputation, will launch "The Realm of the Pygmy Sea Horse", a coffee table book of photographs and information about the marine life in Kungkungan Bay and the Lembah Strait. As well as talking about the five months during which he took 25,000 pictures, Constantinos will describe the trials and tribulations of publishing the book himself after disappointments with several publishers.



There will also be slide clinics conducted by the speakers, a slide corner where delegates will be encouraged to show a selection of their work, and a print competition.

Imperial College is well served by public transport, being a short walk from South Kensington Underground Station and several bus routes.

Do not delay. Reserve your place at what will be yet another of the UK's biggest and most memorable underwater photographic events.

VISIONS IN THE SEA 2001 - booking form

Please reserve place(s) for me for the underwater photographic conference at Imperial College, London, on the weekend of October 27/28, 2001. Delegate fee for attending the two day conference, including morning coffee and afternoon tea each day as well as a buffet lunch -- £99.95.

· A social evening with Constantinos Petrinos in the Holland Club, Imperial College, from 6.30 to 8.30pm, after which a cash bar will remain open for delegates who wish to remain. Additional fee of £10.00 includes two glasses of wine. Crisps will be available from the bar.

Please give name(s) of delegates and also list any special dietary requirements:

Name

Address.....

..... Amount.....

For payment by Visa or MasterCard please give the following details: Type of card: Visa or MasterCard

Number:.....Expiring on.....

Bookings can be made by phoning the conference hotline - 020 7930 8408 or fax 020 7839 6148.
Ocean Optics, 13 Northumberland Avenue, London WC2N 5AQ.



I had been in contact with Jeff Parker, Marketing director at A.P.Valves, and he'd seen my underwater images on my web site. We finally met at LIDS 2000 and over a coffee looked through my portfolio, talked about photography and how we could work together on an advertising campaign.

My underwater work has always been personal work. Often it is shot when I'm taking a summer break from the studio and I consider it very important to be shooting these images for myself, with no brief and no art director.

The outcome of my meeting with Jeff was that I'd go away and shoot a series of strong images where the diver in each shot was wearing a Buddy BCD. The shots would be used for A4 ads and A3 posters. Okay, so there was a brief of sorts but a very loose one. I was more than happy with this arrangement and so away I went for two weeks to Little Cayman, with my buddy and model Kim Linford. The Caymans would give us good visibility, reasonably predictable light, interesting topography plus the chance to shoot the Russian Frigate at Cayman Brac.

While shooting I was basically conscious of a number of things:

Firstly light. We always tried to shoot early or late in the day so as to take advantage of the moulding and rays that the light produces at those times of day.

Secondly space. I love space, editors love space, designers love space and generally so do art directors. With that in mind when shooting you will increase your chances of selling stock images when you leave room

Julians' magic





for logos, text and headlines etc. Because I was shooting black and white it was important to have strong composition. Light and space will always help you enormously here. Look for strong shapes and think about the light.

Lastly the star of the show, the model. It was vital that she appeared comfortably within the composition. Kim and I had devised various hand signals so I can direct her into the spaces of an image and carefully position her in the water. Luckily for me Kim is extremely comfortable underwater and generally positions herself with little or no direction while also paying attention to her gauges, torch beam direction and fin alignment etc. I also like to wait for her to exhale as I think air as bubbles look great. With all of this to consider I'm sure it is harder work for her than it is for me most of the time! When I give the out of film sign (which is dangerously close to the out of air sign!) she's off to do what she enjoys most, slowly finning along the reef looking at "cheeky" fish.

When all is said and done I tried to make the images look as natural and as casually observed as possible.

I used a Nikon F90x with Nikkor 16mm f2.8 AF-D fisheye housed in a Subal housing. Much to the irritation of the guys at Optics I still don't use any flash (one day Steve!) and as a result have a very simple and easy to handle underwater rig. The Subal is a joy to use and the F90x has more than enough features to keep me happy. The 16mm is an amazing lens. Pin sharp and incredible value for money. Film stock is Fuji Neopan 400 rated at 800asa.

Negatives were scanned using an Imacon Flextight Precision II and worked up on system using Live Picture 2.6.2. Final rgb.tif's were sharpened and converted to 70mb cmyk.tif files using a ColorSync workflow and PhotoShop 6.

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fax +44 (0)1 462 441211
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Split level photography

by Claire Cox

I wanted to use underwater photography to record my encounters, so I can share with others some of the mystery that this environment holds for me. It is an environment which is full of distractions so, to help me remain focused, I always work to a brief. The most important part of my trip is in the planning. I need to know exactly what I want to achieve, otherwise I get caught in the trap of taking random images and realising I have no film left when something exciting happens.

I want my photographs to appeal to both divers and non-divers and to do this I often experiment with split level underwater photography. To see both above and below the water is to understand the environment where the photograph has been taken. It gives the viewer a greater sense of the location. To take my photographs I use a Nikon F70 with a 20 mm lens in a Subal housing. I have so far only been using Fujichrome Provia III 100 ASA slide film and have found it ideal. I usually have several sketches of what I want to see in my photographs, this enables me to determine my composition. In the water when I compose my shots I can assess which part of the image would work best in focus. Using only natural light and the camera set to manual, I bracket my shots between the light readings from the surface and



*Image 1.
I always felt
reassurance when I
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end of the dive and I
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*Image 2.
I wanted to capture
the beauty and
mystery of the
environment, and the
reality.*

Image 3

My aim was to capture the moment that fear dissolves into fascination and show the point where both diver and shark feel comfortable in each others presence.

below the water. I am never sure what my shutter speed and aperture is in my selected images because I take so many shots of a similar composition, that I end up losing track!

The first ever trip I made to the Red Sea with my camera was in October 2000. Being a relatively new diver I was still experiencing the anxiety and nerves, associated with my awareness of my restrictions in an alien environment. After several dives with my camera, I started to notice that one thing always remained the same - I always felt reassurance when I saw the boat at the end of the dive. I wanted to capture this moment. (image 1) I swam down the side of this boat about 10 times on this trip. With all the mass of information you experience on a dive, this was the one thing which always remained the same. I wanted to record it because it the only predictable experience I had. I took the shot both above and below the water line because I wanted to be reminded of where I had been and to see that I was going back to the boat.

For my next trip to the Red Sea I wanted to capture the beauty and mystery of the environment, and



Image 4

The fin is the only part of the image in focus, this is because the fin is a symbol of power and to see it would probably cause most swimmers to panic.



the reality. I photographed the underwater world and the hotels which surround it. (image 2) Asking the question 'can somewhere so fragile support the amount of divers that visit it?'

The most exciting trip I have made was to Walker's Cay in the Bahamas. Here I was able to use photography to explore the theme of 'fear and fascination'. Sharks have an amazing presence and this is probably because the greatest fear of all is the fear of being eaten. I wanted to use photography to capture the reactions of the divers when put in this situation. We were all there because we wanted to experience the encounter first hand. My aim was to capture the moment that fear dissolves into fascination and show the point where both diver and shark feel comfortable in each others presence. This image (image 3) was one that I took towards the beginning of the trip. There is still some distance between me and the bull shark, and the only time I felt comfortable enough to take a photo was when the shark was swimming away from me! In the next photo (image 4) you can see the moment when I felt my fear dissolve into fascination. The fin is the



Image 5

The fear associated with the shark is captured in their dominance in the photograph

only part of the image in focus, this is because the fin is a symbol of power and to see it would probably cause most swimmers to panic. You can see I am fascinated because you can see the shark the fin is attached to. I am close to the shark in the shallows and yet the water is still. In the next photograph (image 5) you can see that other snorkellers are fascinated with the sharks. The fear associated with the shark is captured in their dominance in the photograph, and to have people standing in the water with the sharks swimming around their legs is to realise their fascination.

My next trip is to the South Pacific. I am going to investigate the role of the shark in other cultures. I want to document its importance on the lives of the people they greatly effect, and hopefully dispel some of the myths that surround it. On this trip I plan to experiment with more styles of photography under the water. I have a great interest in art and photography and hope to explore many more of my ideas.

Claire Cox

Define your image



Kurt Amsler is one of the elite few to make a good living out of underwater photography. From natural history photo-essays to imaginative advertising shoots, Amsler's images influence photographers all over the world.



This world class photographer and teacher is now set to share his successful techniques with clients of Ocean Optics.

Kurt will host a one week workshop in Southern France from September 30th to 6th October. Places are strictly limited. For full details call Steve, Andrew or AJ.

Definitive workshops from the definitive underwater photography company.

Ocean Optics

13 Northumberland Avenue, London WC2N 5AQ

Tel 0207 930 8408 Fax 0207 839 6148

<http://www.oceanoptics.co.uk>

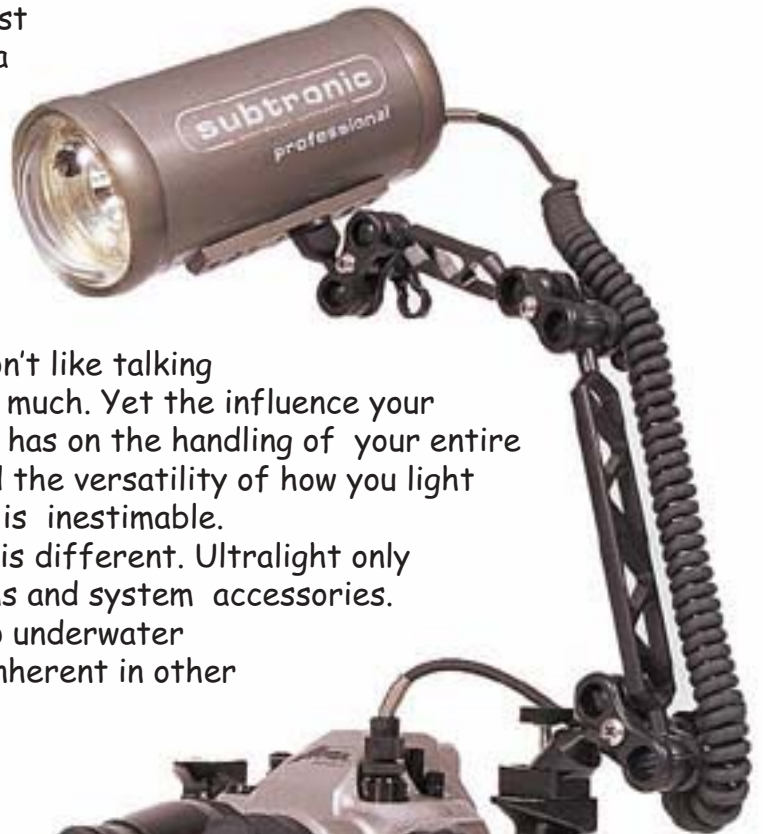
Win The Arms Race with Ultralight



Sometimes it seems like you've bought the best underwater camera and the finest strobe only to be thwarted by the

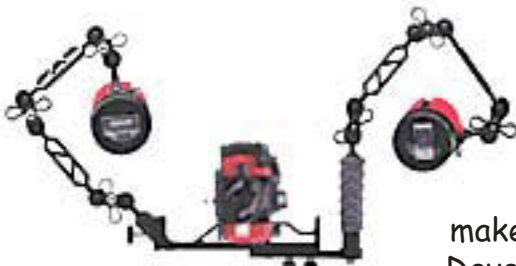
flash arm.

Let's be honest. Most housing and underwater camera manufacturers don't design great strobe arms. And maybe that's



why they don't like talking about them much. Yet the influence your strobe arm has on the handling of your entire system and the versatility of how you light your shots is inestimable.

Ultralight is different. Ultralight only make strobe arms and system accessories. Developed by top underwater



photographers to overcome the problems inherent in other designs, it's also chosen by top underwater photographers.

Envisaged as a totally modular system, Ultralight lets you evolve your system as your skills develop and your needs change. With arms from 3 inches to sixteen you can adapt from supermacro to fisheye and choose between frame arms



for buoyant guns and buoyancy arms for heavier units.

With the best holding clamps in the business strobe drift is virtually eliminated even in current.

The range of accessories encompasses tripods, basetrays, pivot trays and handles, modelling light mounts and meter holders. It is simply the most extensive strobe arm range in the world.

So when you select Ultralight you won't be cramping your style. You'll be broadening your horizons.



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Diving the Lembah Strait

with Anne Owen

Many of you will have followed Constantinos' adventures when he spent four months at Kungkungan Bay Resort (KBR) via his continuous stream of e-mail newsletters and like me, will be awaiting the belated publication of his book on the Lembah Strait. The thing is - is it all it's cracked up to be?? Can anywhere be as awesome as Constantinos made out? Or had the sun and the nitrogen gone to his head?

Well, let me say this - if you like diving in clear, blue waters - on pristine, sun-dappled corals reefs - off sparsely inhabited, romantic islands - with whirling shoals of fish dancing all about you - DO NOT GO TO LEMBAH!

KBR is situated a little to the north of the large port city of Bitung, the area densely populated with people who make their living mostly from the sea and at night the whole Strait is alive with the lights on their fishing platforms. There is virtually no coral, and the visibility over the endless black volcanic sand bottom is horrible. So wide-angle freaks, forget it! But for macro lovers this has to be one of the greatest shows on earth!

Having arrived there almost by accident in October last year after another trip was cancelled at short notice I was so sure that 10 days were not enough that I re-booked as soon as I got home and spent another 2 weeks at KBR in March of this year.

Firstly, let me say that the resort is brilliant. Fully customised for divers and indeed for photographers, they go out of their way to ensure you have a great time. The dive operation runs like clockwork, with boats leaving the dock four times a day, staff are always on hand to carry dive and camera kit for you and a great menu of freshly cooked dishes is available 24 hours a day (in case jetlag should strike).

Furthermore, the dive guides are totally dedicated to finding the critters that you want to photograph, so no-one need fear going home with little to show for it. This is definitely my kind of destination.

One the diving front, none of the sites is more than



10 minutes from the dock and most are only 5 minutes away, across a narrow Strait that is very sheltered and so always relatively calm. The boats usually tie up to a permanent mooring and you will come back to the boat at the end of the dive. You will rarely experience much current, though occasionally there will be some tidal movement. In this sense, therefore the diving is pretty lazy.



On the other hand, the great hazard is the fine, silty, black volcanic sand which makes up the bottom almost everywhere. The merest touch of a hand or a fin and you (and more importantly, your subject) can be instantly enveloped in an evil black cloud. More to the point, the merest touch of someone else's fin etc can have the same effect, which can be a problem if inexperienced photographers 'crowd in' on your subject to see what you are doing.

Even so, this is a great place to shoot the weird and wonderful - where to start? Five species of frogfish, all sorts of lionfish and scorpionfish, including some rarities, eels and monstrosities like the stargazer are all found on the sand and patches of sponge. Crabs and shrimps are there in abundance, with an amazing range of camouflage tactics - but without the vigilance and experience of the guides, you will surely miss most of them.

Nudibranchs are amongst my personal favourites and there are over 200 species recorded here. At dusk, you can photograph Mandarin Gobies and at night, there is a whole new crew to see.

In a single week, I photographed mantis shrimp, harlequin shrimp, blue ribbon eel, flamboyant cuttlefish, ghost pipefish, bubbleshells, emperor shrimp, wonderpus, pygmy seahorses and many more. My only disappointment was that with two cameras on each dive, I could only manage 8 films per day!

Seriously, this is a terrific spot for the serious macro-freak. I love it - I'm sure I'll be back - or maybe that's just the nitrogen talking!



Anne Owen

Get your digits out

by Peter Rowlands

I haven't had so much fun in a wetsuit since that Friday afternoon in a basement flat off Tottenham Court Road yet here I was in the Red Sea using it for the purpose for which it was really designed.

And the reason for this elation? I was taking still pictures, seeing the results instantly on a small screen and, if I didn't like them, I could erase them - also instantly. I could then change the aperture, shutter speed or composition and take the shot again until I was pleased with it.

Now that, to my mind, answers the prayers of most of an underwater photographers. Gone are the days of waiting to get home to see my results - only to find I've made some basic mistakes for most of the trip. Instead I surface knowing I've got what I want and had such a great time doing it.

Digital photography has made significant advances in the past couple of years. It isn't knocking on the door of 35mm yet but I'll bet anyone a fiver (five lira, that is, if I lose) that in about five years time it will be a serious contender for underwater use.

In the meantime there are some very capable digital stills cameras available today which can produce sufficient quality to be reproduced up to half a page in a magazine or to print a photo quality 10"x8" which would be as good as one produced by conventional means.

The range of consumer digital cameras falls roughly into two types - automatic point and shoot or user controllable. I tried both on a recent trip and thought you might be interested to know how it went.

The automatic camera was an Olympus C-960 zoom in a purpose designed Olympus PT-006 polycarbonate housing. The combination costs just under £500



Olympus C-960 and housing



and will fit in a large BC pocket. Underwater it is positively buoyant which is good if a snorkeller lets go of it but for scuba diving I'd recommend adding some extra weight (just a few grammes inside - not a whole kilo strapped to the underside!) to make it more neutral or even slightly negative.

Loading the housing couldn't be simpler. Slide back the lens cover and slot the camera into the housing. Nothing to line up, nothing to adjust. That's it. All of the controls except the zoom are push buttons and, believe it or not, there are eleven of them! This looks confusing at first but in practice you only really use two or three most of the time.

Once the housing is closed it



The Olympus is a delight to use in clear water and the built in flash can restore colours in close up shots. For a point and shoot camera, the results are extremely good.

can operate down to 30 metres but I would suggest this camera comes into its own in the 0-10 metre range where the light and colours are brightest. There is a built in flash



The Coolpix housing is neutral underwater and the LCD screen is easy to see in all but the brightest sunlight. All of the camera's functions can be accessed through the housing which allows TTL flash performance with Nikonos compatible guns.

Nikon CoolPix 990 housing from UK in Germany

which can be used to great effect in clearer waters and will add a sparkle to what would have been a dull shot.

Exposure and focus are both automatic so all you do is look at the small LCD screen on the back of the camera and shoot when it looks good. And this is when you get your first inclination that this is not like your ordinary point and shoot camera. There are two reasons for this - the camera has to set the focus and exposure and then fire the shutter. The result is a significant delay from the time you decide to take the shot until it actually appears on screen. This isn't a problem for still life shots but for fish portraits you need to anticipate where the subject will be in about two seconds!

Until you get used to this quirk I would stick to coral shots and try fish later but it is worth trying to take fish shots for the extreme glow of satisfaction you get when you anticipate right and a well composed image pops up on the LCD screen. It's the nearest feeling you'll get to being a spearfisherperson or a marksperson (doesn't PC speak ruin the flow) without actually killing anything.

Images from this miracle bag





The fisheye lens can be used as a circular fisheye or full frame . Either way the lens is very sharp centrally but falls off towards the edges depending on the aperture (see the wreck shot opposite).

of tricks are stored on an electronic “card” about a millimetre thick and half the size of a credit card. They are available in various memory sizes but the 8mb card I used was enough to give 18 images at maximum quality. That may sound limiting compared to 35mm 36 exp film but, when I tell you the four AA NiMh rechargeable batteries, which power the camera, last about 45 minutes, 18 images can sometimes be more than enough!

The comparatively heavy power consumption is a drawback with these cameras and you will need to have at least one spare set of batteries. I’m sure, just like mobile phones, power consumption will

become less of a problem as cameras are developed.

The Nikon CoolPix 990 is an altogether different animal. I was using it in a German UN aluminium housing which is very well machined and, although not very ergonomical, it became natural to use after a couple of dives. The complete outfit - camera, housing, fisheye lens and port and YS30 flash and arm weighed less than 5kg and fitted into a small camera bag.

The 990 takes a lot of understanding for, once you deviate from the Auto settings, you can control almost any function of the camera via a multiple menu system. I spent a lot of time with the camera

and instruction book and managed to control what I wanted but I wouldn’t be surprised if there are those who would find this camera too daunting. Fortunately, for those, the camera can be set to fully automatic where it does an excellent job.

In terms of picture quality even the Olympus was impressive and the 990 just amazed me. In technical jargon the Olympus image was 3.5mb 1280 x 960 pixels at 72dpi which will give a photo real print of about 7" x 5" (178cm x 127cm). The CoolPix 990 has a chip three times denser giving a 9mb 2048 x 1536 pixel image at 72dpi which will produce a photo real print of at least 10" x 8" if not significantly larger.

As if to illustrate the volatility of the market, the 990 has already been replaced and can be bought for around £600. The fisheye lens is around £200 and the housing complete with flat and fisheye port is around £1200.

If you are travelling, the downside is that you will have to take a laptop computer to download your images after each dive as the storage cards are quite expensive (about £1 per mb) but what better reason can there be for justifying the purchase of a laptop!

My trip to the Red Sea with these two cameras was not much short of revolutionary for it opened my eyes to the quality and versatility of the digital stills world. It is still a long way from competing with conventional film in terms of quality and price but, as we have seen with computers and video, it won’t be too long.

But the most impressive aspect is the enjoyment it gave underwater as I saw the shots appear on the screen no more than a couple of seconds after I had fired the shutter. It was fantastic. I was like a kid with a new toy and no you can’t have it because I won’t let go.

Peter Rowlands

Join the UWI Group

a UK based
u/w photo
forum

“After talking to various photographers over the last 12 months it has become clear that there is a need for an email based discussion group for the professional and semi-professional underwater stills, film and video industry”

With the help of Simon Davies, of IDnet internet services, Julian Calverley has set up The UWIGroup (Underwater Imaging Group). Julian is a professional advertising photographer and was a guest speaker at Visions 2000.

“Its purpose is one of global communication, discussing underwater imaging related issues. Topics covered include the exchanging of tips, information and experiences. We would also be happy to hear announcements of industry related shows, publications and equipment. With the popularity of digital cameras and DV on the increase discussion will cover both conventional (film) and digital

imagery” says Julian.

If you would like to join The UWIGroup then simply send an email to lists@idnet.net.uk with the words “join UWIGroup” followed by the email address that you wish to use, in the body of the text. No subject is needed.

For example :

From: Julian Calverley
<julian@calverley.co.uk>

To: lists@idnet.net.uk
Subject: <not needed>

join UWIGroup
julian@abc.co.uk

You will then receive a welcome message along with

important information on how to send messages to the list, subscribe as a digest member and also how to unsubscribe etc.

The rules are very simple:

1. On joining the list please introduce yourself so we can all see who you are and what you get up to.

2. No “flaming” of any fellow member in any form.

3. Keep your quoting to the very minimum - about 5/10 lines, and always trim out unwanted signatures etc.

4. Send emails in text form only, and not HTML or Rich Text.

“The UWIGroup is a low volume list but hopefully over time will become a busy world-wide hub for the underwater imaging industry”

Julian Calverley
julian@calverley.co.uk
www.calverley.co.uk

Zoom blurring underwater

By Alexander Mustard

Underwater photographers are often accused of being too conservative in their picture taking. But we do have some good excuses: first we are already adventurers in an alien environment, where recording clear, sharp and well exposed images is fraught with technical difficulties. In addition, many of our subjects are unfamiliar to our audience, so it makes sense to capture this other world as clearly as possible. Consequently, underwater photographers tend to stick to tried and tested techniques and as a result many underwater photographs look rather alike, with differences in subject matter but not in photographic interpretation.

But as more and more photographs are taken underwater, photographers are increasingly looking for a fresh take on familiar subjects. Land photographers have been doing this for years, and underwater we can take a shortcut to original and effective images by borrowing techniques that are widely used on land. In this article I will relate my experiences of one such technique: zoom blurring.

Zoom blurring is a simple technique that is produced by zooming a lens while the camera's shutter is open. The resulting abstract image is blurred with lines radiating from the centre of the photograph, produced as the zooming alters the size of the subject in the frame.

When used effectively the technique conveys movement and impact, focusing the viewers attention on the centre of the image.

In order to have long enough to zoom the lens it is clear that an exposure time of greater than 1/4 - 1/2 second is needed. Therefore the camera must be kept still during the exposure - either using a tripod or by bracing the camera against a



An acroporid coral and anthias in The Alternatives, Sinai, Egypt. Nikon F100, 17-35 mm Nikkor (zoomed through full range), 50CC Red filter (depth = 5.0 m). On f22, aperture priority - exposure time approx. 1/2 to 1 sec. Kodak Elitechrome Extra Colour 100.

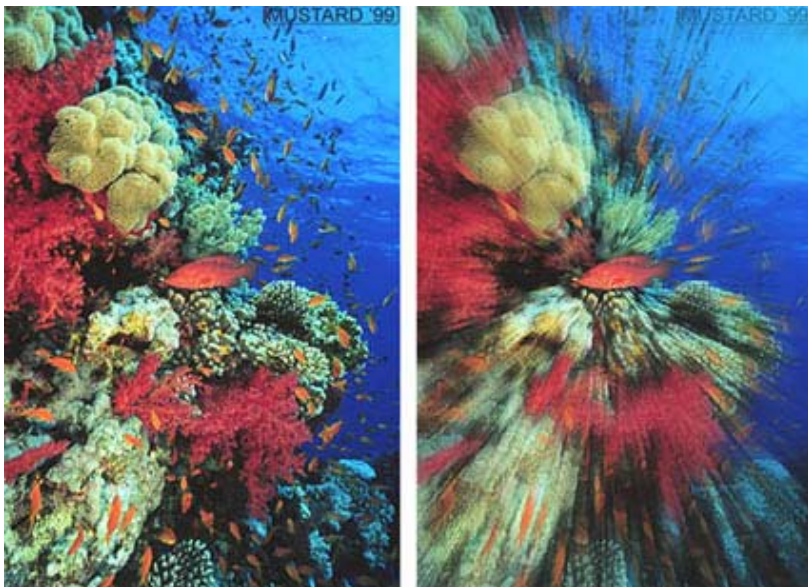
solid object. For this reason wrecks can be particularly suitable for this technique.

The second consequence of long exposures is with the use of flash. A flash is beneficial because it adds a sharp portion to the blurred image. A potential problem is that the trails produced by zooming will be a different colour to the sharp section illuminated by the flash. This is because the trails will be produced by ambient (blue) light and the result may or may not be pleasing. I would recommend using front curtain flash when zooming from wide to tight, remembering to set exposure manually rather than with aperture priority (as this will default to a faster shutter speed, typically 1/60th on Nikon cameras). Shooting in this way will produce a clear wide angle view of a subject with trails radiating out from it.

For zoom blur pictures I favour an alternative method of getting colour. By using a filter instead of a flash I get consistent colour throughout the zoom range.

Both these images have been taken with a 50CC red gel filter mounted on the rear of my zoom lens, (the correct amount of filtration in blue waters can be estimated using the formula 4CC units per foot of light path). When using a colour correction filter on an SLR it is important to trust in the equation and not in your eyes! This is because your eyes will adapt to the in situ light spectrum, in the same way that they do in Tungsten lighting in your house.

Flash could be used in these pictures, but would need to be filtered so that it is spectrally balanced with the ambient light (so in my case I would need a 50CC cyan flash filter). This would have the advantage of making both the frozen image and the trails spectrally balanced, although I am sure that my flash is not powerful enough to get enough light to the film at f22 via two opposing filters. As an aside this filter combination would also benefit underwater rear curtain synch images by balancing



Cinnamon coral trout on reef, Sha'ab Abu Nuhas, Egypt. Nikonos V, 15 mm UW-Nikkor. Sea and Sea YS120 flash gun. On f8 aperture front priority (1/60th) TTL. Zoom effect added in Photoshop to right hand image Filter: Blur: Radial Blur.



Fire coral and anthias in The Alternatives, Sinai, Egypt. Nikon F100, 17-35 mm Nikkor (zoomed through full range), 50CC Red filter (depth = 4.1 m). On f22, aperture priority - exposure time approx. 1/4 to 1/2 sec. Kodak Elitechrome Extra Colour 100.

the colour spectrum of sharp and blurred aspects of those images.

In terms of lens choice I would recommend using as wide a zoom as possible. Ideally the Nikon/Sigma lenses in the range 17/18/20-35 mm, but 24-50 mm will also be fine. It is a bonus to have a lens with a fixed aperture throughout the zoom range so that the intensity of the trails does not change, although again this is not essential.

Generally I have got my best results when I leave the camera at the wide end for a few moments to record a clear image before starting to zoom to longer focal lengths. I have also found that this technique is most successful when used on contrasting subject matter (e.g. light coral in of dark water) because the juxtaposition of light and dark produces the clearest trails. Solid blocks of colour such as blue water do not produce trails which can be used in the composition to frame the main subject and trails with “negative space” (sorry, I had to get that Tiptonism in).

But before rushing out to give zoom blurring a try I feel I should also let you know that this effect can easily be imitated using the wonders of Photoshop! Zoom blur can be added to any image by using the zoom function of radial blur (Filter: Blur: Radial blur). It is worth noting that the computer has several advantages over the camera as well as meaning you don't have to get wet. First you can select any photograph, including colourful flash lit images, from macro to wide angle and even fisheye. Also the extent of zoom blur is precisely user defined, and the origin of the blur can be set anywhere within the image. When the technique is produced in camera the origin is always in the centre of the image.

This image of similar subject matter to the in camera shots shows the before and after effect of a single application of radial zoom blur in Photoshop.

But for me the pleasure has been in the trials and the errors, the hit and miss of attempting zoom blur in camera. So next time you can only find rocks on a dive give zoom blurring a try and enjoy some creative freedom from those tried and tested techniques.

Alexander Mustard

Clipping, pushing and pulling

by Charles Hood

Many years ago I proudly returned back to the UK from a trip to the Red Sea with twenty or so correctly exposed rolls of celluloid, or so I thought.

I handed them all to the local E6 lab and two and half-hours later I was staring in total disbelief at film after film of overexposed images. About half of the films appeared to have been over exposed by exactly the same amount of what I judged to be 1 1/2 stops. What had gone wrong?

Disappointment turned to anger. If half were OK then the others should be OK. It must be something to do with the processing. No, they were all processed together. Then this horrible feeling inside me thought back to the trip. One day I had tried a 50ASA film (Fuji Velvia had just arrived on the market) instead of my usual 160ASA. Being in the days where I had to set the ASA manually I must have left it set at 50ASA when I then returned to my usual stock. Returning home confirmed the camera was still set at 50ASA. *!@£\$>*!! The air was blue! It was totally my fault and I couldn't blame anyone else - although I did have a try.

So what did I learn? Mistakes will happen. In this case it was a human error, however, it could quite easily have been a faulty light meter, flash TTL problems, DX reader error (most modern cameras read the film cassette and automatically set the ASA) etc. etc.

I now have a set of rules and procedures when I return home.

Develop just one roll first. If fine, drip feed to the lab the rest of the films, in batches of say 2 or 3 at a time, examining the results before the next batch is processed. Now if a pattern of over or under exposure occurs corrective action can then be



The above image was correctly exposed and processed whilst the one below was "pushed" 3 stops resulting in correct exposure but increased grain and contrast



taken for the rest of the films.

If you only have one or two rolls of a very important subject it might be worth clip testing. What this involves is the processing lab develops approximately the first 6 frames of the film. These then can be examined and if found to be not perfect an adjustment can be made to the processing time to correctly develop the rest of the film. (note: you will lose one frame where the film is cut.)

To make the above two rules work, it is very important to number or label your films. Including other information such as the particular dive, camera settings, flash used and date may also be useful. Equally as important is to expose all similar images identically. For example, on a weeks dolphin/whale shoot we take a light meter reading and measure it to be say f8 at 1/250th second using 400ASA film. Shoot ALL frames at this setting.

This is absolutely critical if you are to have the opportunity to adjust processing times to correct whole films. Now suppose after developing the first film the images appear a bit too dark we could lengthen the processing time for the next film and reassess.

If you only have one chance with one roll to capture an image; then bracket (e.g. take three different exposures plus and minus say 1 stop from what the light meter reads) of the same subject, bracket and then bracket again. Don't trust the light meter, gut feeling or the rule of f8 at 1/60th second at 100ASA (although this is a particularly good rule).

Let's build on rule 4. If we bracket the first roll of the week and write down what we have done (don't even think about trying to remember it), this first roll now becomes a test roll for all the others. Once processed we will automatically now know if we have to adjust the processing times for the other

films and we should have at the least 1/3rd of a film of correctly exposed images.

Of course "pushing" (lengthening the developing time) or "pulling" (shortening the developing time) to compensate for wrongly exposed films, whilst resulting in correctly exposed images, does have slight side effects.

With slide film, a push will result in an increase in grain and loss of definition, where as a pull will alter the contrast and produce a colour shift.

Some photographers have taken these phenomena a step further and actually use these side effects to create an image different from the norm. Generally speaking a push of 1 stop will have only a small effect and 2 plus stops are required to be clearly visible.

It is worth mentioning that Fuji MS100/1000 professional slide film has been purposely designed to be pushed. It can be exposed either



Fuji MS 100/1000 is designed to be "push" processed. Its standard speed is 100 asa but it can be exposed at up to 1000asa and pushed over 3 stops in the processing. Velvia is designed to be exposed at 50 asa and given standard processing for optimum results.

at 100, 200, 400, 800 or even 1000ASA and processed accordingly. Personally I find at 400ASA it has better grain (sharper) than traditional 400ASA stock and at 800ASA it gives perfectly acceptable results where either one is shooting in dim light without strobes, require a fast shutter speed or very large depth of field.

Charles Hood

HMS Royal Oak video



The wreck of HMS Royal Oak in Scapa Flow is a designated war grave and all diving is prohibited but in 2000 a special permission was granted by the Ministry of Defence and the Royal Navy for the wreck to be filmed as a moving tribute to all those who lost their lives.

This new professionally produced 50 minute video includes underwater images of the wreck which have never been seen before and there are interviews with survivors and Orcadian Sandy Robertson who was the first diver to go on the wreck the day after she sank. Also included is coverage of another unique event when the ashes of Dorothy Golding, wife of Bandsman Arthur Golding, who went down with the ship, were taken down by her grandson, Christopher Kilford, and placed in the wreck to reunite the couple.

The finale is the unfurling of a battle ensign on the upturned hull by a Royal Navy diver on the anniversary of her sinking and the final credits include the names of all those who died in the tragedy.

Running time 50 minutes. Narrated by Tom Fleming. Produced by Ocean Optics Ltd. Directed by Peter Rowlands

The video costs £16.95 (+£2.50 UK postage). Total £19.45. Please send cheques payable to Ocean Optics Ltd and send them to: Royal Oak Video, 13 Langley Avenue, Surbiton, Surrey KT6 6QN.

Credit card tel & fax 020 8399 5709

<http://www.hmsroyaloak.co.uk>

DOMES PORTS Why they Work (or don't)!

Paul Kay BSc (Sci. Phot.) FRPS

Have you ever wondered why it is considered best to use a dome port with a wide-angle lens? After all, flat ports are much cheaper, and can be bought for many lenses, so why bother with an expensive and sometimes vulnerable dome port? Well, the maximum theoretical angle of view that it is possible using a flat port is 96 degrees, and in practice it is much less (and no, I'm not going into the complex optical theory of why - see details of the book at the end if you must know). In fact, the accepted cut-off focal length of the lens usable with a flat port is reckoned to be 35mm (on the 35mm format).

Any shorter focal length generally requires a dome port, and to get the best out of a dome port, it is essential to choose the right one and use it correctly. So for those of you with technical longings here follows the reasoning. For everyone else, there's the information on the effects of using ports that correctly match the lens in use, or otherwise, further on.

The theory goes like this. Firstly, for a dome port to work properly it has to be positioned correctly in relation to the camera lens. Without going into the optical theory, the bottom line is that the position of the 'entrance pupil' (this is the position of the lens aperture stop as viewed from the object space - roughly the image of the lens diaphragm when viewed from in front of the lens) of the camera lens needs to be coincident with the centre of curvature of the dome being used. In other words the 'entrance pupil' should be in the centre of the sphere of which the dome is a part. Now obviously, the manufacturer of a lens knows the position of the 'entrance pupil', but such data is not always all that easily obtained. (Some manufacturers, such as Zeiss, publish full lens optical information on the Web try www.zeiss.de). But not all manufacturers do.

So we have a seemingly straightforward enough piece of



Wreck: This shot is crisp throughout as f/11 was used at 17mm on the Nikon 17-35 AFS Zoom, again behind Subal's fisheye port. (The "Carnatic", Red Sea)

optical information, but one which is difficult to use in practice simply due to problems of obtaining such data. If we assume that such information is available, or better still, has been obtained by a reputable port manufacturer (like Subal), then buying a port for a specific lens should mean correct alignment has been already sorted out. So what other optical reasons are there for buying a correctly matched port?

Well a dome port acts as a concave lens. Underwater, this will produce a 'virtual' image of a subject. (A 'virtual' image is one which has the optical property of appearing to be where it is not! It is possible to calculate where it seems to be, but as it doesn't actually exist there; it is virtual!).

Optical theory can be used to show that subjects at infinity produce 'virtual' images at a distance of $3r$ from the surface of the dome (where r is the radius of the dome). This means that the 'virtual' image of an object at infinity lies on a spherical surface of a diameter equal to $4r$. As this resulting 'virtual' image is not planar (it isn't

flat!), accordingly, there are problems when trying to focus it onto a flat film plane, as only flat subjects can be imaged onto a flat surface. To make matters worse we tend to focus on the centre of this image (where it is furthest from the film) so the images corners (nearest to the film) are often closer than depth of field allows to be maintained in focus. The bottom line is that the corners of a wide-angle underwater photograph are all too often very out of focus!!!

There are solutions, and one is rather elegant. The reduction in the apparent subject distance caused by the negative lens property of the dome (infinity is now at $4r$) may be cancelled out by use of the positive supplementary (close-up) lens. The calculation of the strength of the supplementary lens needed is as follows:

Dioptic power of the supplementary lens = $1000/4r$ where r is the radius of the dome. (The focal length of the lens in use does not enter into the calculation).

So for a dome of say 160mm in diameter (this information can also be



Reef: The top of this picture contains little detail so defocusing is not problematic, but in the bottom fine detail is affected and is not at all sharp. Taken with Nikons 17-35 AFS Zoom at 17mm and at f/8 using Subal's fisheye port. (Haska Island, Outer Hebrides).

tricky to find out), the supplementary lens to be used should be $1000/4 \times 80 = +3.125$ dioptres. In practice a +4 dioptre lens is often used as infinity is not available underwater (!) and a +4 will usually work very effectively, although it may be worth experimenting with +3 as this may give better distance focus.

Optical correction produced by a supplementary lens may also help by introducing reversed 'field curvature' to somewhat negate the spherical curvature produced by the dome. (It can induce curvature of the 'virtual' image in the opposite direction to the curvature produced by the dome port). This happens 'best' or 'most' if a 'poor' supplementary lens is used (one with a flat rear and curved front as opposed to a 'better' corrected lens with both surfaces curved). The best (apochromat) supplementary lenses probably are 'optically' better but don't induce the reversed curvature which is so useful.

As the curved image is not entirely flattened by a supplementary positive lens, it is still preferable to

use lenses behind their dome ports at smallish apertures (often f/8 or f/11 as a minimum), in order to try and place the 'virtual' image within the depth of field. If doing this, it may be worth trying to focus slightly in front of the image being photographed as this is the farthest away part of the 'virtual' image, and depth of field extends in front and behind the area being focussed on.

The practical outcome of all this is as follows. In practice the situation shifts slightly due to the physical problems of housing some lenses

Lenses from 35mm upwards can be used with flat ports as the aberrations, distortions and reflections induced towards the edges of the image are no longer too problematic with lenses of this focal length and higher. (Note though that the angle of view of lenses used behind a flat port is reduced by about 1/3). Such lenses can be used behind dome ports though, but curvature of the image will be a problem at wider apertures.

Lenses from 20-35mm can be used behind relatively compact dome ports (with supplementary lenses) and some (say 24 and 28mm) can utilise the same port as their entrance pupils are similar in relation to the physical characteristics of the port (the difference is insignificant). 20mm lenses are compact enough to enable a supplementary lens to be easily fitted and good correction can be achieved at modest apertures of as low as f/5.6 in some circumstances. Problems occur beyond about 20mm (this isn't set in stone!), when larger supplementary lenses, and more significant image curvature mean that progressively smaller apertures are required to sharpen up ever more defocused corners.

Zooms are a real problem. Traditionally, many have spanned the crossover from dome to flat port, and many have not focused very close meaning that they were of limited use behind dome ports in very clear water. A further problem is that of a shift in the position of the entrance pupil as the lens was zoomed, meaning that best correction could only exist at one focal length.

Today things are changing, with

wide-angle zooms working through internal zooming and focusing as well as being able to focus quite close too. Large diameter supplementary lenses will fit on some, such as Nikon's 17-35 AFS lens, which results in very acceptable correction is achieved throughout the zoom range, and a very versatile if somewhat bulky set-up. Interestingly Subal state that their fisheye dome port is 160mm in diameter. They recommend an extension ring to be fitted between it and the housing body (to place the dome in the best position), for the 17-35 and a supplementary lens of +3 dioptres (I use a +4 with excellent results). Nevertheless, this zoom does not quite match a fixed focal length lens in terms of absolute quality.

Physical requirements inevitably mean that most ultrawide-angle lenses tend to need large diameter dome ports. Ultrawide-angle lenses have their own problems, as often a supplementary lens cannot be attached, as this is physically impossible. Many produce images, which exhibit badly out-of-focus corners (plenty of examples exist in books and magazines), and only the use of very small apertures really helps at all.

The most successful ultrawides commonly used underwater are fisheye lenses. Fisheye lenses are the exception as their dramatic depth of field can enable sharpness throughout the picture. They are extensively used but care has to be taken if an obviously straight line appears in the picture, as it is usually imaged as a curve by the fisheye lens to some degree, unless it passes through the centre of the picture.

For anyone wishing to read more about underwater lens theory, may I refer them to Sidney F Ray's superb book "Scientific Photography and Applied Imaging" (Focal Press ISBN 0 240 51323 1) where chapter 30 will prove fascinating!

Paul Kay BSc FRPS

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Nikonos V - the legend

by Peter Rowlands

This year marks the seventeenth anniversary of the launch of the Nikonos V. It has been in production longer than any other Nikonos model and its simple design has become a classic icon in the underwater photography world. Its status is confirmed by checking the equipment cases of most leading photographers. There may be larger housings in there but there is nearly always a diminutive, trusty Nikonos V which takes up so little space yet offers so much.

It hasn't all been plain sailing though. The Nikonos V has had to survive for several years in the shadow of its big brother, the Nikonos RS, a camera which threatened to kill off the Nikonos V. In the end the RS promised so much yet provided not enough and cost too much. It was much awaited yet, like so many dreams, when the myth became reality, it destroyed the myth. The Nikonos RS was discontinued. R.I.P.

As if the shadow of its big brother wasn't dark enough, the RS had opened peoples' eyes to the benefits of reflex viewing - the ability to see the exact focus through the lens and compose your pictures accurately. They flocked to housed land cameras with their bulk and weight, big dome ports and control gears. Everything was becoming very versatile and accurate but complicated and expensive. Yet the Nikonos V has still carried on and is currently experiencing a renaissance amongst underwater photographers.

So what is it about the Nikonos V that has enabled it to survive such competition. Firstly we must thank the accountants at Nikon for deciding that it is a profitable product. Without their calculators, underwater photography would be worse off by far. Secondly we must



look at what it is that the Nikonos V provides for, in doing so, we reveal so much about underwater photography itself. Let me explain but first let me briefly describe the Nikonos V.

Constructed from die cast aluminium, weighing just 860 gms and measuring only 146 x 99 x 58mm, the Nikonos V can operate down to 50 metres. Internally it utilises very little plastic so it is very hard wearing and all controls are O ring sealed - much abused magical devices without which there would be no underwater photography. The camera body offers aperture priority exposure automation, manual speeds from 1/30th to 1/1000th sec and TTL flash metering. Film speeds from 25 to 1600 asa can be used. Film wind on and rewind are reassuringly manual and there is a range of accessories from both Nikon and independent manufacturers throughout the world which extend its versatility beyond measure.

The reason for the Nikonos V's successful survival is that it provides 99% of what we really need at a cost which is not prohibitive and a size which is not arm stretching. Add to that a range of lenses which are purpose designed for underwater use and

you have a package which no housing, I repeat, no housing can compete optically. The Nikonos 15mm lens, for example, is the Rolls Royce underwater lenses which outperforms anything else especially at wide apertures.

Yet the Nikonos V is a non reflex camera using fifteen year old technology and still it survives. Why? The reason is that underwater photography can be as simple or as complicated as you want. The choice is yours but the Nikonos V offers the simple route and this is often the most effective. Most underwater photographs tend to be taken at the extremes - either very wide or very close. That's the nature of the medium in which we operate and the Nikonos V can excel at both.

For close up photographs there are either extension tubes or close up lenses available. The former must be fitted before the dive but the latter can be fitted and removed underwater giving you a two lens option. As the Nikonos V is non reflex you would be forgiven for thinking that the reduced depth of field with close ups would make focusing extremely difficult but fortunately all close up accessories come with either a framing device or probes to show you the exact

point of focus. All you then do is look over the camera at the frames/probes to arrange your composition. The result is an extremely easy to use system which will produce very consistent results with your first roll of film.

For wide angle shots there are several prime lenses which must be fitted before diving or supplementary lenses which can be fitted and removed underwater. Both Nikon and Sea & Sea manufacture excellent wide angle lenses and they also provide supplementary optical viewfinders to show you exactly what will appear in the frame. As wide angle lenses give increased depth of field, the need for accurate focusing is much reduced and allows you to preset the camera and concentrate on your composition.

Perhaps the most useful feature of the Nikonos V is its TTL (through the lens) flash metering. This is provided by a sensor in the camera body which monitors the amount of light falling onto the film during the exposure. When there is enough light, it stops the output of the flash and so ensures no overexposure. There are several underwater flashgun manufacturers, all of whom provide versions which are compatible with the Nikonos V TTL system.

The final point in favour of the Nikonos V in today's market is its price compared to housing a land camera. A good quality housed land camera could easily cost you up to and in excess of £2000 whereas a

Nikonos V with 35mm lens is well under £1000. A complete system with flash, close up and wide angle lenses will fit into a case small enough to be welcome as hand baggage and an additional camera body (which most serious photographers regard as essential for survival) will take up very little extra room.

Finally I have to declare a personal interest and thank Nikon for providing me with a career offering annual servicing of their cameras. I have worked on all models from the pristine which have seen little use to those which look like they have lived in the bottom of a RIB for weeks on end yet they all offer a reliability which is hard to beat.

Underwater photography would be a totally different world without the Nikonos V and long may it continue.

Peter Rowlands

Next issue I'll describe some procedures they don't mention in the instruction manual which could save you from an expensive repair.

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Photography - Peter Rowlands

GET LUCKY! and pool your resources

says Pat Morrissey

What do I mean by 'getting lucky'?

Well, it's not, in this case, an invite to make a follow-up to John Travolta's famous film, nor to take out a contract on one of the lesser-known Dwarves. 'Lucky' is a state of mind, formed beforehand by a number of contributory factors; 'being lucky' is more often than not the entirely practical benefit derived from preparation in advance. It was either Jack Nicklaus or Arnold Palmer who, on being asked whether he ever relied on luck on the golf course, said 'Yep - and the more I practise, the luckier I get'.

People who decide to take expensive camera gear under water - ostensibly, the most hostile environment imaginable for delicate, technical machinery - owe it to themselves to remember those words. Living in England, I have the benefit each winter of a few months when there's very little incentive to go outside or think about the practicalities of underwater photography at all; these are the weeks when it's just too easy to indulge in armchair diving, drooling over coffee tables laden with glossy books of submarine tropical beauty. It's an entirely understandable temptation; but there's far more to be achieved by using the time in Pool Practice.

Even if, like myself, you're a far-from-enthusiastic member of a SCUBA club, you'll have that all-important access to a swimming pool on a regular basis - and while others are honing their dive skills for the nth time, or fitness training, you can be playing with an underwater camera. And it should be playing, in my opinion, since nothing kills creativity more quickly than over-regimentation. I dive for pleasure, and I take photographs for the love of it - so, do I really want to lose this buzz by making it an onerous task or sheer hard work? Answers on a postcard, I don't think...

Look at the benefits: firstly, there's no need to have to learn from scratch all over again about your own gear the next time you exit the dive boat - it'll be second nature to you, an extension of your essential dive equipment.

Secondly, you can utilize pool sessions to familiarize yourself with new equipment or lenses, experimenting in your own leisure time rather than in the hothouse atmosphere of a dive holiday when taking time out 'to see what happens if I do this...' means you lose lumps of expensive vacation time.

Thirdly, you will inevitably start to surprise yourself with the photographs you take during the weekly club night pool sessions - no one can take the same pictures over and over again forever, and you will be forced to become more creative - especially if you normally tend to stick with a particular strobe set-up or favourite lens, which you can also begin to vary as you



wish.

Fourthly, you will become able to respond more rapidly to new photographic situations as they occur in open water by regularly building up 'muscle memory' in your fingers and automatically 'reading' the scene without hesitation. And finally - perhaps most importantly of all, when you're going to be away from underwater photography for a while - regular pool practice keeps your eye 'in', your brain alert and your instincts focussed.

Is there a down side? I haven't found one yet, and in fact the local swimming pool allows us to exhibit pool photos from our Monday night sessions, which both advertises the club and promotes public awareness and appreciation of underwater photography. It's a winning system that every dive snapper and SCUBA club should adopt, so - get in there and BE LUCKY.

Pat Morrissey

Tips for Shooting Better Macro

by Steven N. Norvich

If you are like me, you probably started out in underwater photography by shooting a Nikonos V (or Sea and Sea) with framers and extension tubes. As time goes by, however, certain limitations of this system can get frustrating. As such there is a tendency to move to a SLR camera which is either amphibious by nature or is housed in a metal or Lucite housing from one of the many good vendors in the business. While a SLR allows more creativity and control over the results, it also requires more skill than simply placing a framer over a subject and pressing the trigger. Here are four tips, which will make your macro photography better.

Create Contrast

Successful images have a subject that stands out. Too often I see photographs where the subject blends into the background (sometimes called negative space) and simply fails to grab ones attention. This often occurs when shooting down on a subject. If you are aware of this problem when composing an image there are various ways to make a subject stand out or “pop”. Making a subject “pop” involves creating contrast between that subject and its background or negative space. There are three easy ways this can be accomplished.

Color Contrast



Photographing a subject against a background of a completely different color can create contrast. This could be a black background, which can be easily created by shooting at a small aperture and fast shutter speed, a blue water background, or a different color background as shown by the photograph of the starfish feet below.

Depth of Field Contrast

Contrast can also be created using depth of field. When shooting at larger apertures such as f5.6 and f/8 (as opposed to f22), there is a significant drop off of depth of field past the subject. This causes the



background to be blurred and create an effect called bokeh. This effect can be very pleasing and causes the subject to “pop” from the background. This is illustrated by the image of the Mimic Valentini (above) which was shot at f5.6 rather than the f11 in the previous image of the starfish feet. Notice the red colored soft corals are blurred into a very pleasing bokeh and the subject stands out from the background.

Negative Space Contrast

Another way to create contrast is by using negative space to accentuate an interesting subject. This photograph of the mating Nembrotha Nudibranchs works better because the negative space is interesting and colorful despite being in focus and part of the picture. This negative space shows the environment the subject lives in and also creates textural contrast with the subject. Obviously moving a subject to a good



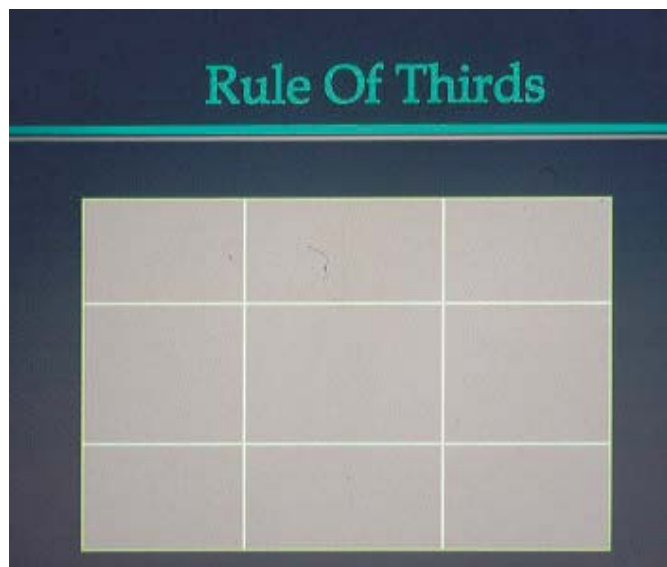
negative space is often infeasible or unethical but angle of composition can often times solve this problem. Good negative space may be available from a different angle. I do not condone ever moving a subject to get good negative space. This will often be harmful to the animal, it creates a propensity for the subject to attempt to leave the area if it is able to do so, stresses the animal, and portrays an unnatural setting.

Creative Compositions

What makes a picture work? If an image is pleasing to the viewer it works, and generally this means that it is composed well. There are two ways to accomplish this. The first is to think about what makes good composition while shooting your pictures and the second is to take all the pictures from a given photo shoot and throw away those that are badly composed. Which makes more sense? It is up to the reader to decide. I personally find that unless I think about composition while shooting, I have far too many images to throw away when culling.

Good composition means that picture elements produce an overall pleasing, unified, and harmonious whole. While this is highly subjective, there are some guidelines, which will help composition be pleasing and cause your eye to gravitate to the subject.

Rule of Thirds



Think of every image as if it were a tic-tac-toe layout with two vertical and two horizontal lines. The intersections of these lines are called “crash points” and these are the power points that will easily draw your attention or those of your viewer. Placing your subject at one of these crash points will create an image that is more powerful and able to keep the interest of the viewer. It gives a feeling of balance and harmony and keeps the image from being boring. Too often, placing the subject in the center of the image makes the picture look posed. So, in effect this is asymmetrical

composition where the subject is not centered or if it is centered, the eye of the subject is at one of the crash points. When the subject is placed on one of these power points or crash points, it is highly desirable that it be positioned such that movement is into the frame rather than out of the frame. The former feels right while the latter creates a discordant feeling.

If it is necessary to center a subject try not to have the subject centered and parallel to the bottom or top of the image. Oftentimes creating a diagonal can cause a mundane subject composition to be more interesting. Note that the eye of the Queen Angel is at a power point.



The rule of thirds also suggests a one third/two third ratio between background (negative space) and subject. Often, in underwater images, this means one third is black or blue water background or negative space and two third subject. Be careful about overusing the black water background; I prefer blue water instead.

Change your Viewpoint

Try to get the most out of a given subject. Good subjects are difficult to find so don't simply take one photograph and move on. Shoot the same subject from different viewpoints, directions, and sides. Look for creative ways of showing how the subject fits into its world. Look for simplicity rather than complexity so the subject does not get lost in a myriad of detail. Consider shooting both vertical and horizontal compositions of the same subject.

Magnification and Depth of Field

As magnification increases for a given focal length, depth of field decreases. This means that as you get closer, you lose depth of field making it difficult to have the entire subject in sharp focus. If the subject has eyes, be sure they are in sharp focus. If you can have the subject parallel to the focal plane, that will keep more of the subject in sharp focus but do not do so at the cost of compositional elegance.

Magnification and Relative f-stop

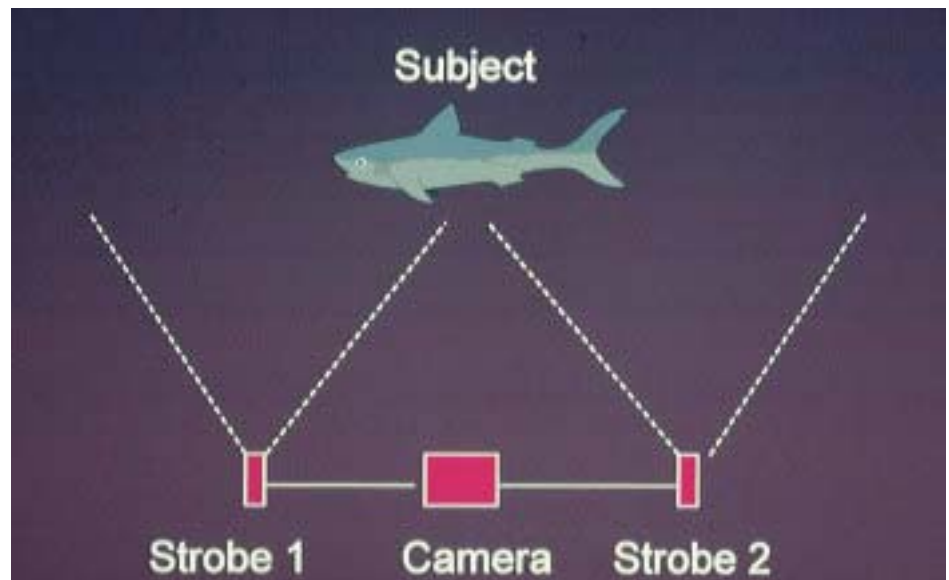
When shooting macro with an SLR 60, 105, or 200 mm lens, as magnification increases, the distance between the lens and the film increases (just as it does when using an extension tube on a Nikonos V or SLR) This means that the f-stop selected on the lens is not the f-stop as perceived by the camera. The f-stop perceived by the camera is the relative f-stop. As such you may see relative f-stops of f45 or even f64 even if the f-stop on the lens is only f22 or f32.

Ok, so why do we care about relative f-stop? Well we do care because strobe lighting at small apertures/high relative f-stops requires more strobe power, closer strobe to subject distance, or faster film to properly expose. It depends on your strobe power whether this is relevant to your particular shot, but if you are getting under exposed images back and the strobe to subject distance is within the coupling range of your strobe for a given f-stop, this may be the reason.

Avoiding Backscatter

Backscatter is lighting pieces of particulate in the water before or in front of the subject being photographed. Backscatter is not inevitable even in water heavy in particulate. The only way to avoid backscatter other than photographing in crystal clear water is to paint the subject with the edge of your strobe beam rather than aiming directly at the subject.

Obviously, decreasing the amount of water between subject and lens reduces the backscatter opportunities but painting the subject with the strobe edges will work even in murky conditions.



Dual Strobes

I personally prefer the use of two strobes rather than one. Occasionally I even use three strobes where the third strobe is on slave and is used for backlighting a subject. Most often I have one strobe on the left and one on the right of the subject, slightly pointing downwards and nearly straight ahead (as opposed to angling inward).

Lighting Ratios

Occasionally, when using two strobes, I will use different lighting ratios. To do so, I will use them at slightly different powers or different strobe to subject distances to create lighting ratios. Ideally there should be one stop difference in the illumination of the two strobes but a two-stop difference can be very dramatic. Experiment to see what appeals to you for a given subject.

If the strobes are attached to movable arms or one of them is hand held, it is an easy thing to control lighting ratios. When using this technique, proper bracketing is desirable and occasionally essential to find the best effect. In this case bracketing is done with strobe to subject distances or strobe power settings rather than f-stops.

Conclusion

In conclusion, I hope that the tips discussed will be useful to you and that you will try them in a situation where you can get immediate feedback by processing your film and then looking at results. Always evaluate your results and keep notes about what works, what does not and what your preferences are. Evaluation will cause your photography to improve in the long run.

Steven N. Norvich

Beginners luck

by Mark Mumford

Dear Marge,

I took my first two rolls of film underwater last week, and they turned out looking awful, just bright blue and blotchy. The man at my dive shop says that to get any decent results, I would need to spend thousands on special cameras, and that the one I've got can't handle. Where can I advertise a nearly-new camera?

Yours, Marvin

Unfortunately, there are too many Marvins in the world. Marvin wanted to try his hand at underwater photography, so went out and bought a basic but competent underwater camera. He didn't spend a lot of money, as he wasn't sure how he would get on and, after his first holiday abroad with it, he now wants to sell it.

Is Marvin the Frank Spencer of underwater photography? Does he have to have "Left" and "Right" written on his fins? I don't think so. Marvin has just fallen foul of one of the classic traps of underwater photography.

However, to understand this trap, we need to understand a little bit about photography, especially underwater, so pay attention - I'll be asking questions later!

Light and Water

Unlike air, water is a very dense medium, and while your wineglass of Perrier water may look perfectly transparent (apart from the bubbles), water does absorb light quite quickly with depth. Each colour in the white light spectrum is absorbed by filtration to a different degree by water (See figure 1) and it is essential that you understand that this applies equally well to a horizontal body of water (See figure 2) as well as a vertical body (or column). Absorption is proportional to the amount of water the light passes through. It is not related to the depth, or consequently the pressure of the water.

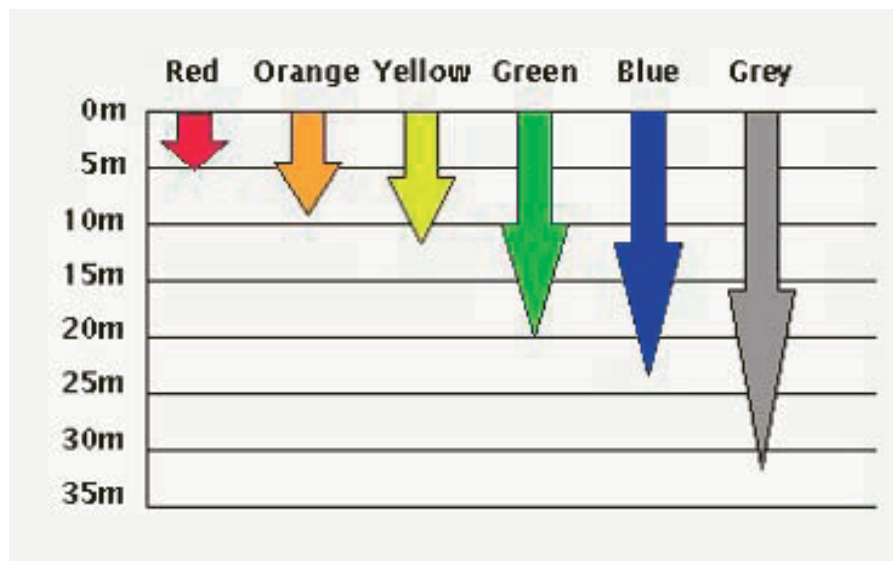
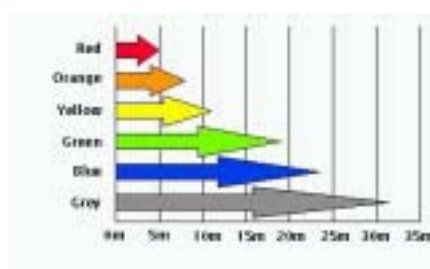


Figure 1. Light absorption with depth of water.

Figure 2. Light gets similarly absorbed horizontally.



Much of the red colour will be lost if there is more than 5 metres of water in the path from the light source to the subject to the camera lens, and many of the other colours will be muted as well, as they lose their red components.

So if you want bright colourful photographs then you must reduce this light path by:

A. getting the light source close to the subject (to cut down absorption on the way) by using an

underwater flashguns to provide a close white light source

B. getting the camera close to the subject (to cut down absorption on the way back) by using wide angle or macro lenses to get close to the subject

Of course, there are some alternatives, such as

A. Shooting in the top few metres of water below the surface - before colours have faded. The ripples in the water also cause varied and attractive lighting.

B. Shoot silhouettes or wreck shapes - relying on tonal contrast rather than colour contrast to make your subject interesting.

C. Shoot on monochrome film stock (no colour problems with black and white!)

Light levels

We now know that water absorbs light very quickly, even in seemingly clear water. In addition to this, not all of the sunlight that does fall on the water actually penetrates to the depths below.

Light entering the water at an angle near to 90 degrees to the water's surface, such as the midday sun, will enter easily, but light from more acute angles, such as sunlight in the early morning and late afternoon, or when the sea's surface is choppy, will tend to have a larger proportion reflected back into the sky than that which manages to penetrate underwater. Worse still, any particles or algae in the water will scatter the light in all directions, cutting down even more the light that manages to penetrate the depths.

The net effect is that below about 15m, even with a strong midday sun on a calm day in the tropics, available light is considerably reduced.

In reality, most underwater photographers use a strobe (flash) to restore colour and contrast, but there will be occasions when you want to capture an image of an object, such as a wreck, which is too large to light in this artificial way, and you must make the best of what light there is.

The actual light level is often hard to judge, as the human eye does a superlative job in adjusting for varying light levels and colour balances, but you can be assured that the vivid colours and crisp shapes you saw on that 25m wreck will come out looking grey and muted in your photographs.

Contrast

Contrast is important to all photographs, especially underwater images, but is easily lost, as the deeper you go, the more the light source will have been diffused and scattered by the water. Photographs

taken at the beginning or end of the day will invariably be lacking in contrast and backgrounds under such conditions are often rendered a rather muddy colour, and not the crisp blue that can normally be expected in clear water in the middle of the day. If you get such results, don't blame your equipment - just dive at different times.

Now while that is all very interesting (and you'll need to understand it when we go on to the next bit), this wasn't Marvin's problem, as he had been taking his photographs at about 10 metres in the middle of the day.

So what trap was it that he fell into? Well, having eliminated the camera, and the lighting conditions, why don't we have a look at the film.

Prints vs Slides

Films come also in two different types, either colour print films giving a negative image that can be printed, or colour transparency (or reversal) films which are suitable for projection. Slides have generally been favoured by underwater photographers, as they can be shown to a large audience, and professional publishers have in the past preferred transparencies.

However, just in case you thought underwater photography wasn't difficult enough, transparency film is much more sensitive to overexposure or underexposure than print film. This property is called exposure latitude, and is typically ± 4 stops for print film, but only $\pm 1\frac{1}{2}$ stops for transparencies. On the plus side though, transparencies give better contrast and colour saturation, for the same reason, and are well worth the additional effort to get right - even though it may be more hassle to get a good print made from them.

This difference in exposure latitude is only really evident when taking portrait format (rather than landscape) shots with graduated blue backgrounds. Slides can

capture a full range from light to dark, while print films give a somewhat more muted result.

What actual film to use is generally a personal preference, as each individual film stock returns slightly different results. I have noticed that underwater photographers choose to use a medium speed film (ISO 100) for wide-angle and other general work, but may use speeds down to ISO 25 for close-up and macro shots that are entirely lit by strobe.

Professional film brands profess to be more carefully quality controlled and stored to help professional photographers obtain identical colour balances from rolls of the same batch. There appears therefore to be no justification for amateurs to choose such films solely on the basis that they will give better results than the non-professional equivalent.

So how did Marvin get on? Well he didn't have any previous experience with slides, and wanted some normal prints that he could show his family and his friends at work, so he chose to use a PRINT FILM (gasps of shock and horror!). Was this his downfall?? Well no actually - there's nothing wrong with print film as millions of photographs taken every day show.

Well even though Marvin used a suitable camera and film, and took his photographs at about the best time of day, things can still go wrong.

There are still plenty of opportunities for low contrast results or even under- or overexposure (even with print film).

We've had a look at Marvin's negatives, and they show some tolerable results. There are a couple of underexposed ones where he didn't wait long enough for the flash to recharge, and many of his shots are taken from too far away for the flash to have much of an impact, resulting in some low contrast shots.

So if the negatives came out sort of OK, where is the trap that



Boots, Crawley (who developed the film). Absolutely dreadful. I would want to sell my camera.



Boots, Crawley (when asked to reprint). A vast improvement. Slightly on the red side - skin tones match those to be found on land (but not underwater!)



Snappy Snaps, Victoria. A little better than the original Boots one, but still pretty dire.



Jessops, Victoria: A very creditable effort, and one which I'd be proud to show my friends and family.

Marvin fell into? So what did Marvin do wrong?

The answer is of course - nothing. Marvin did everything right, although he could have got a bit closer, and waited for his flash more patiently.

The whole thing went dreadfully wrong when Marvin, the amateur underwater photographer, handed his film over to his high street chemist or photo shop for developing and printing.

I'm no expert in photofinishing machines, although I know that they can be calibrated, and have the ability, under operator control, to compensate for a number of common photographic errors, including (yes - you guessed) underexposure and low contrast, presumably by attempting to boost contrast, brightness, and colour saturation.

Now in most cases the results are pretty reliable, as the operator knows what a school sports day should look like, and he probably also knows that people like their photographs to be more highly saturated than the real thing (it's

true!). What he probably doesn't know is what an underwater shot should look like, and how to correct the errors when in that environment.

As a consequence, getting a good print is rather a hit and miss affair.

You will see from the examples, the wide variety in print quality obtainable from high street photofinishers.

Perhaps the simplest solution to Marvin's problem is to ask your photo store to develop and print your films "without colour correction or exposure compensation" (at least on the first time through!).

Kodak SEA Processing

Last year the Eastman Kodak Company announced a new processing service called Kodak SEA Processing, aimed at solving the "inherent problems" with underwater images that result in prints with exaggerated green or blue tints.

Kodak's press release claims

that "the patented photofinishing process uses a blend of digital and traditional silver halide technology to optimize underwater prints, putting the same life and color in the print that the photographer saw on the dive."

Additional hints about how this facility might work are given in the product information for Kodak's DLS System Management Software that runs with their mini-lab film processors. An add-on is available to provide "one-touch" correction of underwater images by reducing the blue cast and adding contrast.

Apparently Kodak Sea Processing is not available in the UK due to lack of demand!

Printing Slides

Despite the attraction of slides, everyone will reach the point where they want to get a good hardcopy print of their best and favourite slides to mount on the wall or to put in an album to show those people who won't sit still for the obligatory slide show.

Unfortunately, prints cannot be obtained from slides with the same degree of availability as you can get a set of prints from your local high-street developers. Fortunately though, there are specialist processes that can produce prints that at least match the best hand-printed negatives, and which, some would claim, produce even better results.

Please don't ever expect a print to come up to the quality of your projected slide. There are plenty of reasons why this doesn't happen, the main one being that there is much less contrast range in a print than there is in a slide!

Mark Mumford

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Scientific Editor: David W. Behrens

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