Underwater Photography

a web magazine
Apr/May 2004

Ikelite 5060
Fantasea CP-3N
Jonah EOS 10D

Ikelite D-70
Fuji F700
Top Dawg Mini

Roatan
Mokorran
Lumpsuckers

New macro
Beginners digital
Improving

WIDE OF THE MARK

If you are new to underwater digital photography the equipment can be bewildering.

Choosing lenses can be especially confusing. Take wide angles. They're great in low visibility and essential for photographing large subjects like wrecks and whale sharks.

But how wide is wide?

95 to 100 degrees is what most professional underwater photographers consider to be the benchmark or standard wide angle focal length. Narrower angles often just don't cut it.

The Inon UWL100 provides up to 100 degrees. That's twice the coverage of most cameras' built in lenses. And substantially wider than the Olympus C5060's own 70 degree wide angle lens and port combination.

Conveniently the UWL100 is also a wetlens. You can remove and replace it underwater, changing lenses to suit your subject.

And if you find even 100 degrees restrictive, you can add a dedicated dome port and expand your view by 30%.

Inon make some of the best thought through and user friendly accessories for the underwater digital photographer. Ocean Optics continues its quarter century tradition of providing the best equipment, advice and aftersales in the business.

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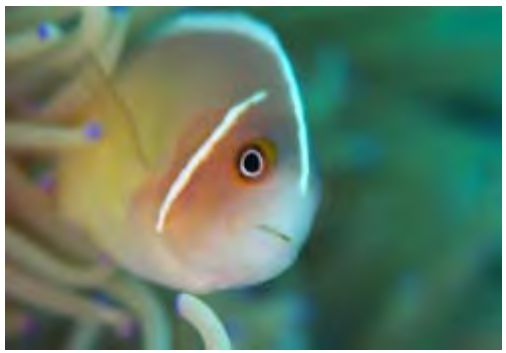

Cover by
Deb Fugitt

Editorial

TTl, D-TTL, I-TTL.....

When I was a lad learning underwater photography, to trigger an external flashgun you needed just two wires. When these were shorted out by the camera the flashgun (usually) fired.

If you had aimed the flashgun correctly the resulting flash would light your subject and create a good exposure as long as you had chosen the correct aperture which is dependent on the flash to subject distance.

This simple system hung around for a long time before "TTL" (through the lens) flash metering appeared.

On the face of it this was a big breakthrough in automation. A sensor looking at the film measured the amount of light falling onto it and, when there was enough, it quenched the flash and saved its power for the next flash.

In the main this new system worked well but it introduced more connections between the camera and the flash - three more to be precise. One was a flash ready light indicator and the other two were for the TTL automation.

Now three extra connections may not sound important but if you count the number of connections between a flashgun with a removeable lead and a housed land camera there are no fewer than 35 separate contacts (maybe more on some systems) all of which have to kept perfectly clean and dry. Should any one of those contacts be greasy or get a drop of saltwater on them, the TTL performance could fail. The result would normally be a small output of light when the camera was fired and this could fool the operator into thinking that all was well.....until they got their films back and found them all to be very underexposed indeed.

I'm not trying to put the fear of God into you, just merely making a point. TTL worked fine for the majority of people including me but, speaking as an underwater camera repairer, I would say that the majority of breakdowns occured with the TTL system more than anything else i.e. shutter or mechanical problems.

Now, with the digital age, we are being offered not only D-TTL but now there is I-TTL. To be perfectly honest I haven't the enthusiasm to find out what all the fuss is about. It sounds fantastic but I've got to the point where I'm happy to shoot manual flash exposures now that we have LCD screens which show us our results immediately. Our "film" costs nothing so there's no problem in taking another shot if it needs correcting.

I can hear the rumble of TTL supporters howling "What about fast moving subjects, eh?" and I agree that TTL can be useful in these situations but photography to me is all about catching the moment in a single frame and to do that I preset my camera and flash to get a good shot at the right time and right distance. True having a motor drive and fast recycling TTL flashgun will allow you to take more but how often have you done that and ended up using only one frame from the sequence?

I guess the conclusion is that you choose to use what suits you.

I think I've chosen the easy route.

Underwater Photography
is published by PR Productions
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A big thank you to one of you

Tony Matheis was the only UwP reader to send a photo of the flyer included in the last issue.

Rob Shumaker, owner of Scuba Sphere Dive Shop is seen here in FT. Worth, holding the "Dive Shop Flyer" from UwP17 that is now displayed in his shop.

Rob Shumaker
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What links these sites?

OCEAN LEISURE

London's premier watersports centre
11 - 14 Northumberland Avenue,
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email:info@oceanleisure.co.uk
www.oceanleisure.co.uk

Readers Lives

Taiji dolphins

I'm writing about the article on the dolphin slaughter in Taiji, Japan that appeared in issue 17. I've lived here in Japan for the last 20 years and have run up against the Japanese attitude towards killing whales since day 1.

I am a lecturer at a university here and from time to time I bring up the issue in my classes to see if attitudes have changed. I showed one class of Japanese freshmen the photos from Sea Shepherd's site and was shocked to find that they were shocked. I was pleased to get questions like "Who eats dolphins?" and "Why are they doing that?"

The Sea Shepherd article is correct in that very few people here know about what is happening. I applaud their efforts to show the world what is going on there. On the other hand, I think fighting with the local fishermen is not a productive way to rescue those dolphins and stop the killing permanently. It only serves to widen the rift and cement opinions. Since the killing of dolphins for Japanese fishermen is primarily financial issue (I think the right wing in Japan may feel that it's also a patriotic issue), I feel that the $8,000 the two activists were fined would have been better used to "buy" the dolphins. I've read that fishermen receive $500 - $1000 dollars per carcass. They could have saved 8 to 16 dolphins with that money.

Sending emails in English and stirring up anger will do little. Sending buyers ready to pay twice or three times the price will change minds in a hurry. It certainly won't be as easy as that. Experience has taught me that doing anything in Japan is rarely easy. But money talks. A worldwide fundraising campaign to buy the dolphins will go far to change minds here and insure that these fishermen can still make a living. Almost no one eats whale or dolphin meat here. The article is correct in that whale meat is available in some coastal supermarkets, but is certainly no where to be found elsewhere. This is just a way to subsidize the fishermen.

Terrorism even ecoterrorism can be avoided.

Dana Del Raye
reefsigh@reefsight.org

Digital article complaint

Will Postlethwaite's article entitled, "The great digital debate" (UwP17) gives almost no insight into the true differences between film and digital underwater photography. It is hard enough to make a qualified comparison with properly chosen digital and film rigs; choosing to compare an Olympus C-5050 to a Nikon F90X makes an analysis virtually impossible.

Compared images were framed differently, exposed differently, and generally compared using superficial observations. One of digital imaging's key workflow differences is that the image is not complete after the shutter has been depressed. Most good digital photographers shoot to capture as much raw information as possible, which does not typically yield a perfect, competing photo straight out of the camera (although there are settings that can overcome much of this).

There are many more grievances I have with Mr. Postlethwaite's statements, but it would take considerable real estate to go through them all. I recommend that he spend some quality time—both during, and after the dive—to learn what his new digital camera is really capable of.

Eric Cheng
Editor, Wetpixel.com. eric@wetpixel.com

All I can say is that I am willing to learn. I think this IS what the debate needs to be about. What I showed was, as I stated a rough comparison of the sort most people will do. It was never meant to be a rigorous analysis. I have not seen such an analysis anywhere? If there is one then that would be fascinating.

I am happy for you to publish this letter as I think it adds to the debate and the information people have to hand.

Controversy is never really a bad thing?

Will
w.postlethwaite@btinternet.com

Digital article praise

Just a short note to say how much MORE I am enjoying UWP in its new format. I set UWP17 to - fit to width - and I find I can read a whole page without shuffling up and down.

Great Mag and a great innovation.

BTW the article by Will Postlethwaite about digital v Film was one of the best I have read. Completely calm, non emotional and no axe to grind.

I think my Nikon, Aquatica and Velvia is good for another 5 years. Then off to digital.

Bob Thomas
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Want to have your say?
E mail peter@uwpmag.com

for Canon 10D and Nikon D100 Digital Cameras

Jonah Housings

Jonah

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for Canon
10D camera

Jonah ND100
for Nikon
D100 camera

Precision cast housings of corrosion resistant aluminum

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Photo: 5-inch guns, USS Saratoga, Bikini Atoll. By Jim Breakell

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News, Travel & Events

Wetpixel.com Photo Contest with Significant Prizes

Wetpixel.com, a website dedicated to the sharing of information about digital underwater photography, has announced a new bi-monthly underwater photography contest for both digital and scanned film images, which will compete on even footing for significant prizes donated by sponsors Aquatica, Pictopia, Ikelite, Gates Housings, Ultralight Control Systems, Marine Camera Distributors, and INON America. Contests will run every two months, and at the end of the calendar year, grand prize winners will be chosen and awarded prizes valued at more than $5,000 USD!

Entering the contest is completely free. Winners will be chosen by a jury of acclaimed underwater photographers including Dr. Alex Mustard, Andy Sallmon, Chris Bangs, David Fleetham, Douglas David Seifert, James Watt, Stephen Frink, and members of Wetpixel staff.

The first photo contest ends on April 30th, and additional contests will run through the end of June, August, October, and December 2004.

Wetpixel.com also runs a "Photo of the Week" contest for amateur photographers just getting started in underwater photography. Winners are published on Wetpixel.com's home page and receive a $30 credit at Pictopia.com for lightjet printing or other digital photographic services.

For more information about Wetpixel's Photo Contest, visit

http://www.wetpixel.com/contest/

Wetpixel.com provides news, features, reviews, and an active forum of over 2,000 digital underwater photographers. Visit Wetpixel at

http://www.wetpixel.com

CELEBRATE THE SEA Marine Imagery Festival

29 July – 1 August 2004, National Science Centre, Kuala Lumpur, Malaysia

The prestigious Celebrate the Sea Marine Imagery Festival 2004 just got bigger. We thought competitions, seminars, photographic workshops, static exhibitions, non-stop marine feature documentaries, the latest dive equipment, digital innovations and some of the world's leading underwater image makers was just not enough. So now, the four-day festival will run alongside '**WETEXPO. 2004'**

For the event we have perhaps assembled an elite VIPS – Speakers and Jury team. Confirmed to attend are: Wyland, Emory Kristof, Dr Gerry Allen, Dr Walter Stark, Dr Mark Erhmann, Tony White, Michael AW, Kim Michelle Toft, Pierre Coton, Daniel Mercier, James Wiseman, Eric Cheng, Daniel Dorville, Mathieu Meur, Charles Hood, Phil Greco and John Bennett. For profile – check out www.celebratethesea.com

CELEBRATE THE SEA - International Underwater Imagery Competition

Underwater filmmakers, photographers, writers and web designers are invited to compete in the focus of the festival - the International Imagery Competition. Competing images can be shot anywhere in the world.

The competitions of the Kuala Lumpur festival are:

- Photography: Prints, slides and slide show competitions
- Best Underwater Film
- Children's Painting Competition (age group 7-15) and exhibition
- Image of the Sea Painting contest and exhibition
- "The Music of the Sea" Competition
- "The Book of the Sea" Competition
- Best Editorial Package Competition
- Best Marine Web Site
- Best Promotional Materials – Marine Tourism
- The State of Our Seas Competition – Environmental Awards

Check at www.celebratethesea.com for application form.

Exotic underwater photography made easy

Eco Divers has expanded its diving and is now offering two 3-day photography courses in different locations in North Sulawesi from 3 – 9 July, 2004.

Led by award-winning underwater photographer, Steve Smithson, the courses offer a variety of photography techniques in what is arguably one of the best destinations on the planet for combining wall diving and 'muck diving'.

Two seminars, each lasting three days, will take place at Eco Divers, Tasik Ria, Manado with the emphasis on wide-angle techniques and at the newly opened Eco Divers, Kungkungan Bay Resort in the Lembeh Strait, where skills in macro photography can be honed.

They can be taken as stand alone options or booked and completed over a six-day period.

Kungkungan Bay Resort seminars will cover techniques for macro, fish and night photography. The Lembeh Strait is home to some of the most fascinating creatures found anywhere in the world including the pygmy seahorse, mimic octopus and Ambon scorpionfish. Whatever the camera system, photo opportunities abound.

Tasik Ria Resort is perfect for developing photography skills in Bunaken Marine Park where the walls teem with life and are perfect for learning wide-angle techniques. The seminar will cover wide-angle balanced light, ambient light (perfect for wrecks, shallow waters and large creatures) and model photography.

Eco Divers will process slides or download to disc the same day, allowing photographers to improve techniques on a day-to-day basis and learn how to shoot technically-correct photos whether they shoot in film or digital format.

"Anyone can learn how to improve their underwater photography," explains Steve Smithson, "whether a complete beginner or experienced photographer, these seminars will teach you all you need to know to achieve excellent results."

For more information and prices, email Eco Divers: info@tasikria.com or go to www.eco-divers.com

Subios 2004

14th - 17th October 2004

SUBIOS 2004 will take place from the 14th until the 17th of October. SUBIOS is Seychelles' annual underwater festival celebrating the underwater world, through a range of diving and snorkeling activities, and creating awareness with evening programs of film, video and slide presentations by acclaimed local and international guest speakers.

As part of the festival there are also underwater film and photography contests. the Photography and Videography contests run year round, and are open to entries from around the world.

Three special designed trophies will be awarded for the top 3 videos. The first prize winner of the Video Contest will also win a vacation to the Seychelles to participate in SUBIOS 2005. And there will be a special prize awarded for the Best Video filmed in Seychelles.

Three special designed trophies will be awarded for the top 3 photos. The First Prize winner of the Photo contest will also win a vacation to Seychelles to participate in SUBIOS 2005. There will also be a special prize awarded for the Best Photo or Image shot in Seychelles.

There will also be a Shoot-Out contest during the SUBIOS 2004 Festival, which is open to any photographers who attend the festival. The photographer of the best picture will win a free return ticket to SUBIOS 2005. Contestants may enroll at any of the participating Dive Centres.

www.subios.sc

Bob Johnson's Red Sea video workshps

Bob enjoys a busy career as a cameraman on natural history documentaries, as a trainer of actors for films and commercials and has worked on the underwater film units for Tomb Raider 2, James Bond and the acclaimed Cheltenham and Gloucester commercial, amongst many others.

Bob's video workshops are designed to be fun, informal and non-academic - to help aspiring videographers to develop an 'eye' and to give a basic understanding of composition, the capturing of behavioral sequences of the fish life and to document the day to day magic of the reefs and open water. This is a non-technical course as regards equipment but we will cover basic camera technique, the use of natural light and general composition.

Video players are on board the boat but please bring your playback cable. Footage will be viewed each evening and there are plenty of opportunities through the day to ask questions.

Film formats will be Mini DV or DV Cam. Please bring sufficient tape but there will be stock for sale on board if you need extra.

8 day tour includes direct flights to Sharm, transfers, 7 nights full board including soft drinks, 6 days diving and the workshop: £915

Whilst every care has been taken to choose these particular dates by Bob, there is a possibility that he may not be able to lead the workshop if he is called to a shoot at late notice. In this event, the workshop will be led by Paul Duxfield and Michelle Hibberd, known to many of you as Duxy and Shelly.

Possible departures: 6 – 13 June, 13 – 20 June and 27 June – 4 July 2004. [Dates and price to be confirmed]

If you have any queries regarding photography workshops or to reserve your places, please do not hesitate to contact (01323) 648924, E-mail: info@oonasdivers.com

Inon. It's Time To Get Serious

Inon are one of the most innovative designers of high end underwater camera equipment in the world. It's won them an elite following. Now Inon have applied their design skills to helping underwater digital enthusiasts get great pictures easily and inexpensively.

Inon make two strobes that are ideal for users of popular digital cameras like Olympus, Canon and Sony. Both the 180s and the 180 offer high power combined with up to 110 degrees coverage for wide angle lenses. Both offer automatic exposure and are fired by a reliable fibre optic cable.

The 180 offers sophisticated exposure overrides for creative lighting and a convenient built in modelling light. It's the perfect strobe for the serious shooter.

The 180s is ideal for fuss free photography. It features simpler exposure compensation for tricky conditions and a convenient LED modelling light.

These are just two items from Inon's extensive range. A range that includes a choice of macro lenses and wide angles.

To learn more about how Inon can help you get better pictures contact Ocean Optics. The underwater photography specialists.

Ocean Optics

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News and New Products

Ikelite Olympus C-5060 housing

Ikelite's new housing for the Olympus C-5060 includes **special conversion circuitry** to utilize the Olympus TTL system without wasting camera battery power and generating the heat of operating the camera built-in strobe.

This is not "watching" the camera strobe system. This is real Olympus TTL control with a sync cord, allowing optional Ikelite DS-50 and DS-125 SubStrobes to provide actual **Olympus TTL automatic exposure** dictated by the camera when attached with a single or dual sync cord.

The housing provides **all** of the capabilities of this camera underwater. The LCD information window on top of the camera is easy to see as is the LCD monitor.

Every camera function is accessible. Special "stay depressed when desired" controls simplify the difficulty of pushing buttons, especially two at a time, while trying to turn a dial and watch a monitor at the same time.

DS-50 and DS-125 digital SubStrobes can also be used with the Manual Controller , providing **ten** power settings. The Manual Controller can be triggered by its wireless slave sensor, but connecting by sync cord is recommended. Older non-digital Ikelite SubStrobes can be used with a sync cord, operating in their manual mode only.

The **heavy duty** thick wall housing is molded of corrosion free clear polycarbonate and operates safely to 200 feet. Camera and housing complete weighs less than **6** pounds.

www.ikelite.com

Fantasea CP-3N housing for Nikon Coolpix 3200 and 2200

The **CP-3N** joins the popular **Fantasea CP-4** and housings for the Coolpix 4300 and Coolpix 885 and the **CP-3** for Coolpix 2100 and 3100 cameras, expanding the current line to accommodate a variety of Nikon digital products. Now consumers have the option of a dedicated camera housing system for 2MP, 3MP, or 4MP cameras, and at different levels of prices that will accommodate all budgets.

The **Fantasea CP-3** housings, like the **CP-4**, are rated to a maximum working depth of 130'/ 40m underwater. It is an injection molded plastic housing, constructed to take the rigorous environments that underwater photographers and outdoor photographers experience, and will protect digital cameras in these demanding activities. The housing offers push button controls that will provide access to the camera's most important controls and features. The **CP-3N** is a compact ergonomic design for easy one-hand shooting. Its operation is equally simple, as photographers need only to open and close one latch to insert the camera into place, without any mounts, screws, or gear alignments to bother with before shooting.

The suggested retail price of the **CP-3N** is $149.95, and includes a pre-paid flood insurance policy for one year.

For more information about Fantasea Line photo products, divers can visit their local photo or dive shop, or visit

www.fantasea.com

Jonah Canon EOS 10D housing

The latest Jonah aluminium housing is for the Canon EOS10D and it has controls for Power switch, Shutter release (mechanical), Main dial, Quick control dial, LCD panel window,

Focusing point selector lever, Drive mode button, Exposure button, AF mode button,

Menu button, Information button, Jump button, Index button, Play button, Erase button, Set button, LCD Monitor Window, Mode Dial, AF/MF Switching Lever, Focus (Zoom) Gear.

There are two flash connectors - 1-S6 and 1-N5 TTL, a Leak Detect Sensor and an Optical viewfinder. The Canon system flash (Canon 420EX or 550EX) can be used with the S6 plug only.

The hand grips have 25mm T-plates for mounting flash arms.

The Canon system flash (Canon 420EX or 550EX) can be used with the S6 plug only. Otherwise Nikon, Ikelite , Subtronic or other flashes can be used in manual mode.

The following lenses can be used. Wide Angle: EF 15mm F2.8 Fisheye, EF 20mm F2.8 USM, Canon 16-35, Sigma 15-30

Macro: EF 50mm Macro F2.5, EF 100mm Macro F2.8 USM.

The Jonah C10 housing is approximately 180x 157x121 mm and weighs 1700g (w/out port and accessories). It is depth rated to 80m.

www.jonah.co.kr

Ikelite Nikon D-70 housing

This clear moulded **housing** introduces a compact new system at a very realistic price. It features full capabilities and operates safely to 200 feet depth.

The Auto Exposure / Focus Lock is placed where it can be held while taking a photo.

All ports from their SLR systems can be utilized, allowing use of most macro, wide angle, and zoom lenses. This system allows you to see that the port is sealed.

The housing "O" ring seal is a masterpiece in fail-safe simplicity compared to designs that require stuffing the "O" ring into a groove. You can see that the "O" ring is sealed.

The housing is sized and weighted for near neutral buoyancy and superb handling underwater. Camera installation is quick and simple. The dependable controls are conveniently placed at your fingertips, and kept water tight with Ikelite pioneered Quad-Ring seal glands proven to be the most reliable method for sealing controls.

The Ikelite Super-Eye magnifier provided with the housing offers enhanced viewing while wearing a diving mask.

www.ikelite.com

Digideep.com Digital housing finder

Since April 2002 digideep.com helps divers around the world to find a housing for their digital camera and to locate dealers specialized on underwater imaging. The website provides a perpetual up-to-date market overview of the essential equipment for digital underwater photography, including compatibility charts, matching digital cameras to underwater housings, weekly photo contest and camera settings.

Lars Kirchhoff and Andreas Voeltz from Germany created this website in English, dedicated to a global audience. They are both digital underwater photographers and their work has been published in various magazines and newspapers.

The website features a smart engine which automatically shows submissions in the photo contest as sample images underneath the gear they were taken with. If digideep.com should not know an underwater housing for your camera you can subscribe to an automated email service. It will notify you as soon as new housings become available. The aggregated requests are anonymously forwarded to housing manufacturers to speed up the process of bringing new underwater housings to the market. Visitors who are new to underwater photography will get help in the site's forum. The forum features a community of over 1700 helpful underwater photographers, living in more than 60 different countries and travelling to many more. The kickstart success of this website underlines the trend to take digital cameras into environments were some of their engineers might not have expected them to work at all.

The site is about to become multilingual and expand it's product listings to cover amphibic strobes, strobe housings, arms and trays and (long awaited) digital video gear.

www.digideep.com

Gates PC330 / PC300 Housing

For the first time, 3.0 megapixel underwater pictures and MiniDV video are available with the Gates PC300/330 housings. The camera LCD is also the viewfinder, providing a crisp, clear, no-guesswork look at your images while shooting.

www.gateshousings.com

Amphibico DVD camcorder special rental unit

Amphibico introduces the all new QuickView DVD Marine Housing, with its innovative design and functionality it will produce instant digital video and still images that are recorded directly on to a DVD which are playable on most current home DVD players. First-time videographers will be able to capture great images, aided by an internal colour-correction flip filter and a Super Wide Angle (140°), which smoothes out the video and captures the most subject available. The housing provides full electronic controls on newly designed marine grip. The construction is of Marine grade aluminium and is depth rated for 330ft (100m).

It has been modified especially for rental with a lockable rear door [to avoid flooding and salty/ sticky fingers] yellow paintwork and "Rental" written on the housing. For a hire operation you just need to load a battery/DVD and lock the rear door. On return you just need to finalise the DVD and give it to the customer.

The units should be available in April 2004 and we are taking advanced orders to guarantee an early delivery. A full inventory of spares will be held in UK for immediate despatch should they be needed.

Contact:
Amphibico
PO Box 108
Romsey,
Hants. SO51 6XD
UK

e-mail –
serviceamphibico@aol.com
Tel: [44] 01794 322500
Fax: [44] 01794 323601

FinePix F700 & WP-FX700 housing

by Charles Hood

All controls are accessible via either a push button or rotating knob. These are quite chunky and could still be used by me while wearing 5mm neoprene gloves.

There is more than enough quality for a home print up to A4 size.

About 12 months ago Fujifilm announced it's 4th generation CCD (charge coupled device) known as the Super CCD SR. Why is this significant for underwater photographers?

Fuji claim that this new array of image sensors has four times the dynamic range (the camera's ability to distinguish between light and dark) than conventional CCDs. Underwater this dynamic range is frequently particularly large, especially in sunlight, due to the high absorption of light in water compared with that of air. Thus any technology that can help the camera capture highlights, shadows and the low light of the depths simultaneously is welcome.

So how does it work? In simple terms the Super CCD SR is designed to copy the sensitivity of negative film. Standard negative film has both low-sensitivity and high sensitivity layers for each primary colour (Red, Green, Blue). The Super CCD SR mimics this by using a combination of low-sensitivity R-pixels and high sensitivity S-pixels. In effect it has two CCDs doing two different jobs.

To make an analogy this can be compared to a base driver (for medium to low frequencies) and tweeter (for medium to high frequencies) in a HiFi speaker. This two CCD system explains why the camera is marketed (somewhat confusingly) as a 6.2 million pixel camera. In fact it has two 3.1 million pixel sensors capturing different aspects of the same image.

All this wizardry certainly proved difficult for Fuji to implement, as it wasn't until the autumn that the first camera appeared. It then took a few months for Fuji to manufacture a housing.

Similar in style to its predecessor casing for the FinePix F410 it is built from high impact polycarbonate and rated to a depth of 40 metres. All controls are accessible via either a push button or rotating knob. These are quite chunky and could still be used by me while wearing 5mm neoprene gloves.

Using the system underwater was quite intuitive. The two knobs on the top turn the camera on or off and select the camera mode. There is a choice of manual, shutter priority, aperture priority, automatic, or programmed. The programmed mode is a little confusing. You have to select it with the top dial then use the buttons to choose which subset you require even though this subset is marked on the dial.

In practice for the majority of occasions underwater I would stick to using the auto mode. I used it in auto and it generally got the exposure spot on. The only time I preferred to change to manual was when the light was low (eg. in a swimming pool) so I could get some background light into the shot.

The 'shutter' release in on the front of the housing and has a strong spring preventing accidental release.

Other controls include, 3 x zoom, ISO, white balance, flash mode, close-up option, bracketing, sharpness, exposure compensation and exposure lock.

Quality wise I set the camera on what Fuji call 3M (2048 x 1536 effective pixels) this gave me 19 images on the 16Mb card supplied. What were the results like? It has to be said that they were pretty similar to other top end 3 mega pixel cameras I have tested. The image didn't particularly leap out and shout huge dynamic range. I suspect this perception was probably due to the fact that I had hyped myself up on Fuji's market blurb to expect a quantum leap in technology that gave rise to this disappointment. However, that doesn't mean the F700 produces poor results. There is more than enough quality for a home print up to A4 size. I'm sure if one was to use this camera without the expectation of its new CCD it would appear at or near the top of any comparative test.

In the studio we played around using the RAW and the 6M settings. There was a slight increase in quality between the 3M and 6M but no appreciable change between the 6M and RAW. Thus unless you particularly need more pixels that take up valuable space on the memory card I would recommend the 3M setting.

All said I liked this system. The housing is well made fairly indestructible, compact enough to fit into most BC pockets and easy to use. The camera is stylish, idiot proof but sophisticated enough for the enthusiast.

Connecting to my iMAC was simply plug and play although I did require the software provided to use the propriety RAW setting.

The Fuji Finepix F700 puts up a respectable challenge to the similar offerings from Olympus and Pentax.

Charles Hood
charles@dive.uk.com

Top Dawg Mini/StingRay 111 Sport review

by Peter Rowlands

With new video cameras still arriving to the market on a regular basis it makes it difficult for housing manufacturers to keep up with the new models and their changing shapes. Back in the 1970's Ikelite solved this problem by investing in a polycarbonate housing which could be configured to accommodate most popular SLR still cameras.

A decade or so later Berkely White of Backscatter in Monterey commissioned video housing manufacturer Light and Motion to produce a housing to solve the problem of ever changing video cameras. And so the Top Dawg was born - a simple housing which could house a long list of video cameras without any modifications.

There were four main design features which accomplished this.

Firstly the front port was large and flat so it could allow a wide variety of lens positions to be tolerated. Secondly the rear window was similar so that it could cope with the ever changing viewfinder positions and thirdly the remote Lanc connector was used so that the main camera functions could be controlled from fixed positions on the housing using maintenance-free magnetic controls. The final part of the equation was a multi-drilled baseplate to allow a wide range of video cameras to be mounted in the right position.

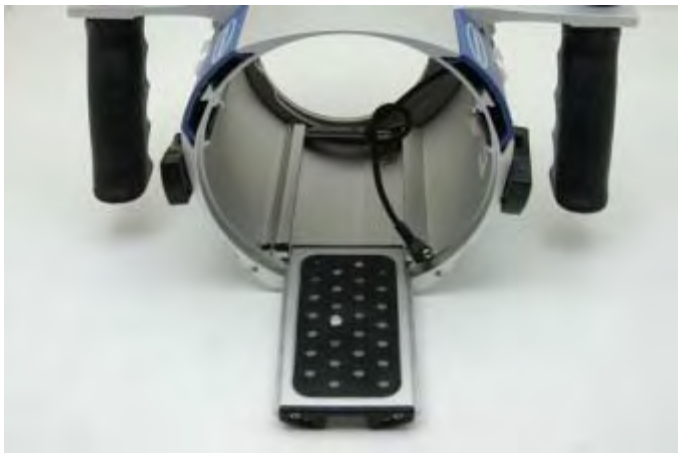
The result was a perfect solution and led to worldwide sales because, as a new camera appeared, the Top Dawg design could not only accommodate them but could allow them to be handled ergonically.

The aluminium extrusion hull beautifully machined and finished and the fixed handles are well positioned to allow access the the four main control switches.

The rear plate is double o ring sealed and retained by two very simple but effective rotary closures.

The video market continued to move on apace and miniaturisation breakthroughs led to a new breed of smaller video camera which, funnily enough, were just too small to be used effectively in the original Top Dawg housing.

The rear viewfinder port is large enough to allow for the varying positions of the cameras viewfinders.



The baseplate looks like it was in the St Valentines Day Massacre but it allows a wide variety of cameras to be accommodated.

Ever responsive to the needs of the market Backscatter and Light and Motion went back to the drawing board and produced the Top Dawg Mini which Light & Motion also market as the Stingray

There are four main controls, two on each side as well as the Power on button at the front.

The optional extra 2.5" monitor back is well worth considering as it will improve the quality of your footage/composition.

The addition of two SunRay Mod lights will add colour and detail to your macro shots

111 Sport. (I'm going to abbreviate these from now on to TDM and S3S)

The new housing continues with the successful design concept of the original with an additional improvement to the main Power switch which is now provided on the front of the housing.

The best way to sum up the TDM and S3S is simplicity. Load the camera onto the baseplate, set the camera's focus switch to "Auto" and the power switch to "Camera" and plug in the Lanc plug. Slide the baseplate into the housing and close the rearplate with two rotary clips and you're ready to shoot underwater.

The camera is turned on by pressing the silver button on the front and the camera will be ready to respond to commands in 5 seconds. The TDM and S3S has four magnetic controls which are ergonomically positioned next the the two main handles. Back right is 'Stop/start record' (push forward) and 'Power off' (push back and hold for 5 seconds.

Rear left is 'Momentary Autofocus' (forward) and 'Autofocus lock' (back) with 'Focus' at the front left and 'Zoom' on the front right. All of these controls fall very easily to hand and you can operate them without having to take your eye from the viewfinder.

If you are considering one of these housings there are a couple of accessories you should definitely consider.

The first is the PAL/NTSC Monitor back which gives you a 2.5" LCD screen to view your subject from further away. This means you can view the image you are filming but still be able to look over the housing to see how the action is shaping up. The second is the addition of a couple of SunRay Mod lights which will add important colour and detail into your close up shots. If you decide to go for these accessories you will get a Travel Package which includes a fitted Pelican case.

The housing is depth rated to 150 feet and is 9.3"l x 7.2" w x 6" h. It weighs just 5 lbs in air and about 0.25lbs underwater (depending on camera weight.

The TDM and S3S is a very simple package which will accommodate a wide range of cameras. The build quality and design are top class, the ergonomics excellent and its value for money would be difficult to beat.

Peter Rowlands
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Roatan

with Bruce Dickson

"A 100 foot wall a snorkel away from the bar". So reads the advertising, and it is very close to reality. There are very few dive destinations anywhere that offer beach diving as convenient as CoCo View Resort on the Bay Island of Roatan, situated 40 miles from the mainland of Honduras in Central America. The rooms and facilities may be simple and comfortable rather than luxurious, the menu is more home cooking than gourmet, the visibility less than perfect on occasion, and yet CoCo View boasts one of the highest return guest rates of any dive resort in the Caribbean. I recently completed my tenth trip, and I keep returning for the laid back atmosphere and lack of rules, which is not to say there is anything sloppy or laid back about the running of the resort and the dive operation. Boats run exactly on schedule with expert, attentive crews, full tanks are always available and most important for a dedicated dive resort, mealtimes are planned around the dive schedule instead of vice versa. Underwater photographers who choose to dive solo are accommodated.

Getting there

Roatan has a modern airport, and is served almost exclusively by TACA , the national airline of Honduras. There are daily jet flights from Miami, Los Angeles and Houston. On most days, the flights connect through San Pedro Sula on the Honduran mainland to a twin engine commuter flight to the island. However, there are two non stop jet flights every week: on Saturday from Houston, and on Sunday from Miami. The flights leave the USA mid afternoon, which means that travelers from Europe generally will have to fly transatlantic the previous day and overnight in Miami or Houston. On the return however there is enough time to make a transatlantic connection the same day.

"The clubhouse looks over the Front Yard"
Nikon N90S, Sigma 14mm f3.5 lens. 1/125 sec at f11 on Velvia

On arriving at Roatan airport, CoCo View guests are met by a representative from the resort right in the Customs hall, where bags are identified by the bright pink luggage tags that were supplied with the booking confirmation. The bags are taken through Customs and loaded on to the "CoCo View Taxi" (an old school bus) along with the guests for the 20 minute ride to the dock where one of the dive boats is waiting to take the guests and luggage for the 5 minute boat ride to the resort itself, which, although technically on a peninsula and not an island, is accessible only by boat. Check in is swift, and the luggage is delivered right to the rooms.

"CoCo View's fleet of custom dive boats"
Nikon N90S, Nikkor 28-70mm f3.5 lens
1/125 sec at f11 on Velvia

Accommodation

CoCo View has four types of guest accommodation. Cabanas and Bungalows are built on stilts over the water, and are non air

conditioned. They have one entire wall (facing the ocean) of screen net, and adjustable shutters on the back wall. This, accompanied by at least three ceiling fans in every room, provides adequate breeze and cooling in all but the very hottest months. For those who cannot take the heat, there are also air conditioned rooms in several two storey buildings. The disadvantage is that these rooms have no outside view (although they do have balconies, not air conditioned of course). Lastly there are the Beach Houses. These are privately owned vacation homes which are managed and rented out by CoCo View when their owners are not there.

UW Photography

To say that CCV is well set up for UW Photographers would be an understatement. The boats have dedicated camera tables and rinse tanks built in. The crews are well skilled at handing off and retrieving cameras. For certain dives however, such as the daily "drop-off" dives, where the boat is not on a mooring, a camera line can be useful. This is a 10 foot length of stout nylon cord with a brass clip at each end. One end is attached to the camera or housing and the other end to a D-ring on the diver's BC. When the signal to dive is given, the camera is lowered gently into the water and allowed to sink to the length of the line. The diver can then make a giant stride entry and reel in the camera while descending.

The rooms each have a large writing table which doubles as a camera work table. A word of warning here, the light level in the rooms is not good. I always try to do my camera maintenance in the daytime, and keep a small headband attached

Nikon N90S in Aquatica Housing, Sigma 14mm f3.5 lens. 1/30 sec at f8 on Velvia

flashlight handy for evening work. The power in the rooms is 110V 60 cycle with USA standard 3 pin outlets. European photographers will need to bring appropriate converters.

There is an onsite Photo & Video store which offers daily E-6 slide film processing, as well as a selection of film and batteries, and a limited supply of rental equipment.

"Lush growth on the CoCo View Wall"
Nikon N90S in Aquatica Housing, Sigma 14mm f3.5 lens. Ikelite 200 Strobe on Full Power with Custom Diffuser. 1/30 sec at f8 on Velvia

As for underwater subjects, Roatan is known as a macro destination. Large animal encounters are rare, but the photographer who is prepared to "think small" will be well rewarded. Seahorses, banded and yellowheaded jawfish, sailfin, secretary and arrow blennies, nudibranchs, cup corals and

"Blustriped Grunts shelter in the Front Yard"
Nikon N90S in Aquatica Housing, Nikkor 60mm f2.8 lens
Inon Quad Flash on TTL, 1/60 sec at f16 on Velvia

"Colourful Marco subjects abound"
Nikon N90S in Aquatica Housing, Nikkor 60mm f2.8 lens
Inon Quad Flash on TTL, 1/60 sec at f16 on Velvia

corallimorphs are just a few of the species regularly seen and photographed. My favorite daytime lens for Roatan is the Nikkor Micro 60mm, which covers from 1:1 macro up to "fish portraits" at 3 feet. For night dives I switch to my Nikkor 105mm paired with an Inon Quad Flash and the Inon 2:1 external close up lens. In a week at CCV I might shoot one or two rolls with a 14 or 20mm wide angle setup, typically reefscapes of the lush growth on the walls, and of course panoramas of the Prince Albert when the visibility allows.

CCV offers what is arguably the most convenient and rewarding beach diving anywhere in the Caribbean. A short walk from the gear room leads to the sandy beach where there is a platform in about four feet of water. Divers can pause there to put on mask and fins, and then swim out through the 'Front Yard' following an old anchor chain which leads to a cut in the barrier reef. Most divers speed through here to get to the walls, and in doing so miss a fascinating area. I have seen everything from baby octopus to adult eagle rays. "In the know" divers frequently spend an entire dive (and roll of film) in less than 6 feet of water.

Once through the cut, there are several choices. A left turn leads to a sandy slope with isolated coral heads and rubble patches. The visibility here can be very variable depending on the direction of the tide, but macro life is abundant, including yellowheaded jawfish and colonies of garden eels. A five or 10 minute swim gets you to CoCo View Wall. This is the "110 foot wall a snorkel away from the bar" as featured in CCV's advertisements. This area is best dived in the morning when the sunlight falling on the reef is at its best.

Following the sandy slope straight down leads to the Prince Albert, a 160 foot freighter which was prepared for divers and sunk around 1989. The wreck sits upright in about 65 feet with the main deck at 30 to 40 feet. The best areas for photography are the stern and bow sections. The

"A videographer captures the lush growth on the bow of the Prince Albert"
Nikon N90S in Aquatica Housing, Sigma 14mm f3.5 lens
Ikelite 200 Strobe on Full Power with Custom Diffuser
1/30 sec at f5.6 on Velvia

"The Prince Albert shelters a variety of picture worthy creatures"
Nikon N90S in Aquatica Housing, Nikkor 60mm f2.8 lens. Inon Quad Flash on TTL, 1/60 sec at f16 on Velvia

stern rails are heavily encrusted with hard and soft corals as well as many varieties of sponge. Secretary blennies peek from their holes and with a little patience can be caught on film emerging to snatch passing food particles. The bow section is a waving mass of gorgonians and seafans and is often home to a very large green moray eel. A line attached to the bow leads to a DC3 aircraft in about 30 feet. Hurricanes have taken their toll, leaving the fuselage and wings in scattered pieces. Sergeant Majors lay their eggs on the smooth aluminum, and aggressively guard them against inquisitive divers.

From the stern of the Prince Albert, divers follow a trail marked by tethered plastic bottles which leads to Newman's wall. Not as vertical as CoCo View wall, Newman's is bisected by a series of sand chutes which provide shelter to a wide variety of creatures including nurse sharks and the occasional hawksbill or loggerhead turtle.

Two walls and two wrecks within a 10 minute swim from the beach. Paradise indeed!

In conclusion, CoCo View is excellent value for money. The inclusive cost for a week including accommodation, food, 4 boat dives per day and unlimited tanks for beach diving is around US$900. As an incentive to repeat customers, every tenth trip is free! I'm already looking forward to trip number eleven.

Bruce Dickson
bdickson@nc.rr.com

The author has been diving for 15 years, and has logged about 1,500 dives, most of them with an underwater camera of some kind in hand. His images have been published in DAN Alert Diver magazine and the CORAL Reef Alliance Calendar. A graduate of the Stephen Frink School of Advanced Underwater Photography, he has plans to submit his portfolio for Associate membership of the Royal Photographic Society.

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Mokarran

The Great Hammerhead

By Charles Hood

I think it is fair to say that out of all the large sharks the great hammerhead (Sphyrna mokarran) is one of the rarest observed by man. Why is this so? Well for a start it is an oceanic shark, that is for most of the time it lives away from the shore and out to sea. Furthermore it is usually a solitary predator and is never seen in schools like the scalloped hammerhead (Sphyrna lewini) of the Cocos for instance. So what's the difference between mokarran and the other hammerheads? Essentially with an average length of between 4-6 metres, mokarran is a giant. It is also spiky. Compared with other sharks its huge dorsal fin protrudes upward second only in height to that of an orca's fin. Moreover its tail, pectoral and anal fins stick outwards giving the bizarre appearance of some futuristic flying machine. Quite simply it is an awe inspiring fish.

Rare and unusual sharks attract similar minded people who track them down. At an, 'off the main road' marina north of Fort Lauderdale in Florida lives Jim Abernethy. With his wife Anna he runs Shearwater, a cosy liveaboard with an eccentric skipper called Kirk. Together with a cook they will take you out to a remote location in the North Bahamas. This is great hammerhead territory. It is also home to numerous reef sharks, bull sharks, lemon sharks and tiger sharks. The principle is simple. The boat is anchored in a known spot and dinner is served. It is then simply a waiting game.

Jim Abernethy stirring the chum

Trying to position myself between the shark and the stern didn't always go to plan 250th sec f5.6 at 200 ASA 28mm natural light

It's amazing how all these sharks take so long to turn up given the sheer amount of chum, blood and dead fish put into the water. However, Jim just doesn't give up. From first light to dusk he tends to the bait both on deck and underwater. It is this persistence that eventually pays off. First to arrive were the reef sharks, closely followed by bulls and lemons. When the great Hammerhead turned up it was unmistakable. All of a sudden one gets the feeling of being alone. The presence of mokarran will almost always scare away other sharks – with the exception of the tiger shark. It invariably swims up current just below the surface towards the stern of an anchored vessel. Here is the best place to position yourself, masked by the splashing of the transom and generator noise.

The team had done everything to get the shark in the right position now it was up to us to get the image. I chose to use a Nikon D100 in a Sea & Sea housing. I was not too sure on how far the shark would be away from the dome so a 28mm (42mm film equivalent) seemed a safe bet. I further had two Sea & Sea YS60 strobes just in case I got close enough to capture some highlights. The D100 was set in RAW mode with a 1Gig card this gave me 107 shots per dive. This proved the perfect set up. Even though these sharks are massive they tend to be wary of bubbles and turn away within the last 2 metres.

After the initial adrenalin rush

(Above) a bit close for comfort 180th sec f11 at 200 ASA 28mm twin Sea & Sea YS60 strobes full power on manual

(Top right) mokarran silhouetted against the transom foam. 500th sec f5.6 at 200 ASA 28mm natural light

(Right) Eric Cheng editor of wetpixel.com with mokarran. 180th sec f8 at 200 ASA 28mm natural light

and frantic snapping at every angle I settled into a rhythm. With over 36 shots taken already my film colleagues had to surface and reload; only two of us – both using digital SLRs remained in the water. Jim had a huge grouper head attached to a line and kept the 4 metre female interested. This involved pulling the tethered head toward the stern orientating mokarran face on to us waiting just below. This was the precise angle I wanted. In RAW mode with the D100 you get four shots before the buffer fills up. This then takes about 20 seconds to clear. With this in mind I waited until she was just about 4 metres away and shot all four frames. This whole procedure was repeated about another half dozen times before the others got back into the water and my tactics changed. I

Taking the bait 180th sec f8 at 200 ASA 28mm twin Sea & Sea YS 60 strobes full power on manual

had previously noticed that the stern crashed relentlessly in the heavy swell. This created a superb backdrop of white water. So I swam away from the stern and positioned myself facing the foam. The only slight problem was the shark would have to pass me so I could capture it in between the boat and me. Although nerve racking I needn't have worried; she was so intent in getting the grouper head nothing in the way grabbed her attention. This continued for about a further half an hour until bang the second image I wanted was in the display on the back of the D100. This all happened on one dive. Does anyone want to buy my F100?

A further article on Jim's operation appeared in the March 2004 edition of DIVE magazine by DIVE's editor Simon Rogerson.

Also on board was BBC presenter John McIntyre recording the events for a chapter on 'Sharks - the big ten' DVD www.bigfishtelevision.com

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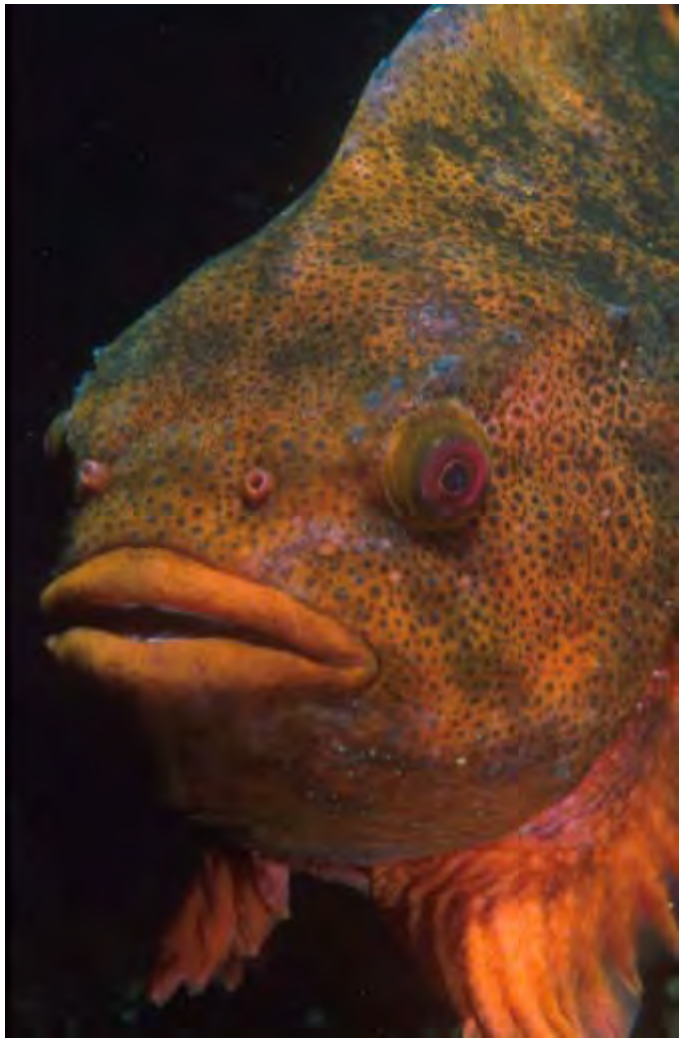
Lumpsucksers are Handsome!

by Mark Webster

Underwater photographers just love strange looking fish, in fact the stranger the better it seems and we spend small fortunes travelling the globe to find and photograph them. This is all very well if you can afford it, but what can you do if you are limited to our own temperate waters? There are a few candidates here which include monk fish, gurnards, pipefish and scorpion fish. But perhaps the strangest and most striking of all is also potentially to most cooperative photographic subject which, once discovered, you can return to for several weeks to perfect your shots - I am of course referring to the lumpsucker which frequents our shallow reefs in early spring.

Although the lumpsucker (Cyclopterus lumpus) is quite common in our temperate waters, it is not often seen as it spends most of the year in deep water until it is time to breed. Early to mid-spring is the breeding period for these fish, when the female lays her eggs, often in a mass of more than 200,000, in shallow waters - normally among the stypes of kelp or in some fissure in the reef to protect them from heavy swells. She then abandons them to the tender care of her mate, who stays with the eggs until they hatch.

Although these fish have little commercial value, the eggs themselves do and they are targeted by some northern fisheries during this period. The eggs are dyed black and salted to be sold as lump fish roe, which is a cheaper version of caviar and some would say no different to the expensive



Beauty is in the eye of the beholder of course, but for me these fish have the same attraction as say a frog fish and are generally equally co-operative. The bright orange/red breeding colours of the male are very striking. Nikon F801, Subal housing, 60mm macro, Fuji Velvia, f11 @ 1/60th, YS50 and home made slave.

Male lumpsuckers spend most of their time with their egg mass gently blowing freshly oxygenated water over their offspring. They will however leave every now and then to chase off predators, particularly hungry wrasse, and these moments present a chance to shoot them in open water. Nikon F801, Subal housing, 16mm fish eye, Fuji Velvia, f5.6 @ 1/60th , Subatec S100 1/4 power.

This close up shot shows the male hard at work puffing fresh water over his brood. They seem to do this tirelessly and often concentrate on one area for long periods, creating a depression in the eggs seen here. Nikon F90X, Subal housing, 105mm macro, Kodak EBX, f11 @ 1/125th , Inon Quad flash.

In this shot the eggs are quite close to hatching. The eyes and tails of the young fish can be clearly seen. Although I returned for several days after this stage of development I missed the moment they hatched and all the young had departed. Nikon F90X, Subal housing, 105mm macro and Nexus wet lens, Kodak EBX, f11 @ 1/125th , Inon Quad flash.

alternative.

The incubation period normally lasts for 4 weeks or more, during which time the male lumpsucker will almost continuously oxygenate the developing eggs by puffing water over them, and see off predators seeking an easy meal. So it is normally the male lumpsucker which divers encounter, which changes colour for breeding from a drab greeen or brown to bright red to orange livery which makes him much more photogenic.

Beauty is of course in the eye of the beholder, but whilst most divers might consider the lumpsucker to be ugly or even grotesque, to a photographer he is a thing of exquisite beauty! The lumpsucker can be quite large (25-50cm) and sports a large, square, bony head with bulging eyes and thick lips. The body, covered by stout spines, tapers sharply to a stubby tail while the pelvic fins are hand-like. The lumpsucker's somewhat strange name is derived from the fleshy fin or pad on the belly of the fish, which it uses to secure itself to the reef close to the eggs the fish is tending. This remarkable looking fish has a docile and fearless nature, and seems quite happy to strike poses for the persistent photographer.

It is best to start your search with beach dives in early March. This thought alone maybe enough to put most photographers off the chase, but the habitat you are looking for will be often in a depth of less than 10m in amongst the kelp stypes and often in areas subject to heavy surge in rough weather. In recent years I have been lucky enough to find two lumpsuckers who had nested in shallow wrecks where the configuration of the twisted metal provides excellent protection for the eggs and enables the male fish to wedge himself in during storms. It really is quite surprising how these fish

As with any subject, having a diver in the picture can enhance the shot, add scale and perhaps add to the story of the encounter. You must of course be careful not to disturb the fish, but my experience of these creatures is that they don't see divers as a threat and all but ignore you as they continue their ministrations or see off predators. Nikon F801, Subal housing, 16mm fish eye, Fuji Velvia, f5.6 @ 1/60th , Subatec S100 1/4 power.

survive stormy conditions - on one particular site the water depth to the nest was only between 2-3m on a low water spring and the fish was still there after a force 8 gale!

In addition to oxygenating the eggs the male also has to defend them against hungry predators. Starfish and crabs try to creep in for an easy meal whilst wrasse and reef fish like the tom pot blenny are a real danger and need constant chasing off. There is also danger from above, particularly at low water when it is calm as often sea gulls will target both the fish and the eggs from the surface. So it is hard work for the poor male and he often does not feed for the duration of his vigil and sadly many males do not survive their dedicated care of the next generation. In their run down condition they are an easy target for parasites and you will often find the fish covered in sea lice after two or three weeks of incubation.

Once you have been lucky enough to find your quarry you can relax a bit as you know the fish will be there for between 3-6 weeks. This provides the opportunity to make repeated visits to the nest over say two weeks to perfect your shots and perhaps even witness the hatching of some of the eggs. As they develop over the weeks you able to see the development of eyes and movement in each tiny globe, but sadly I have so far missed the moment they hatch. Once the young have hatched they continue to develop in the shallow waters or occasionally they will attach themselves to the father to be carried to deep water. The young fish are dark green to brown and look a little like tadpoles and will often be found clinging to kelp stypes or fronds.

Each visit will give you the opportunity of using a different lens and look for a different perspective on the subject. A 60mm or short zoom is ideal for portraits of the fish, whilst a 105mm allows you to concentrate on detail shots and perhaps on the eggs themselves. TTL exposure works well for these shots, although my experience is that the skin of the fish absorbs light and you may need to open up a stop or two from your usual settings at close range. Calm days with a little sunshine are ideal for a 20mm or even a 16mm fish eye as you can get very close to these fish for a shot which include the nest and the surrounding reef environment. The lumpsucker will often leave his nest for a short patrol of the surrounding reef, particularly there are predatory fish lurking nearby that need chasing off. These movements offer the chance to shoot the fish against an open water background as he returns to the nest, perhaps with a diver and maybe even a hint of sun if you are lucky.

Nesting sites seem to be a once only affair as I have yet to find a pair that have returned to a location the following year, so the search has to start all over again. However, it is worth it when you find one of these glorious fish and even if you are unlucky your close attention to detail on the reef is bound to turn up other worthwhile subjects.

Mark Webster

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Mark Webster hosts underwater photography workshops aboard the MY Coral Queen and in Indonesia. He is also the author of 'The Art and Technique of Underwater Photography' published by Fountain Press.

See Mark's website for further details: www.photec.co.uk

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No Cost Options for Improvement

by Deb Fugitt

Cover Photo: Patience and persistence yielded the UwP18 cover Blue Throat Pike Blenny image. I examined dozens of blennies before spending 45 near motionless minutes photographing this colorful and relatively fearless blenny . The blenny on the left is a reflection. Nikon F4 + 105mm, Sea & Sea YS300 & YS120 TTL, Velvia, f22 @ 1/60

Back in the 80's, long before digital cameras, and many of today's UW photographers, were born, IBM came up with a brilliant idea. They distributed coffee mugs to employees of computer centers. On each of these mugs was printed the one word "THINK" in many different languages.

I received one of these IBM mugs and set it on my monitor, continuing to drink from my Cray mug. The Cray supercomputer was the most expensive and fastest computer available at the time and I reasoned that if all the other people in the office were drinking from the IBM "THINK" mugs, I would work much faster if I drank my coffee from the more expensive Cray mug.

Underwater photo enthusiasts are always looking for ways to improve their images. The majority look at upgrading their equipment, adding a new lens or traveling to more exciting destinations. However there are basic things that we can do to improve our images, without spending any money at all. They apply universally to digital or film cameras, cold or warm water diving, point and shoot or expensive SLR cameras, beginner (and often) experienced photographers. And, they aren't technical.

In reality, it doesn't matter if a photographer shoots a Cray or an IBM, this sentence applies to all: "Slow down and, like the ancient IBM promotion of the 80's, THINK about what you are trying to create".

SELECTIVE SHOOTING

So many fish and so little time! You are new to underwater photography and want a photo of every amazing critter you see! You swim from fish SNAP! to nudibranch SNAP! to lobster SNAP! to eel SNAP! On every dive, see a subject; center it in the viewfinder; SNAP! move on to the next shot. Some carry two cameras each with a different lens to be certain they don't miss a single fish.

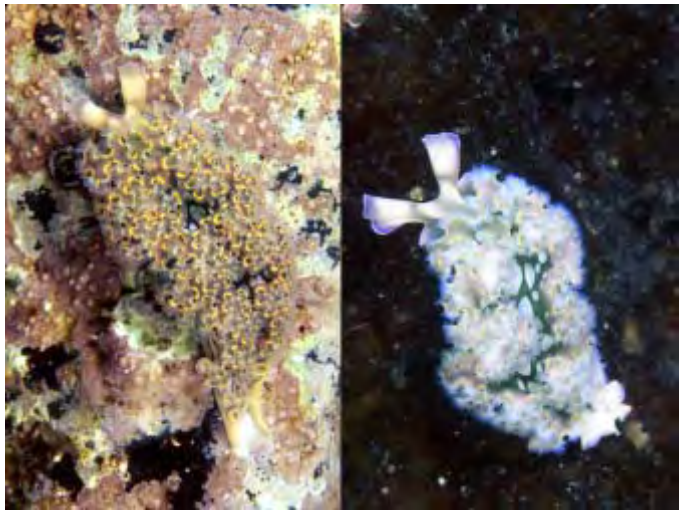
At the end of the day or trip you'll have a large collection of uninteresting images that will put any coworker or friend to sleep. Double that if two cameras were used and possibly hundreds of times that with a digital camera.

Quantity doesn't make up for quality. There are easy ways to create more interesting photos.

Photo Tips - How To Select Scenes

Pretend that this dive trip won't be your last. Imagine, for example, that you see a Lettuce Leaf Slug

LLS & Worms: As I watched, this slug crawled over and around the worms without any reaction from them. The scene had a good subject, a colorful background of red encrusting sponge and interesting surroundings for the LLS. I worked this scene for 30 min. taking several shots as the slug crawled and the scene changed. All the shots were good, but this was my favorite.



LLS Background Comparison: 90% of all LLS's I've encountered are on a background identical to the image on the left. How do you like the image? I can't believe I kept it! It's OK for entering a photo club's contest category "Camouflage", but it is not a striking image. Probably wouldn't win. If I see an LLS on this background now, I'll keep looking. Image 2 is a bit better. This LLS crawled across a black sponge, a strong contrast to the colors of the slug. It shows off the slug much better than Image 1. The subject slug is also more colorful, but it is just sitting there like a . . . Slug. Nikon F4 + 105mm, Sea & Sea YS300 & YS120 TTL, Velvia, f22 @ 1/60

(LLS). You don't have a photo of an LLS. Imagine too that you don't have a portable studio in your pocket so are forced to capture the image within the habitat the reef provides for this creature.

Rather than centering this particular slug in the frame and "SNAP!", first THINK. Is this scene is worth your valuable time underwater? Should you stop here or keep looking for a better scene?

Analyze the background

Is this an exceptional, unusual or at least undamaged subject? Is this slug clean or covered with ugly brown crud?

If the subject/animal is common and is covered with silt, isn't a colorful example of the species, etc. your time will be better spent looking for another subject.

You've found a good subject, in our example, a nice clean colorful slug. Now, analyze the background. Is there a good background for your subject? Is the background cluttered? Is it clean? If not, can you eliminate the background with lighting techniques? What about the color? Does the color of the background compliment the subject?

I personally prefer colorful, clean backgrounds that complement the subject to blurred sand or black backgrounds.

For samples of uninteresting Lettuce Leaf Slug photos I merely had to go back to my older images. There were plenty!

A great background can make the shot. I cruise dive sites looking for good backgrounds and check for subjects when I find one. An Azure Vase Sponge is a superb background for any subject.

Analyze Possibilities for Composition

Ask yourself if you can create an interesting composition given the equipment that you have with you. Is the slug going to be a tiny irrelevant dot in an entire wide angle scene? Or, do you have a macro setup appropriate for the size of the scene?

Can you find an interesting angle? Are the immediate surroundings of the subject interesting?

Brittle Star on Azure Vase Sponge. This is a simple image that has been published multiple times in dive magazines. It always catch's the art director's eye. The subject is clean, the background color spectacular. To shoot brittle stars at night, turn away being careful not to light them, set up for the shot, then move in for a quick photo before they move and the scene is gone. Nikon F4 + 105mm, Sea & Sea YS300 & YS120 TTL, Velvia, f16 @ 1/60, underexposed 1 stop.

Should you focus close on the subject or include it as part of a larger scene? Or both?

Make your own decisions

You are not required to photograph everything the divemaster finds.

You are the judge of whether or not this scene will make an excellent photo. Don't like it? Don't shoot it. If this situation makes you feel guilty, my solution is to pretend you are taking one quick photo, and then keep searching. The divemaster won't notice you didn't actually take a photo.

Your time underwater is limited. Be selective. THINK about the scene before you shoot and rather than spend your dive photographing dozens of so-so scenes, find a few good scenes that will make exceptional images to WOW your friends and be worthy of contest entry. Concentrate your time there.

Patience... P A T I E N C E

After you've found a scene worthy of a photo, take your time. Relax and examine the situation. Your approach and actions near the scene determine whether you get an excellent image, a tail shot or nothing.

The Patient Approach

Don't go rushing up to a scene. Stay well back from the scene, far enough away that you don't spook the subject, decide what might be the best angle for your photo. Prepare yourself and your equipment for the best shot before you begin your approach. This applies both to wide angle and macro photography.

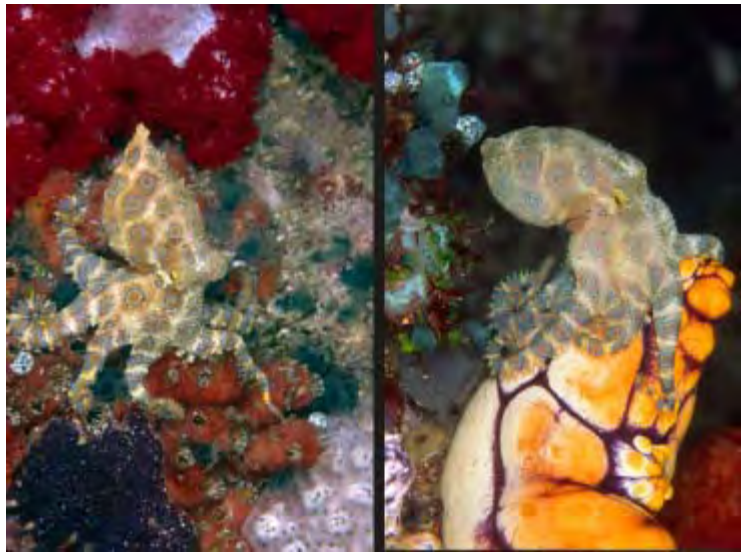
Don't go with the obvious and easiest approach. You may be able to get below the subject, on a side with a better view or in a position where the subject will have a better background or be framed by surrounding reef structure.

Before moving in, adjust camera settings and strobe positions for the image you want to get. I estimate how close I can get to the scene and sometimes focus on a nearby sponge, coral or sandy bottom at the estimated distance to help guide my settings.

When everything is ready get in position and begin moving toward the scene. Hold the camera in position for the shot, i.e. vertical or horizontal. I hold the camera up and keep the viewfinder near my eye looking over the top of my housing as I glide slowly up to the scene. Obviously good buoyancy skills are a necessity, otherwise you'll be flailing around kicking up sand, bumping into the coral and scaring off your subject.

For the final distance (which may be feet or cm. depending on the subject and lens) my eye is to the viewfinder. The first shot is often the best opportunity. I wouldn't take the chance of ruining it by trying to set up my camera too close to the scene. The subject may turn away from the camera or be frightened off immediately.

With the Lettuce Leaf Slug (LLS) example the careful approach was not critical. However with the Blue Ring Octopus and Pike Blenny examples I've included in this article the approach and continued slow movements were necessary to get the photos I wanted.



The Blue Ring Octopus became used to my presence and eventually ignored me. After 10 shots on a busy background (above left) it crawled into a hole. 5 min. later it came back out and I took a series of shots (above right). Nikon F4 + 105mm, Sea & Sea YS300 & YS120 TTL, Velvia, f11 / f16@ 1/60

(Left) My favorite Blue Ring Octopus scene. Nikon F4 + 105mm, Sea & Sea YS300 & YS120 TTL, Velvia, f16 @ 1/60

Patient Persistence

Some skittish photo subjects will allow only one shot before making a quick exit. However, many will become accustomed to the presence of a photographer. This gives us the opportunity to wait for the creature to move into a better position or to do something interesting.

While on a dive I saw that a tiny Blue Ring Octopus had been disturbed when I swam by and was about to scoot into a hole. Using my "Patient Approach" technique, I backed off, adjusted my camera and strobes, then slowly and stealthily I moved in toward the octopus. Whenever it looked nervous I stopped and waited. Within 2 minutes I was within arms' length.

Over a 10 minute period I took 6 photos of the octopus as it walked across a chaotic background of tunicates and soft corals and then vanished into a hole! I waited. After 5 minutes, it came back out and crawled up to the top of a large sea squirt as if to get a closer look at me. In the end, I had 16 photos of the octopus taken over a 45 minute period of time, each a different pose and with many different backgrounds.

You can improve your chances of getting great photos by limiting your movements and by backing off when the creature reacts to your presence. Some creatures will never let you close enough to get the shot you want. You can usually determine that within 2-3 minutes.

I once gave a loaded Nikonos V and framers to a divemaster who had observed photographers for years. With zero technical knowledge and no training, he proceeded to carefully select subjects, consider the angles and position the camera before moving in for a shot. You could see him "THINK"ing. His first roll of film was near perfection.

Underwater we have limits. Sometimes the limits are film frames, sometimes bottom time, sometimes the patience of our dive buddies. We can choose how to spend our time. Analyze and carefully select only scenes that will create the best images, use patience and concentrate on making outstanding images. Try different angles, different compositions and different lighting then choose the best of the multiple images.

Often the difference in the images will be only background, the direction of an eyeball, or an out of focus piece of coral that will make the difference between a good and a spectacular photograph.

Deb Fugitt

Deb Fugitt owns a website marketing and underwater photography company, www.cityseas-web-design.com and is the marketing manager for UwP, marketing@uwpmag.com

Open up your macro photography

Going on holiday to North Sulawesi is a mixed blessing. Sure, the diving is great, the biodiversity is staggering and the subjects are cooperative. But for the photographer these are challenging waters, because if we are honest, despite the diversity of life, we must admit that all of the photogenic subjects have been captured before.

One approach to get fresh images, that is popular with a number of photographers, is to take portraits actually showing some of the behaviour of these creatures. This is a good approach, but I told you about it in the last issue of UWP, so I need some new ideas for this article! One approach I favour when trying to come up with ideas is to follow the clear logic of Sherlock Holmes!

If I want to do something new I must eliminate what has been done before and whatever I am left with, however improbable, must be worth a go!

North Sulawesi is primarily a macro destination. And the basic rules of macro are simple: “use a small aperture to get the maximum depth of field, use the fastest flash synchronisation shutter speed to remove ambient light, and illuminate the picture with TTL flash”.

If we plug this formula into our cameras and focus on the subject we will get good macro results. The problem is that this is what everyone has done before and we will hardly be stretching the envelope photographically. So following Sherlock’s logic I decided to ignore these three tenets of macro photography - to shoot macro with manual flash, with slower shutter speeds and to open up the aperture on my lens. The aim of this article is to tell you how I got on and pass on the tips I learned during the process!

Panning with a moving subject will create streaks of movement in the background. The outline of the gunard in this image has been slightly sharpened in Photoshop. Nikon D100 + 60mm lens. Subal housing. 1/15th sec @ f16. 2 Subtronic Alphas on 1/4 and 1/2

Manual flash

If you shoot on film stick with TTL and skip to the next paragraph! For the digital photographers left reading, the ease of using manual flash exposures in macro photography is one of our best kept secrets!

Film photographers cannot imagine shooting without TTL, while most digital photographers would not go back to the inflexibility of TTL exposure when they can shoot manual flash and get instant feedback from their LCD screen. I DO use TTL with my digital camera - I think it is excellent for free swimming fish photography when the subject to camera distance is constantly changing. But for macro where the camera to subject distance is pretty constant, we can shoot a test exposure and the be sure all our subsequent shots are correctly exposed. With manual lighting we have

full creative control, particularly if we use two strobes. We now have the ideal tool to create the lighting we want, rather than the lighting that the Japanese guy who programmed the camera wanted.

Slow shutter speeds

The main consequence of slow shutter speeds in macro photography is that they allow us to burn in blue backgrounds, which dramatically changes the appearance of our images. For clean blue backgrounds it is best to shoot into open water. A slightly upwards camera angle is good because it can help reduce the exposure time. It is not always possible to isolate a subject against open water, yet we can still get blue backgrounds from reef or sand so long as we are deeper than about 8 metres and follow a few simple rules.

First, we must aim our strobes so they light only the subject - we won't get a blue background if we light it with flash. Second we should chose a shooting angle that puts the background as far back from the main subject as possible: this helps with the lighting but more importantly ensures we get good subject separation and the background is out of focus, less distracting and, of course, blue.

A particularly important consideration, if we are using sand or the reef as a background, is that it must be brighter than the main subject. If the main subject is brighter than the background it will be overexposed when lit with both ambient and flash light. Dark coloured subjects are ideal, white subjects will hardly ever work. If your subject is a similar brightness to the background choose a camera angle that casts it in shadow or silhouette.

Long exposures allow us to add blue backgrounds to macro subjects. There is slight movement blur on the goby, but with exposures as long as this I find a small amount acceptable. Nikon D100 + 105mm lens. Subal housing. 1/8th sec @ f22. 2 Subtronic Alphas on 1/8th power.

Aesthetically, we should also consider the colours. If we are in tropical seas then our backgrounds will be cyans and blues, so we should select subjects with complimentary colours. I find red, orange and yellow subjects most attractive with cyan or blue backgrounds.

Judging the exposure for the image is most easily done with spot metering - spot meter on a nice mid-brightness area of the background and set the exposure. If the camera doesn't have spot metering then you are best to take an average (matrix) exposure for the whole scene and then underexpose this by 1/3 to 2/3 of a stop. This underexposure accounts for the main subject which should be silhouetted or slightly darker that the background - remember the rules

Choosing a yellow, orange or red subject will provide a good colour contrast with a cyan or blue background.
Nikon D100 + 28-70mm lens. Subal housing. 1/180th sec @ f4.8. 2 Subtronic Alphas on 1/64th power.

Wide aperture macro also works on shots that are only lit with flash. Try to select backgrounds of strong, solid colour as details will be out of focus. Nikon D100 + 105mm lens. Subal housing. 1/180th sec @ f5. 2 Subtronic Alphas on 1/32nd power.

Select a shooting angle that accentuates the subjects separation from the background in the shallow depth of field, to give the image a three dimensional look.
Nikon D100 + 105mm lens. Subal housing. 1/180th sec @ f5. 2 Subtronic Alphas on 1/32nd power.

above! TTL will do a good job with the main subject if it is large in the frame. If not it is best to bracket the TTL (if your camera lets you) to underexpose slightly by about 1/3 to 1 stop. With manual flash I find I often reduce the flash lighting by about 1 stop from a flash only exposure.

As I said above, we use slow shutter speeds in macro photography to get balanced light images (i.e. blue background and flash filled foreground) while maintaining the large depth of field achieved with a small aperture. The obvious problem with slow shutter speeds is keeping the camera still - so that we do not create ghosting of the main subject from movement during the exposure.

The best advice I have here is to select subjects where you can rest the camera on the sand to take the shots. I found this technique particularly suitable on muck sites in Sulawesi. Choose subjects that do not have loads of wavey tentacles, polyps, fins etc, as these will undoubtedly move around during a long exposure. But there is no miracle cure, and I recommend taking several exposures to ensure you have a sharp one!

The alternative approach with a moving subject is to pan with the subject, allowing the background to streak and accentuate the movement.

Wide apertures

The alternative way to get blue backgrounds in our macro photography is to leave our shutter speeds alone and open up the lens's aperture. This removes the problems of blurry images from camera movement, but at the expense of depth of field. We still need to adhere to many of the rules of slow shutter

Balanced light makes cryptic subjects easier to see. The outline of this thorny seahorse can be seen easily against the blue background of un-flash-lit sand. Nikon D100 + 60mm lens. Subal housing. 1/45th sec @ f16. 2 Subtronic Alphas on 1/4 and 1/8th power.

speed macro photography (listed above) when it comes to judging exposure and in subject selection. However, the most important aspect to concentrate on in wide aperture macro is focus. With the lens opened right up, depth of field is minute and the smallest error in focusing immediately ruins a shot.

On the plus side, shallow depth of field gives images a more three dimensional look. The out of focus foreground and background also highlight the main subject making it pop out of the image. We can accentuate this effect in our subject selection by choosing a subject or shooting angle that creates a large distance between the foreground and background, which throws the background even further out of focus.

Wide aperture macro does not only have to be used for balanced light images, and can be effective in flash dominated images. Here we do not need to be so careful with subject versus background brightness, as everything is being lit by our flash guns.

The main tip I have is to seek out strong, solid colours for backgrounds. The shallow depth of field means that we will not see details in the background, but we will still see its colour.

Conclusion

For years underwater photography has been about bringing back images from a world few people ever see. But who are we kidding by saying we need to create another clean, crisp anemone fish identification shot.

Thanks to National Geographic, the Discovery Channel, the Blue Planet and Finding Nemo I think a very large proportion of the general public knows what a anemone fish looks like! By the way, why didn't Nemo's father become his mother, when she died in the film? I always thought that anemone fish were protandrous hermaphrodites with sex determined by social control. Sorry, I digress!

The point I was trying to make is that I think underwater photographers often underestimate the sophistication of our audience. Many of our subjects are now familiar faces and our job as photographers has changed. No longer should we concentrate on just recording, we should be adding our personal interpretation of the subject in our images.

Studio portrait photographers have been doing this for years - you rarely see a whole human ID shot - the art of the photographer is revealed in how they light, focus and crop the subject. Opening up to different techniques in macro photography is just one way we can achieve this underwater.

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Photo by Steve Broadbelt

A beginners guide to digital

by Peter Rowlands

(Also a beginner)

In this article we'll be looking at basic entry level digital cameras rather than the more expensive digital SLR (single lens reflex) cameras. A lot of the terminology applies to both types of cameras and we'll look at D-SLR's in the next issue of UwP.

Traditional film cameras and modern digital cameras achieve basically the same results but they do so in completely different ways.

As their name implies, digital cameras convert light into data which can be used to generate an electronic photographic image. The light is captured on a small CCD (Charge coupled device) sensor and the data recorded can be either viewed on a computer screen or printed onto paper. Traditional cameras use light sensitive film to record the light levels and chemicals are then used to convert the film into a form which our eyes can recognise i.e. a transparency or print.

File formats

The two main file formats used by digital cameras are TIFF and JPEG. TIFF is an uncompressed format and JPEG is a compressed format. Most cameras use the JPEG file format for storing pictures, and they sometimes offer quality settings (such as low, medium or high). The more an image is compressed the poorer will be the results.

Resolution

When deciding which camera is best for you there are some technical specifications you need to understand. The most important is resolution.

Resolution is measured in 'pixels'. These are tiny light sensitive diodes on the CCD sensor and, quite simply, the more you have, the better your results will be.

How good you want your results to be will depend on what you will use the final images for. For example if you only want images to put on a web site or to send to your friends then even the most basic digital camera will satisfy your needs. However, if you want to produce quality photographic prints, you will need a camera with many times more pixels.

Resolution is usually expressed in two ways. It is either the total number of pixels on the CCD sensor or it is a numerical expression of the same thing. Most CCDs have an aspect ratio (shape) of 4:3 which is like traditional TVs (not widescreen) so for example a CCD with 0.3 million pixels would have a resolution of 640 x 480 i.e 640 multiplied by 480 equals 307200 which is rounded down slightly to 0.3 million pixels. Modern terminology/slang uses "mega" instead of "millions" so the two are interchangeable. Finally, just to complicate things slightly not all of the pixels for image creation. About 5% are used for other purposes.

The amount of megapixels you have determines the maximum size of print you can produce before the image quality becomes noticeably poorer. The relationship is basically

simple maths.

In basic terms the human eye sees images which have 300 dots/pixels per inch (dpi) as being a photographic/real image. This is the resolution which most printed magazines use. So for every square inch of paper you must have 300 pixels. If you have a 1 mega pixel camera it will produce images of 1216x912 pixels. the maximum quality print size would be 4" x 3" (i.e. 1216/300 and 912/300). This is the best quality but there is only a slight loss of quality at 200 dpi which could produce correspondingly larger images.

The following is a "rounded up" simplified chart to show the best quality print sizes related to megapixels:

Megapixels	Resolution	Print size
One	1216 x 912	4" x 3"
Two	1600 x 1200	5.5 " x 4"
Three	2048 x 1536	7" x 5"
Five	2560x1920	8.5" x 6.5"

These are very much theoretical suggestions/maximums. In practice it is possible to reduce the dpi and get a lot larger prints which still look perfectly acceptable.

Picture storage

Most modern digital cameras are supplied with "memory cards". These are removeable thin solid state storage devices which hold your data/pictures in its memory. Their capacity is increasing almost monthly and the prices are falling so you should be able to afford a card which can hold literally hundreds of shots.

There are two main types of memory cards -

CompactFlash and Smartmedia. The former have been able to develop much higher memory capacities than the latter which is wafer thin. Because of their greater capacity, CompactFlash cards are the most popular and widely used.

Another widely used storage card is the same size and compatible with CompactFlash and these are incredibly small hard drives (microdrives) with moving parts as opposed to solid state circuitry. My personal preference is for the reliability of the solid state cards.

Camera manufacturers provide you with a basic memory card of about 32mb which would only hold 10 x 3mb photos so I would advise spending extra on a higher capacity card such as a 512mb or even 1gig which will allow you to take hundreds of photos at a time.

Picture taking

The beauty of these entry level digital cameras is that most have a small LCD screen on the back for you to see the picture before you actually take it. Admittedly these are quite small which makes judging focus accuracy a bit tricky but that is a minor drawback compared to the advantages. Screens can be difficult to view in bright sunlight but some manufacturers provide shading hoods to improve viewing considerably.

So far we have discussed the computer-like performance of these digital cameras and they do seem to be amazing machines but they do have a couple of drawbacks which you should be aware of.

The first is shutter delay. This is the time the camera takes to focus on the subject and activate the 'electronic' shutter. This delay or lag is being reduced as new cameras are developed but it is probably one of the main reasons why experienced

underwater photographers choose the more expensive D-SLR cameras which have virtually no delay.

In practice the delay is not a problem with static subjects but it makes taking shots of moving fish a real nightmare!

In addition to the shutter delay there can be a delay during which the camera processes the information after you have taken a shot. This delay will depend on the resolution at which you are capturing the images. Most cameras offer you the choice of Full, Medium or Low resolution and the higher the resolution, the more time it will take to process the image. In practice this is rarely a problem unless you are trying to shoot fast action.

The beauty of these digital cameras is that you can not only take pictures and get immediate results but you can also delete the bad ones and free up memory space for more shots. Personally I have never filled up a 512mb memory card with these level cameras so have never needed to delete to get more space but these cameras do give me the option if I needed it!

I prefer to look at the images on a larger computer screen before deciding what is good and what is not. (See Viewing and storing images below).

The top end of these entry level cameras allows you to change the camera settings manually (aperture and shutter speed) but in the ones I have used it can be quite fiddly to achieve this so, initially, I would recommend you use the camera's automatic settings and only revert to manual if you are not happy with the shots you are getting.

Lenses

Most digital cameras have built in zoom lenses which are very versatile and some offer additional 'digital' zoom performance for increased focal length but the image quality drops off considerably using a digital zoom.

The wide angle end of the zoom on most cameras is a bit limited but for general purpose shots they are adequate. Fortunately most have an ability to focus very close and you will be able to get some excellent close up shots of coral and the like using just the built-in flash on the camera.

If you want very wide pictures there are additional wide angle supplementary lenses which can be added to the front of the lens but be warned that they will probably cost more than the housing!

Colour correcting filters

The other amazing feature of these digital cameras is the ability for their electronics to adjust the colours to give better colour balance. Admittedly these are designed primarily for land use but they still do a pretty good job underwater.

However, to get even better shots by available light I would strongly recommend you purchase a colour correcting filter such as UR Pro. They produce a version for blue/tropical water and another for green/temperate water. These filters may seem expensive but the increase in the quality of your images will be well worth it.

External lighting

Whilst the internal flash is capable of taking some amazingly colourful images there may be times when you want extra power to light up

subjects further away. Until the advent of the PT-020 with its flash sync bulkhead connector, most digital housings could not physically fire external flashguns. However some ingenious manufacturers have developed fibre optic triggering so an external flash can be triggered by the camera's built-in flash. This is both simple and very effective but be warned again, they don't come cheap!

Viewing and storing your images

Once your memory card is full of images you will need to transfer them to another storage device such as your desktop/laptop computer hard drive. This then frees up your memory card to record more new images. Inexpensive 'card readers' are available to let you make the link between the memory card and computer and these usually use the USB port on your computer.

With the images saved on your computer you can view tham at a much larger size to check the detail and composition and you also have the ability to use image enhancement software such as Photoshop to further improve the images if you feel they need it.

Finally, if you have an inkjet printer, you can output your best shots onto photo quality paper for passing round or mounting on your wall.

Conclusion

There is no doubt that digital cameras have revolutionised underwater photography and allowed more people to get much better shots than they would have with film.

Their small size and the availability of excellent value housings, most of which will operate down to 40 metres, makes them one of the hottest selling dive accessories on the market today.

Peter Rowlands
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Jessica Taylor

by Jessica Taylor

Underwater photography for me came from the desire to work with animals. I have a natural love of water so it seemed obvious I should go in this direction. I also wanted to be unconventional and do something no one else had done before. So combining my passion for water with my skills as an artist was what I decided to do.

I acquired my first camera set up around two years ago while on my First Degree and enrolled on a course with Martin Edge. I am not technically minded and the mechanics of underwater photography seemed daunting. Adding to the pressure of taking a good picture, was the limited amount of chances I would get being a student on a budget, there was no going back and trying again. I had one chance only and that pressure caused me some sleepless nights. I would not recommend this field to any student living on a pittance!

The first pictures I took underwater where surprisingly successful. I think it was a mixture of the artistic eye I used in my land photography and diving the same spot over and over. Oh, and a lot of luck, that goes without saying. I managed to take those sealing shots you need for your portfolio to prove to yourself and those around you that all the money you've spent wasn't completely wasted.

Since then I have been working on a limited budget in England and have even been taking photographs in the bath. It can be rewarding knowing you can still produce beautiful pictures at home. Although it was frustrating looking at other peoples work they'd been around the world to do. It is such a bonus being able to travel and witness new things, while taking pictures.

I am an Illustrator by trade and I am currently studying for an MA in Illustration at the University of Brighton. For the course I am making an Artists Book about the sealions who live on Los Islotes out of La Paz in Baja California, Mexico.

It is because of the course I have pushed my skills further and what I do has now become who I am. I could easily be making a children's book about a cat for the course, but I am very lucky to have brought my career to my hobby and created something unique.

As an illustrator it was a natural progression to draw underwater. But it takes a lot of skill and a lot of practice and is not as easy as it may seem. I use special paper and graphite sticks and have made my own drawing board out of a plastic flower tray.

I have it off to a fine art now, I dive with my paper and a camera and can amount a large pile of work from just one dive if the conditions are right. Distant are the days of fear that I wouldn't get a shot, now that I draw, it gives me the same buzz you get

when you get a good picture and I know it was purely me that did it.

There is a certain amount of luck involved in taking photographs. With drawing I know I am using my own skills and there is nothing else involved, it is almost like I am using an extra sense. It helped my confidence to draw, knowing I had the security of already having some good sealion shots and it helped my photography as drawing is real lesson in looking. Photography always comes first though. I always finish my film before swapping over and using the drawing board. I think this is mainly because you have to take the opportunities to press the shutter when you can, and maybe I still have that fear of not getting a good shot!

There are so many times you see a cracking shot but your settings aren't right, or you've got the camera pointing the wrong way. With the sealions there where so many of them it was hard to know where to shoot. My tactic was to pick one, watch him and follow him with my camera. After a while, you get to know the behaviour of your subject and judge what they are going to do. As for the shots you miss, you just have to log them in your own album in your head, for the long months when you're not diving.

It has taken me a few trips to get my set up right. Even now it needs an extra clip here and a bit of weight there. What has made it possible is an understanding dive company and divemaster. It can be embarrassing trying to explain what on earth I am doing taking paper down and two cameras and what are these lumps of lead in your BCD pocket, I'm sure they think I'm mad, but the Cortez Club know me by now. They let me plan my own dive and I use them every time I work with the sealions.

Oh the sealions! Yes they make things

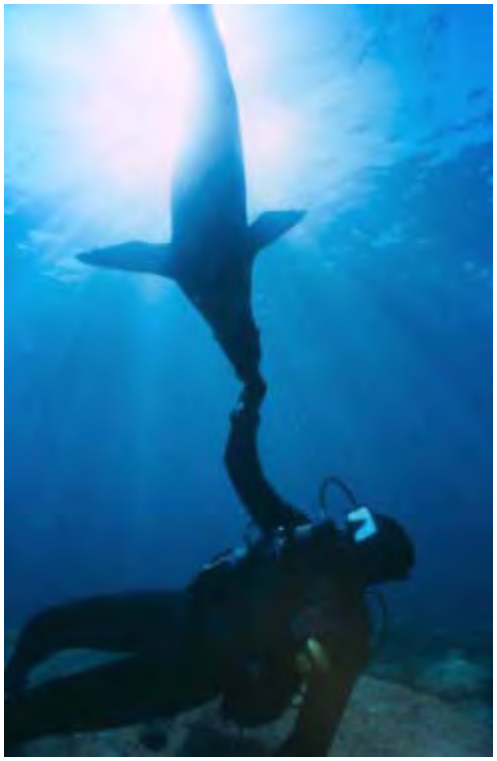
interesting too. They chew your fins, your snorkel, your arms, try to rip the paper off the board, cuddle up and fall asleep on your legs, undo your tank strap and one was even trying to eat the bubbles coming out of my regulator! This is all going on at the same time while I'm trying to draw them. But this is what makes it such a challenge.

It is very hard drawing a subject that moves so fast. Try drawing a formula one car! That's how it feels when you have to worry about who is biting your fin and everything else, as well as your diving and your buddy.

But the work is the reward. I spent the total of 6 weeks in La Paz and have everything I need to make the book I am making. Now that I am home it

is a case of designing and moving the work off from the slides and underwater paper and onto the pages of the book. It is another stage to compile the work and create something from it. But it is also how I get to work with the sealions all year round.

The future for my work is as a freelancer and I also see myself working abroad. My plans are to continue with the direction I have taken but to place myself in the environment where this is possible. Right now I think this might take me into the dive



industry if only so I can be in the right environment, the watery one.

I would like to work alongside Marine Biologists as I have had some experience of this with the sealions. The partnership between art and science is something that is neglected but I think it is a valuable resource in communicating issues to the general public. I will continue to make Artists Books and my next subjects are likely to be different species, ideally large animals like the Shark or the Manta Ray. But I could even find something to say about the Jellyfish, Shrimp or Moray Eel. I think there are opportunities in every species.

I currently have two cameras. My favoured one is the Nikonos V and 15mm lens. I have had the best results with this and find the hands on approach suits me. I also have a Nikon F90 in a Subal housing. I have three lenses for this but I have only used the 20mm lens. I only ever shoot wide angle.

My flashgun is a SB105 but I am looking to upgrade this to a Subtronic soon. I have always used an arm by Ultralight and this is one of my favourite bits of kit although it doesn't come close to the Nikonos 15mm lens, which is my most precious possession!

Jessica Taylor
jeswah@mac.com

The Calypsophot

by Steve Warren

Back in the early fifties as the Aqualung heralded a new adventure sport it was natural that there would be a demand for underwater pictures. The problem was how to safely submerge a camera. Single lens reflex cameras were uncommon in the fifties, so the choice of camera was really between the bulky twin lens reflex models typified by the Rolleiflex and the miniature rangefinder models represnted by the quintessential Leica 35mm.

The Rolleiflex inside either the Hans Hass designed Roleimarin or the Cousteau inspired Ondiphot provided the benefits of greater image quality compared to 35mm. The twin lens design which mounted a lens linked to the viewfinder above the actual taking lens allowed the photographer to accurately focus on small subjects like fish. However the TLR cameras normally had fixed lenses precluding the use of wide angles and were bulky and heavy.

Rangefinders like Leicas provided up to three times as many exposures per dive and their standard lenses could be exchanged for moderate wide angles (all that was available fifty years ago). However the rangefinder focusing which relies on moving mirrors linked to the lens focusing mechanism and has to be viewed through a tiny window were not practical underwater. This meant that the photographer had to either accurately guess the distance or measure it off. The housings were smaller than for medium format - but not nearly as manageable as one might expect. Jerry Greenberg, one of the world's first successful professional underwater photographers, talks of the bronze housing for his Leica weighing in at 5kg.

French lens manufacturer Som Berthiot stepped in to make the 35mm lens.

Enter Cousteau. In the forties Cousteau had created the Undersea Research Group, funded by the French Navy. Part of their remit was develop diving equipment for Cousteau. Jean De Wouters was on the design team. A Belgian, De Wouters was an engineer who has worked in the aeronautics industry, a background he shared with that other legendary underwater camera designer Dimitri Rebikoff. And ,like Rebikoff , De Wouters had developed other equipment for diving, including scooters.

Cousteau wanted a smaller alternative to a 35mm rangefinder inside a housing. De Wouters went to work. And came up with a truly original concept. Rangefinder cameras of the era were quite compact. However a wide body helped increase the accuracy of the focusing mechanism which used two windows set apart from each other. He ditched the coupled rangefinder, reducing the overall width of the Calypsophot. For surface use he fitted a direct optical finder. He added a standard pattern accessorry shoe for fitting an external cross hair viewfinder for underwater framing.

Housings tend to get bulky because they have to be larger than the camera they contain and allow additional space inside for controls to be depressed, swung out and rotated. The larger the housing has to be to accomodate the camera, the thicker the walls need to be to take the pressure being exerted over the housings entire surface area. This in turn leads to heavier housings and with some models extra ballast to offset the buoyancy.

De Wouters built the Calypsophot to be self contained. The outside of the camera is also the pressure hull. The low volume of the camera body enabled a relatively thin metal wall to resist pressure to a depth of 50 metres. Because the body could be expected to flex slightly under pressure, he mounted the film plane pressure plate onto the inner

body where it was not in direct contact with the outer shell. This eliminated problems with focus that might have occurred had the plate been attached to the pressure hull and allowed to move.

Most conventional cameras of the day used wind on knobs rather than levers to advance the film. They were slow to use and hard to operate without taking the camera away from your eye. There's evidence from blueprints of the Calypsophot that De Wouters considered this approach. But he rejected it in favour of a far more elegant solution.

De Wouters combined the shutter release and the wind on mechanism. Operated by the forefinger, a short smooth pull fires the shutter. A second pull advances the film and cocks the shutter for the next picture. It is fast and precise. The innovative design carried over to the Nikonos 111 and its demise with the arrival of the Nik IV-A was much mourned.

De Wouters came up with a simple two claw bayonet mount to allow different lenses to be fitted. Even this feature had more than one role.

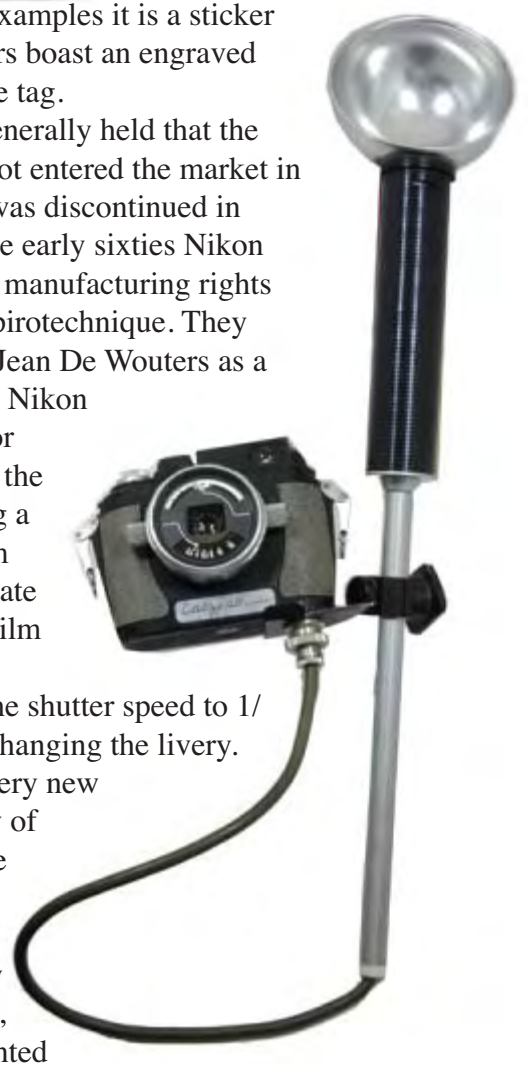
Whereas most housings were only opened for film changes after lengthy battles against bolts, clips and over centre locking bars, often followed by dismantling the camera from the housing control linkages, De Wouters found a simpler and more efficient solution. He used the lens to lock together the two parts of the camera body. The camera could be separated for film loading in seconds without tools. Just a quick tug and twist of the lens to remove it and unlock the camera body followed by lifting the inner body out of the outer by pushing up on the strap lugs and the Calypsophot was ready for loading.

French lens manufacturer Som Berthiot stepped in to make the 35mm lens.

With just a hint of nationalism the focus scale was apparently marked only in metres. Rather than use confusing depth of field indicator lines that are normally inscribed on the barrel of topside lenses, De Wouters used two moving pointers, linked to the aperture control, to exactly define depth of field.

Like any good legend, a few mysteries surround the Calypsophot. Perceived wisdom is that the camera had a top shutter speed of 1/1000th of a second. But it may be that some later models only had a top speed of 1/ 500th. It's thought the higher speed proved superflous and added to the cost. La Spirotechnique are usually credited with manufacturing the camera, but SOS have also been mentioned as possible makers with some models allegedly being marked 'Made in Italy'. Another minor difference between models is the name plate. On some examples it is a sticker while others boast an engraved metal name tag.

It's generally held that the Calyposphot entered the market in 1959 and was discontinued in 1966. In the early sixties Nikon bought the manufacturing rights from La Spirotechnique. They employed Jean De Wouters as a consultant. Nikon made minor changes to the body, using a hinged film pressure plate for easier film threading, reducing the shutter speed to 1/ 500th and changing the livery. The then very new technology of through the lens metering was briefly considered, but discounted (it eventually appeared on the Nik IV-A in 1980). They replaced the 35mm f3.5 lens with a Nikkor that was one stop faster. An imperial scale was added, along with filter threads. They retained the depth of field indicators and kept the original lens mount. The flash blanking plug was equipped with threads for tripod mounting. The protoype of the Nikonos 1 made its public debut as a prop in the 1964 Bond caper "Thunderball". In fact there's a



break in continuity here. Bond first uses a Calypsophot to shoot infra red pictures at night beneath the hull of the Disco Volante. Later he passes Bondgirl Domino a Calypsophot which disguises a Geiger counter. In its next scene it has changed to a Nikonos.

The Nikonos 1 went on sale that same year. Calypsophots continued to be sold for a further two years. Speculation is that later Calypsophots were assembled from spare parts or that Nik 1 components may have been used, possibly accounting for the rumour of a lower top shutter speed on some models. In '68 the Nik 11 replaced the 1 with minor changes internally and a fold out rewind crank in place of the knob.

Calypsophots are very much collectors items. Optics is lucky to own two examples, along with a framefinder, bulb flash unit and a French instruction manual. Mike Warren, our counterpart in France, is especially fortunate - he owns a model that saw service aboard Calypso itself.

They are not inexpensive. Recently a Calypsophot offered on E Bay attracted over £500.00. But if you want to own an icon that defines underwater photography, this is a must have.

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Reviews

Deep Blue

Deep Blue is a 90 minute theatre film based on the award winning BBC series, Blue Planet. This was a big budget series of eight 50 minute documentaries narrated by Sir David Attenborough and was several years in the filming.

To reduce 400 minutes down to 90 must have been a difficult task indeed but it has resulted in a visual feast of the highest quality accompanied by a soundtrack by legendary composer George Fenton which contributes almost as much as the excellent footage. The soundtrack is expanisve without being too sweet and is, like the whole film, beautifully paced.

Whilst the Blue Planet was a traditional natural history documentary with comprehensive narration, Deep Blue lets the images and soundtrack do the work with only limited input from the narrator Michael Gambon. His voice is richer and much more effective for this big screen version.

Deep Blue has been well received at cinemas in Germany and will open here in the UK on June 18th at about 30 selected cinemas nationwide. I was pleased to be invited to a press screening which was in a small preview theater in London. The screen was not very large but this became irrelevant as the images transported me in to my favourite environment. I would think that the Deep Blue on a large cinema screen with a full sound system should be an unmissable event. Make a note in your diary.

I do have one final point to make, however. I understand that the natural world is largely unsentimental and accepts hardship and death as a daily risk but I was concerned about the orca footage showing it flinging a helpless sealion pup into the air and the even more graphic sequence of orcas separating a whale calf from her mother and then drowning it before eating only it's tongue and jaw. The footage was breathtaking but I couldn't stop myself thinking that I was, in effect, watching a natural history 'snuff' movie.

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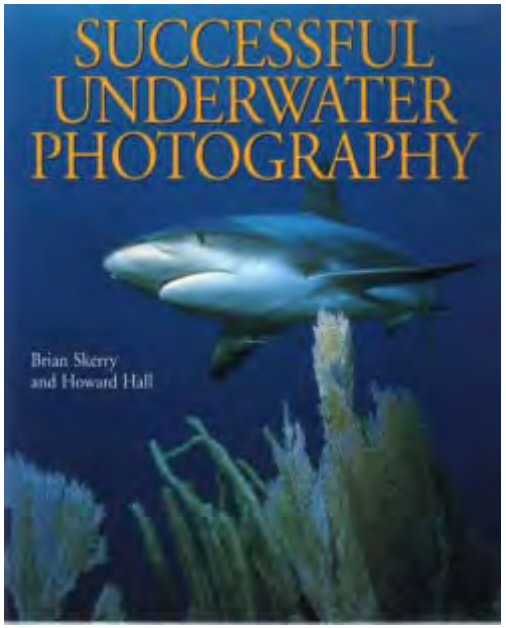
Successful Underwater Photography by Brian Skerry and Howard Hall



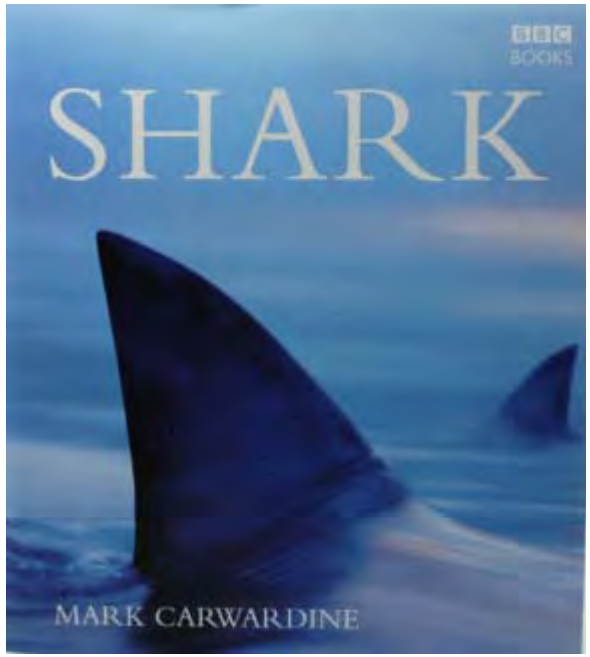
This 10.5” x 8.5” 144 page book is a reworking of Howard Hall’s original title first published in 1982. This new version, as well as being much larger in size, also contains many more excellent photographs, mainly from Brian Skerry.

There are fourteen chapters including useful information in an attractive layout. The chapters follow a logical flow - Fundamentals, Light underwater, Equipment, Available light, Silhouettes, Extension tubes, Reflex macro, Wildlife portraits, People, Shipwrecks, Close focus wide angle, Auto focus and exposure and finally Selling your work.

The big attraction of the original version for me was that the photographs included very detailed captions about the location, subject behaviour, how the shots were achieved as well as full camera details and settings. Effectively, it gave you everything you needed to know to achieve a similar shot. The new version follows the same delivery for the most part but there is a high percentage of photographs which have very little camera details and virtually no caption save naming the subject. Personally I think a good educational photo book should have the full details for each photo accompanying them otherwise there is little point in including them. It’s a shame that this book doesn’t for all its excellent photos.

This version was revised in 1982 without much fanfare so it’s section on digital is minimal to say the least. If they ever need to reprint they should provide full captions for every photo and include a comprehensive section of several chapter on digital techniques and equipment and then they would have a world beating title.

Shark by Mark Carwardine



The combination of Mark Carwardine and BBC Books is an exciting prospect especially when the subject matter is sharks and this latest book certainly doesn’t disappoint.

As I’m sure you know, there have been more books about sharks than any other marine creature because they appeal to our basic fear - the fact that this fear has been generated in the main by the media is by the by.

This 168 page 11” x 11” book is attractively laid out and very thorough in its coverage of the subject matter. The photographs are excellent but it annoys me that the credits are all on the back page so if you want to know who took a particular photo you’ve got to go to the back page and search for the page number as they are not listed numerically. This may not irk most readers but I think it does underwater photographers.

That aside, ‘Shark’ is a most comprehensive and engaging look at this fascinating species which is both understood and misunderstood in so many ways. ‘Shark’ gives both sides of the argument logically and informatively and you get a deep sense personal involvement from the author. This is not just a book it is a crusade by a professional enthusiast whose writing is intelligent without being highbrow and informative without being dumbed down.

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Underwater Photographer's Code of Conduct

Most underwater photographers are concerned to protect the environment in which they take their pictures and to avoid stressing marine creatures when they are taking their images. This is good for the marine environment and leads to better photographs. This Code sets out good practices for anyone who aspires to take pictures or video underwater. Many aspects are also applicable to the general sports diver.

No-one should attempt to take pictures underwater until they are a competent diver. Novices thrashing about with their hands and fins while conscious only of the image in their viewfinder can do untold damage.

Every diver, including photographers, should ensure that gauges, octopus regulators, torches and other equipment are secured so they do not trail over reefs or cause other damage.

Underwater photographers should possess superior precision buoyancy control skills to avoid damaging the fragile marine environment and its creatures. Even experienced divers and those modeling for photographers should ensure that careless or excessively vigorous fin strokes and arm movements do not damage coral or smother it in clouds of sand. A finger placed carefully on a bare patch of rock can do much to replace other, more damaging movement.

Photographers should carefully explore the area in which they are diving and find subjects that are accessible without damage to them or other organisms.

Care should be taken to avoid stressing a

subject. Some fish are clearly unhappy when a camera invades their "personal space" or when pictures are taken using flash or lights. Others are unconcerned. They make the best subjects.

Divers and photographers should never kill marine life to attract other types to them or to create a photographic opportunity, such as feeding sea urchins to wrasse. Creatures should never be handled or irritated to create a reaction and sedentary ones should never be placed on an alien background, which may result in them being killed.

Queuing to photograph a rare subject, such

as a seahorse, should be avoided because of the harm repeated bursts of bright light may do to their eyesight. For the same reason, the number of shots of an individual subject should be kept to the minimum.

- Clown fish and other territorial animals are popular subjects but some become highly stressed when a photographer moves in to take a picture. If a subject exhibits abnormal behaviour move on to find another.
- Night diving requires exceptional care because it is much more difficult to be aware of your surroundings. Strong torch beams or lights can dazzle fish and cause them to harm themselves by blundering into surrounding coral or rocks. Others are confused and disturbed if torch beams or lights are pointed directly at them. Be prepared to keep bright lights off subjects that exhibit stressed behaviour, using only the edge of the beam to minimise disturbance.
- Care should be taken when photographing in caves, caverns or even inside wrecks because exhaust bubbles can become trapped under overhangs killing marine life. Even small pockets of trapped air which allow divers to talk to each other inside them can be lethal for marine life.
- The image in the viewfinder can be very compelling. Photographers should remain conscious of their position and of the marine life around them at all times. In sensitive areas, they should avoid moving around on the bottom with their mask pressed up against the camera viewfinder.
- Areas of extensive damage or pollution should be reported to the appropriate authorities.

Today, when so many more divers are taking up underwater photography, both still and video, it is essential that the preservation of the fragile marine environment and its creatures is paramount and that this Code of Good Practice is carefully observed.

This Code of Good Practice has been introduced by the Marine Conservation Society with funding from PADI's AWARE project. It is endorsed by the British Society of Underwater Photographers, the Northern Underwater Photographic Group and the Bristol Underwater Photography Group as well as being supported by the Sub-Aqua Association, the British Sub-Aqua Club and the Scottish Sub-Aqua Club.

Guidelines for contributors

The response to UwP has been nothing short of fantastic. We are looking for interesting, well illustrated articles about underwater photography. We are looking for work from existing names but would also like to discover some of the new talent out there and that could be you!

The type of articles we're looking for fall into five main categories:

Uw photo techniques - Balanced light, composition, etc

Locations - Photo friendly dive sites, countries or liveaboards

Subjects - Anything from whale sharks to nudibranchs in full detail

Equipment reviews - Detailed appraisals of the latest equipment

Personalities - Interviews/features about leading underwater photographers

If you have an idea for an article,
contact me first before putting pen to paper.
E mail peter@uwpmag.com

How to submit articles

To keep UwP simple and financially viable, we can only accept submissions by e mail and they need to be done in the following way:

1. The text should be saved as a TEXT file and attached to the e mail
2. Images must be attached to the e mail and they need to be 144dpi
Size - Maximum length 15cm i.e. horizontal pictures would be 15 cm wide and verticals would be 15cm.
File type - Save your image as a JPG file and set the compression to "Medium" quality. This should result in images no larger than about 120k which can be transmitted quickly. If we want larger sizes we will contact you.
3. Captions - **Each and every image MUST have full photographic details** including camera, housing, lens, lighting, film, aperture, shutter speed and exposure mode. These must also be copied and pasted into the body of the e mail.

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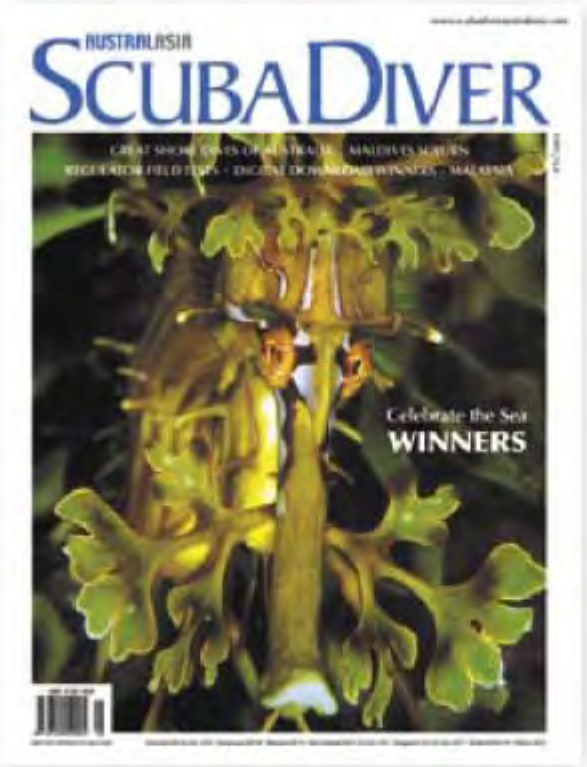

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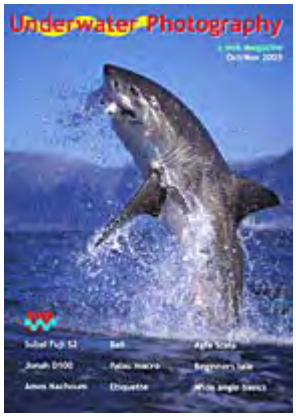

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