

The virtues remain the same

Insights into digital underwater photography

Text and photos by Lawson Wood

Underwater photography has been around well over 150 years and has accompanied humans as they have ventured beneath the seas to chronicle the water wilderness in all its glory, with the earliest underwater photographs being taken on large plate cameras in underwater housings of some sort or another. In fact, virtually every photograph taken since then had to use Silver Halide crystals in recording the image. Now in the 21st century, things really haven't changed that much; we still have to take

our underwater photographs in waterproof boxes of some proprietary manufacture, but now the technology has surpassed all expectations with the digital age, as this rapidly evolving format has finally removed the fear of failure, which virtually applied to all photographs produced historically.

If you look back on historic innovations, then the introduction of the digital camera has been sensational. Now we no longer need to wait years for the technology to improve. In many cases, we are witnessing improvements being made almost monthly. What was once a

curiosity, the digital camera, is very much a part of almost everyone's day to day lives, whether it actually be a camera or as part of a sophisticated "must have" mobile telephone.

The quality of the digital camera's reproduction has raised the bar so high today that even those old dedicated film users who once said that they would never make the switch over to digital, now extol the virtues of the latest cameras, housings and, of course, scanners, printers and digital editing software.

Our vocabulary has changed to include *pixels, bytes, ram, gig, jpeg, tiff, raw, nef* and many more abbreviations too mind-boggling to start with. Once you couple your new digital camera with your computer and add photograph manipulation programme software such

as Photoshop, then we open up another huge sack full of abbreviations and weird and wonderful tools to help or confuse the budding or professional photographer.

Firstly, let us assume that we have all taken the digital leap and either own a digital camera of some type of manufacture, or are considering buying one for oneself or a loved one. I once went to great lengths to write a synopsis on the digital format versus the film format. Now the technology has advanced so far and so fast, that one can hardly find anyone who will process film anymore. We are today well and truly into the digital age. Film is gone—for now—so let us explore the why and the wherefores of digital underwater photography.

There are several points that we have

to grasp first, and they are all generally to do with light. When we were still using film for our underwater photography, the light from either the ambient surroundings or from the intensity of artificial light by flash, the light had to penetrate at least four layers of emulsion on the film strip to be able to reproduce an accurate image. Now with digital photography, it is as if we are taking the photograph through a plain sheet of clear glass; we no longer need the high strength of powerful flashlight, and what we miss, we can generally 'fix' (to a certain extent) on our computer.

However, there is still no substitute for a good underwater photograph. A bad photograph, whether it be too 'messy', too underexposed or too over-exposed is still not a good photograph, no matter



The way we were—working a subject in film and then trying to choose the best shot



photo & video

Subject: Yellowline Arrowcrab (*Stenorhynchus seticornis*), Cayman Brac, Cayman Islands. 105mm lens, ISO 100, Twin Sea & Sea YS110 flash, 1/125th second at F11

what you do to improve it. Always remember that old computer saying "garbage in – garbage out".

We know that as you go underwater, light refracts and changes colour with the density of the water. You lose the colour red in less than two metres, and that colour gradually loses intensity until all we get are the blues (literally!) To compensate for this loss of light and colour, we either add a flash to illuminate the subject; a filter to alter the colour spectrum being 'seen' by the camera; or

by a quick fix on Photoshop.

Is this laziness? Have we stopped becoming artists? Do we now shoot for quantity and not for quality and allow the 'multiple choice' style of photography to get acceptable results without any skill attached? And, have we foregone the laboratory for the computer?

Well, the answer is probably yes to all of the above. Taking a camera underwater with only 36 frames of film available to photograph those interesting lit-



tle critters, fish behaviour or even shipwrecks, you really had to concentrate; you had to learn your craft through trial and error, and you had to work hard to get the results required for reproduction in whatever format you wanted, whether it be for personal use, audio-visual production or magazine and book work. It was in the film era that we all learned composition. Today, with large capacity memory cards, I can take several hundred photographs before I need to change memory cards, recharge cameras and flash, or run out of air!

I admit to being lazy, although I still feel that I have an artistic eye, having learnt my trade over 30 years of underwater photography. I do fall foul of 'multiple choice' photography and may now take three or four times more photographs of the same subject, but now I can afford the time to vary the angle, distance, light quality and many other variables to allow me to 'work'

the subject without it being overly intrusive, life threatening or selfish to the expense of others.

I have foregone the laboratory for the computer, and whilst I rarely use my computer software to digitally manipulate my photographs, I will invariably improve or 'tweak' a little bit here and there, particularly on the enhancement of colour saturation and sharpness, as well as the removal of particularly unsightly back-scatter or aberrant pixel problems created by the camera's sensor 'forgetting' sensor information that has to be 'filled in' later.

The photograph (left) clearly needs some additional improvement on the light, colour saturation and contrast. Due to the excellent content of the photograph with an upward angle of an Arrow Crab and a strong baseline, I also decided to remove the back-scatter at the same time. The image (above) is the completed stage, showing all of the changes rendered in Photoshop.

SEACAM
silver

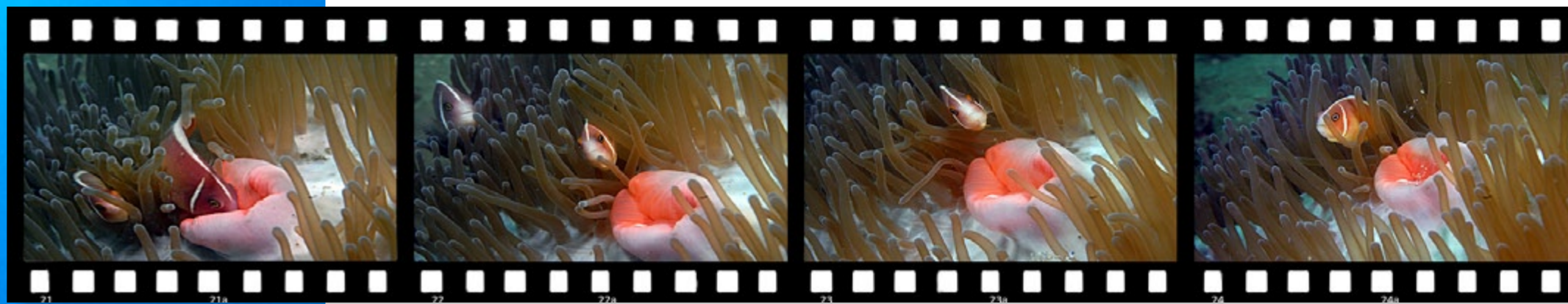


cinema of dreams



www.seacam.com





Film on a lightbox, images for further display work, magazine or book submissions

Then again, I love to see back-scatter in photographs as I feel it gives a better rendition of the dive where the photograph was taken, and I get weary of the super-clear style of photography that many magazines print nowadays.

Sadly, the computer has also reduced our ability to express ourselves after a dive, as I have been witness to many après dive scenes with an entire live-aboard boatload of photographers in front of lap-top computers, downloading, sorting and manipulating photographs with no-body speaking to each other about how wondrous the dive was. It would appear that the sole intention of the trip was to get as many photographs as possible and damn to everyone and everything else!

Now that I have got that out of my snorkel, I am reassured by the many good practices adopted by underwater photographers such as great buoyancy techniques, empathy with the subject matter, not stressing the creatures by taking too many photographs—particularly of light sensitive creatures such as squid and octopus.

Tourist and traveler

One of the earliest travel writers once said that if you visit somewhere that someone else has been before 'you are a tourist', if you go where no one has ever been

before, then 'you are a traveler'. Well, in underwater photography, we are travelers in the tourist domain.

Yes, we visit all of the traditional 'hot-spots', but each time we enter the water, something magical, different and completely personal occurs. We are all travelers in another world, one rarely seen or even imagined—our underwater world.

Here, we have the advantage over our terrestrial counterparts. Here, we can fly, float, hover, duck and dive and approach virtually any subject matter from any angle.

We are not constrained by sharp angles and straight lines (except on shipwrecks), and we do not need to line up the horizon to keep the photograph straight on the horizontal plane. It is in this element that underwater photography comes into its own, and it is here that we will discuss how we can best optimize our time, our equipment, our ever-learning curve and our love of the oceans and all of its marine life.

How dare land photographers cast aspersions on our genre? We do not have the luxury of the time to set up our camp chair, erect a hide, unfold our umbrella and get our packed lunch ready and coffee pot on the boil. At best, we have perhaps 45 minutes to one hour to find the subject, compose the shot, take the picture, and

in that time, try and grab a little vignette of the myriad of colourful fishes and invertebrates that put virtually every land species to shame in colour, diversity, shape and behaviour. Oh yes, nearly forgot—and stay alive at the same time!

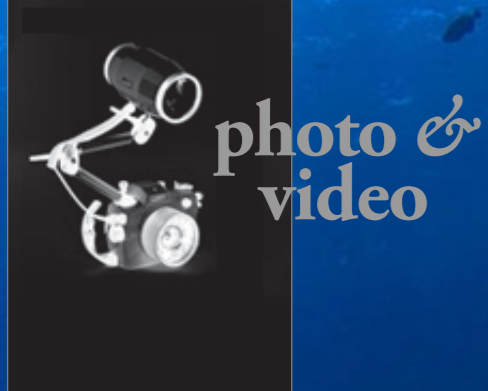
So, let's try to stay sensible, at least for the time being, and look at what is on offer and why we should be traveling down the digital highway, albeit a rather watery one at that.

Remember that you are entering into an alien environment, which is extremely corrosive and that will exert great pressure on you and your equipment. You are also working under pressure both literally and mentally. You are moving, the subject is moving; the element you are in is moving. You are usually in low light with the equivalent of slow speed (digital) film, and you are limited with time and depth.

Virtually every photograph will be a "one-off", never to be repeated again, even with the exact information to try and make it possible. You may also be at the whim and beck and call of a dive guide or critter-spotter who will inevitably leave you tired and confused. There may be issues with battery recharging, voltage surges and general misbehaviour by the actual critters you are trying to photograph—who said that this would be easy?

The photographs used to illus-

Sometimes it all comes together!
Whaleshark in the Seychelles



Self Portrait with Nassau Grouper in the Cayman Islands. 10mm lens, ISO 100, twin Sea & Sea YS110 flash, 1/125th second at F8

his career and has authored and co-authored over 45 books, mainly on our underwater world. Lawson is a founding member of the Marine Conservation Society; founder of the first Marine Reserve at St. Abbs in Scotland and made photographic history by becoming the first person to be a Fellow of the Royal Photographic Society and Fellow of the British Institute of Professional Photographers solely for underwater photography.



trate the various sections of the book, *Underwater Digital Photography*, were taken from my vast stock of digital photographs and film photographs that have been scanned digitally. I felt that the inclusion of the photographs helped to illustrate various points to the best of their advantage. No matter what a photographer tells you, we have all embraced the digital age, and even those die hard film photographers have

their photographs scanned. I am only dealing with underwater photography in the forthcoming issues. You will also note a distinct lack of diagrams and drawings to illustrate photographic techniques. I AM NOT A TECHNICAL UNDERWATER PHOTOGRAPHER. If you want this, then read elsewhere! There are any number of highly illustrative books on photography to give you all of the technical data that you need to fill your

brain with. However, no matter what anyone tells you, YOU ONLY LEARN FROM EXPERIENCE, SO GET IN THERE AND DO IT! Above all else, HAVE FUN! ■ With over 35 years of experience in underwater photography, Lawson Wood will look at photographic techniques; storage of photographs; picture format; photoshop quick fixes; protecting copyright; dispel-

ling the myths; explaining the jargon and explain some hints, tips and tricks of the professionals in a series of articles for X-RAY MAG. Lawson was raised in the Scottish east coast fishing town of Eyemouth and spent his youth exploring the rock pools and shallow seas before learning to Scuba Dive at the tender age of 11. Now over 44 years later, Lawson has been fortunate to make his passion

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YS-01

The YS-01 is a new compact-type slave strobe that can be used for all applications from wide-angle to macro photography. You can switch between DS-TTL (Digital Slave TTL) and a ten-level manual control function, to enable fine adjustment of the light level according to the photographer's intentions. You can also set up a lighting system that uses two strobes in DS-TTL mode. Power comes from four AA batteries for a powerful and long-lasting strobe. You can enjoy taking pictures all day long without having to recharge the batteries. The recycle time takes about two seconds with nickel-metal hydride batteries (2700 mAh) for stress-free continuous shooting. The YS-01 is furnished with a high-luminance white LED target light (1W) indicating the optical axis of the strobe attached to its front face that is effective for night diving. www.seaandsea.com

Werner light

Werner Light Power's new RingLED introduces perfect shadow-free illumination for underwater photography. Its design is compatible with all video and camera underwater housings with a port diameter of 125 mm (with ring road 36W) and 100 mm (with ring road 54W). Photographers can choose between the Werner RingLED 36W and the brand new, more powerful Werner RingLED 54W with 3 LED rings. If using DSLR underwater housings, it is recommended that one attach the ring road at the front port. With smaller consumer cameras it should be connected to the tripod mounting and the flash hot shoe. Weighing in at a mere 480 grams, its compact design is ideal for travel. www.werner-led.de



3D

Professional aluminum housing with the utmost high-tech specially designed for the Fuji FinePix Real 3D W1, the world's first three dimensional (3D) digital imaging system, allowing users to enjoy 3D images without using special 3D glasses. With the full function buttons and control for the camera, now photographers can take 3D photos and movies underwater with the 10Bar housing. Acclaimed for superb resolution and definition, Fujinon lenses are the choice of professional cameramen and a key component of many professional imaging devices. For the FinePix REAL 3D W1, Fujifilm has developed a groundbreaking image capture system comprising two Fujinon lenses and two CCDs, and the system is integrated in the compact body with high-precision engineering. aditech-uw.com

Mangrove MVD-FX7 (SONY HDR-FX7 / HVR-V1)

The MVD-FX7 video housing's front case is constructed from marine grade aluminum, machined, anodized and protected with a special coating and the rear case is machined from solid Delrin. The camera mounts on a specially engineered stay. The housing's sleek, ergonomic design feels like a natural extension of your hands and makes capturing that perfect video sequence fluid and easy. The housing also adapts to your future Sony video cameras. Redundant double O-ring seal system on the control unit provides maximum protection and does not depend on clamping pressure for security. It is depth-rated to 200m/660 feet, making it the deepest-operating video housing on the market. aditech-uw.com



Aquatica announces no change required for Canon 1Ds MK IV

Nowadays, it seems that every time that cameras are upgraded, the required housing needs an upgrade along with it. Canon users will be delighted to learn that the new flagship Canon 1Ds MK IV is a perfect fit for Aquatica's current housing for the Canon 1DS MKIII. No modifications are required and no function or access buttons are sacrificed when using the newer Canon body. Access to the video mode of the Mk IV model is not a problem as easy access to the FEL button used to activate video capture was already in place as well as exposure compensation, ISO and the illuminator buttons. Reassignment of these functions through the DSLR's custom menu setting is not necessary.





photo &
video



Samsung AQ100

Samsung Digital Imaging Company has announced its newest underwater digital camera, the Samsung AQ100. Boasting a 12 mega-pixel sensor and 5x optical zoom, the camera is rated to a depth of three metres with an aqua mode button that optimizes underwater photography. Photos can be viewed on its 2.7 LCD screen. The AQ100 shoots High Definition video at 750 frames per second. A release date of April 2010 is planned. ■

SEA&SEA product protection

SEA&SEA has just announced a one-of-a-kind program to help underwater photographers protect their valuable investments. The question is not if a flood will occur, but when. Sea and Sea's new Protection Plan enables photographers to protect their gear for a fraction of the cost of replacement equipment. Photographers purchasing compact digital cameras sets or strobes from an authorized SEA&SEA dealer may choose to



enroll in a one-year (12 month) damage protection plan against accidental damage or flooding. The new supplementary product protection is easy to sign up for online within 30 days of purchase. ■

Topaz Labs announces the release of the Topaz Detail 2 Photoshop plug-in

Topaz Labs has upgraded Topaz Detail 2, a detail enhancement and sharpening plug-in for Photoshop that specializes in detail enhancement without creating image artifacts or noise. Utilizing a redesigned user interface with additional tools and presets, the new technology enhances detail and micro-contrast, with no over-sharpening, edge artifacts or halos—which often occur with other sharpening tools. Compatible with Windows and Intel-based Macs, Topaz Detail 2 is offered as a free upgrade for existing customers and retails for \$39.99. To sign up for a free 30-day trial, go to: www.topazlabs.com ■



As any underwater photographer can attest to, water and electronics is an uneasy partnership. One of my all-time most stressful moments was the first time I assembled my brand-new housing and cringing, gingerly lowered it into the rinse tank. No matter how careful you are at making sure the o-rings are clean and everything is sealed properly, the dreaded *what-if* scenario of a flooded housing can't help but creep into your consciousness.

For Hugyfot users, those cringe-worthy moments can be a thing of the past with the award-winning HugyCheck system. The premise is simple yet highly effective. HugyCheck is a pre-dive check system that tests your housing to see if it has been properly sealed and whether the o-rings are in good condition. Boasting refined electronics, a pressure sensor is installed in the housing and coupled to the unit that interfaces the camera synch on the hotshoe with the housing synchro port. Upon installing a CR123A 3V battery, the HugyCheck system will beep twice before turning to stand-by mode. The red LED on the camera's hot shoe will then blink every five seconds, indicating normal air pressure within the housing.

Checking out Hugycheck

The electrical vacuum pump will then create a slight under pressure inside the housing, which can then be monitored via the LED pressure indicator attached to the camera's hotshoe. Newer housing models will have an additional bulkhead installed, but on older housings like the model for my venerable old D200, will have the necessary valve installed via a splitter on one of the pre-existing bulkheads.

I recently tested the system on a liveaboard trip in the Philippines. The operation was a breeze! The entire procedure must be commenced at least 30 minutes prior to the dive. After lightly greasing the housing's main o-ring and ensuring it was dirt-free, I attached the back of the housing and sealed everything up. After unscrewing the cap of the top valve on the splitter, I inserted the plug on the electrical vacuum pump into the one-way valve and pressed the button on the pump. Once

the system detected a pressure between 950 and 850 hPa, the red LED started to blink once each second. When a pressure between 850 and 750 hPa was reached, the red LED started to

sure of 750 hPa, the red LED I stopped blinking, and the green LED came on. And that was it!

Amazingly, once the procedure had been completed, the back of the housing was on tight. Even if the screws sealing the housing back are removed, the inside pressure created by the pump ensures the housing back remains locked in place. To remove the camera from the housing, the valve on the splitter must be removed first. Once air gets back in through the open valve, the back can then be opened.

On one occasion, the green ready light refused to come on indicating there was an improper seal somewhere. After removing and then re-attaching the housing back, the problem persisted. Then, I removed the adaptor for my macro-port, re-attached it, and I re-attempted the entire procedure. The green ready light finally came on, and I was safe to go on my dive.

For Hugyfot users, this ingenious piece of equipment is a welcome addition to their underwater arsenal. While small, it provides very big peace of mind indeed. Price: 295 Euro Hugyfot.com

— Scott Bennett



blink three times per second. Finally, at a pres-

