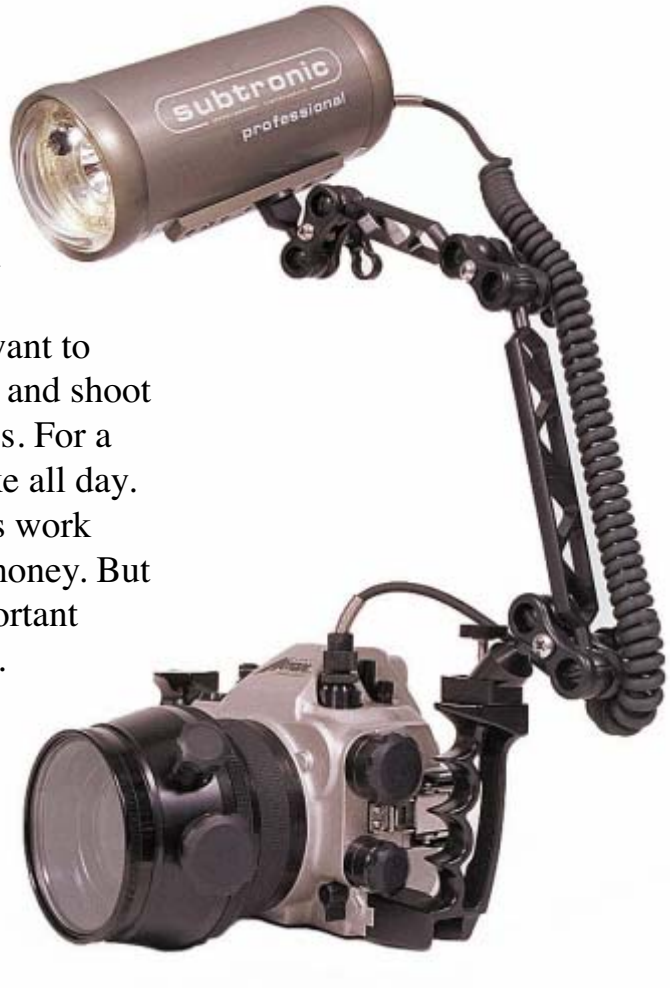
Underwater Photography

a web magazine
Dec/Jan 2003/4

It's About Time



Time. It's a precious commodity. For most of us our trips abroad are measured in days and our time underwater in minutes.

At Ocean Optics we believe time is something to be invested. Which is why you'll find we won't rush you when it comes to choosing your equipment. And that when you buy from us we'll want to take you through your system in detail. For a point and shoot digital system that might only mean twenty minutes. For a complete digital or film based SLR outfit it can take all day.

Not all underwater photographic retailers work this way. And why should they? After all, time is money. But that's our point. At Optics we understand how important those elusive photographic opportunities really are. Time spent getting your equipment right at the start will save you the expense of being on location and not being able to get the shot and *the costs of replacing inadequate kit later*. We understand the relationship between subject, environmental conditions and equipment intimately because all of the Optics team are experienced underwater photographers themselves.

For twenty five years we've served the underwater photographic community with the best advice, most innovative equipment and greatest committment to aftersales.

It took time to build Ocean Optics' reputation. We won't squander that reputation by wasting your time.

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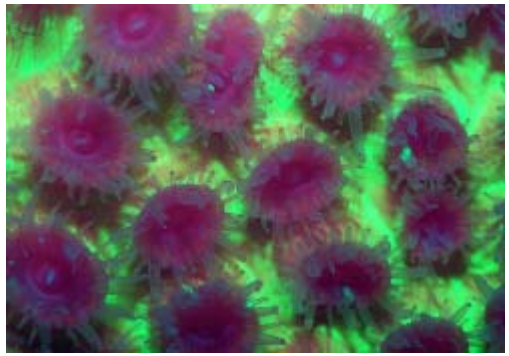

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Editorial

Nikon D70

The imminent arrival of the Nikon D70 digital SLR is a significant event in the world of underwater photography. Its sub $1000 price tag will offer an attractive proposition for Nikon SLR film users who are considering a move into the digital world.

Nikon SLR cameras are the most widely used housed cameras underwater. This is due mainly to the TTL flash compatibility with Nikonos strobes which many underwater photograpers already had in their armoury.

For those Nikon film users, the new D70 can use their existing lenses albeit with a 50% increase in focal length to produce image quality which is knocking on the door of a direct replacement for film.

The long term savings on film and processing will pay for itself after just a few trips abroad and the pure enjoyment of digital simlicity and immediacy of results is very exciting indeed.

I feel sure that cameras like the D70 will open up digital photography underwater to a much wider audience and this can only be good for underwater photography.

Rugby World Cup

I know this has got nothing whatsoever to do with underwater photography but I prey your indulgence because it does explain, in part, why this issue of UwP is a bit late.

Firstly, to all our Australian readers, thanks to your great country for hosting such a fantastic Rugby World Cup and secondly commiserations on the outcome. No one likes to lose (especially to the Poms, I guess) but the finale of the tournament was as exciting a game as we are likely to see for a long time. Two great teams locked head to head for 100 minutes divided by one last minute moment of elation for the English and despair for the Australians.

The other reason for mentioning the Rugby World Cup is that it explains why this issue of UwP is a tad late. Add a trip to Manado around the time when UwP16 should have been finalised and you have both of my excuses.

I promise it won't happen again for another four years!

Peter Rowlands

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Readers Lives

UK Aquatica woe

I read the test of the new Aquatica S2 housing in issue 14 with interest. As a Mechanical Design Engineer working in the opto-electronics industry, I have long admired the quality of Aquatica's aluminium housings and the design philosophy built into sealing the controls, ports, etc,. I have owned an Aquatica 80 for some few years and built up a sizeable portfolio of images from various locations, at home and overseas.

I wonder, however, how many of your U.K. readers and potential Aquatica owners are aware that Aquatica are not represented in this country. When I purchased my housings and ancillary ports, strobes, arms etc., from The Image Centre in London, spares were easily available, usually off the shelf. However, since Aquatica were acquired by Nikon USA, spares for Aquatica housings in the U.K. have become extremely hard to come by. The nearest retail outlet for spares is now Spain. Cameras Underwater Ltd in Devon will place orders for spares with the Spanish agent but even a small order such as an o-ring service kit will take a few months to arrive.

If this letter prompts Nikon U.K. to address this matter to the obvious benefit of Aquatica owners, then something will have been achieved. In the meantime, if anyone is contemplating the purchase of an Aquatica housing, beware - sooner or later you are going to need spares, if only just an o-ring, and these will take months to arrive!

Robin Nash
robin.nash@uk.thalesgroup.com

Focal length v Angle of view

In your Back to Basics article you seem to have confused the term focal-length with angle-of-view.

The focal length is the distance between the rear node of the lens and the point of focus when the lens is focussed on infinity. Focal length is often used as a guide to angle of view but this can be misleading. For example, digital cameras with chips smaller than the normal film-size frame appear to give a certain telephoto effect.

The angle-of-view depends on the image-circle produced, the magnification and the medium in which it is used (normally air.)

I have a 165mm Super Angulon lens with a wider angle of view on my Sinar than the 20mm Nikkor lens on my Nikon behind a dome port.

How can this be? The image circle of the 165mm lens has a diameter sufficient to cover a 10x8 inch sheet of film (and allow a range of technical camera movements too). The 20mm lens on my Nikon behind the dome port covers only a 35mm frame. Of course, would it be possible to fit the 165mm wide-angle lens to the Nikon it would only use an area of the film the same as any other 165mm lens and not give a wide-angle effect. However, on the Sinar it is certainly a lot wider.

So the reason that Nikon give the focal lens of its Nikonos lenses in the form that it does, is because that is exactly what they are. For an accurate angle-of-view check the spec. for exactly that - not the focal-length.

I hope that is the explanation that has evaded you.

Best wishes, John Bantin
bantin@blueyonder.co.uk

Many thanks for your explanation John and I must say I have been sleeping a lot better ever since.
I have just checked my article and noted that I wrote "*the angle of coverage is the most important factor in evaluating lens performance*".
Regards
Ed

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

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News and New Products

JVC HD-1 and HD-10 Digital Video Housing

Capture intensity and realism with the JVC GR-HD1 High-Definition Digital Video Camera. The Ikelite CyberMarine Video Housing puts you in complete control.

The housing controls include: Power , Start / Stop , Snapshot , Zoom , 4- Position Recording Mode and Manual Focus Lock

The housing package includes a Pro Wide Angle Lens , Top Handle and UR Pro color correcting filter

The housing is constructed of clear acrylic tubing shrouded with cast aluminum end caps for trouble-free performance. This “Clearly Superior” design provides full view of the camcorder information, control functions, and assurance the system is safe.

The 6-1/2" diameter housing is 13-1/2" long and 10-1/2" high including quick release base and removable top-handle assembly.

The housing weighs 13.8 lbs without camera and lens, is depth rated to 200 feet and costs $1500.

For more detail visit www.ikelite.com

OLYMPUS CAMEDIA C-5060wz and OLYMPUS PT-020 Housing

The PT-020 has two remarkable points. The first, it has changable port to utilize C-5060’s wide angle lens. With WCON-07C Wide conversion lens and optional Wide port you can get about 19mm lens wide angle coverage.

Secondly, it has a flash bulk socket to fire the strobe housing. You can take TTL controled underwater photos without troublesome manual control.

The PT-020 has main double O rings like the PT-015 and there is an external viewfinder hood for viewinf the LCD screen in bright conditions.

For further details visit www.olympusamerica.com

Nikon D70 - sub $1000 digital SLR

Nikon have announced the development of the D70, a new interchangeable-lens digital SLR camera designed to deliver superb image quality and hallmark Nikon SLR performance at an attractive price that a broad range of consumers will find within reach.

A new DX Zoom-Nikkor lens is being developed concurrently to match the D70, and both products are scheduled to go on sale in the spring of 2004.

Designed for a wide range of customers, from novices to serious and experienced photo enthusiasts, the D70 will enable photographers to easily adopt digital technology into their existing camera system. The new model will provide exceptional value at an estimated retail price of $999.00 for the camera body.

For further details, visit www.nikonusa.com

Think Digital

NEW Digital SLR Housing

For

Canon Digital Rebel
Canon 10D
Canon D60
Nikon D100

To extend the capabilities of these cameras Ikelite has designed a new underwater housing. This new housing was specifically designed for the smaller digital SLR cameras. Injection molded of clear polycarbonate for strength, visual access to the camera, lcd screens and camera controls. The ergonomic design places camera functionality at your fingertips for the ultimate in creative control. The interchangeable port system accommodates a wide variety of lenses from super-wide angle to super-macro. The rubber handles offer excellent grip and a quick release system for Ikelite's new SA-100 Arm system. An external Ikelite connector is provided to connect single or dual Ikelite Substrobes.

Digital SLR Housing features:

- Clear Molded Polycarbonate
- Corrosion Free
- Interchangeable Port System
- Clear View of Info Window
- Clear View of LCD screen
- Most Camera Functions Available
- Weighted for Neutral Buoyancy
- Quick-Release Strobe Mounts
- Rubber Hand Grips
- External Connector for Substrobes
- Super-eye Magnifier for Enhanced Viewing with a Dive Mask.
- Weight 6.6lbs. (2.9k)
- Dimensions 7.5"L x 4.75"W x 7.25"H (19cm x 12cm x 18cm)

ikelite
Underwater Systems
50 W 33rd Street
Indianapolis, IN 46208
317-923-4523

Ikelite also offers a full line of housings for Non-SLR digital cameras. Beginner, amateur, or pro, simply get an Ikelite housing for your favorite digital land camera. Choose from Canon, Kodak, Nikon, Olympus or Sony, Ikelite makes housings for several camera models from each of these manufacturers.

Ikelite supports their underwater digital housings with a full line of accessories. Choose from trays with single or dual handle and quick release of strobes. The DS50 Substrobe is ideal for cameras with zoom lenses or choose the DS125 for use with wide-angle lenses. The DS Sensor duplicates the camera's internal flash for full TTL automation, or use our new EV Controller that gives 10 power settings in 1/2 stop increments for complete lighting control. Ikelite also offers a choice in versatile arm systems to meet your needs and budget.

New digital cameras are being introduced at a rapid pace. For the latest information on new digital housing models visit our web site.

www.ikelite.com

Light & Motion Titan D100

by Rodger Klein

Light & Motion introduced the new Titan D100 at DEMA 2002 and it began shipping this past summer. I finally was able to give one a serious go for 2 weeks this past August while I was conducting one of my digital workshops aboard the Kona Aggressor. It's one thing to go out diving for a few days of housing testing, but after doing as many as 5 dives per day, everyday for 2 weeks, I was able to work every feature of this housing and then some.

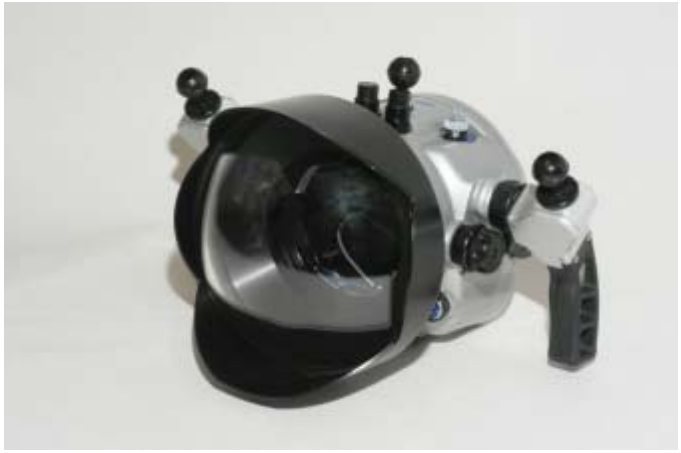
As usual, Light & Motion has delivered a work of design art. Ergonomically efficient, it has both manual and electronic controls. The rear panel includes all available manual controls as well as the ROC (Remote Optical Controller) display. The ROC controls, as well as the Main Dial (Aperture) control, the Sub Dial (shutter), and Auto Focus control are located on the left and right handles (it's possible to swap the Main and Sub dial functions if you choose). Unlike manually operated housings, the Titan D100 allows total control of shutter, aperture, auto focus, and strobe power remotely from these handles.

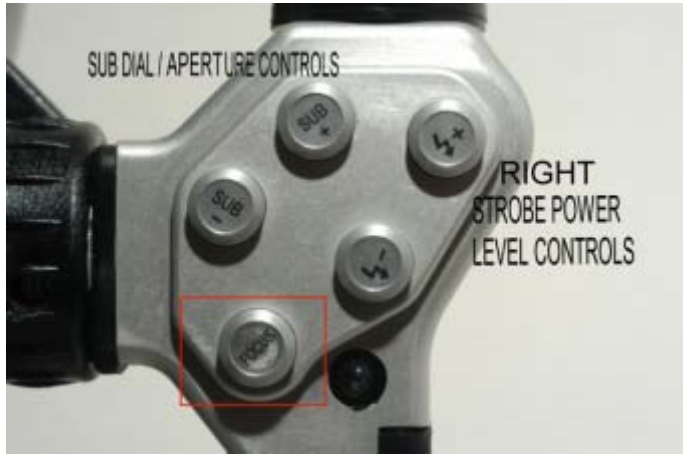
The ROC System

With the E20 housing, Light & Motion introduced their revolutionary ROC strobe control system. That system, which allows the user to obtain up to 12 manual power levels on most TTL compatible strobes, migrated to the Tetra 5050 and the Tetra Coolpix 5000 housings. It is also the one of the main features of the new Titan D100, but with some serious improvements.

With the Titan E20, I had always felt that the placement of the electronics was vulnerable to moisture or some other type of damage. With the Titan D100, Light & Motion has done a couple of things to almost eliminate these concerns.

All of the electronic contacts are now specially coated to prevent moisture and even direct water damage. The main electronics board is not only fully coated but it is enclosed safely in the camera





Camera: NikonD100. Housing: L&MTitan. Lens: Nikon 16
Lighting: 2 Sea& Sea YS 90DX. Film: none IBM Microdrive
1/125 f/13. Manual exposure

Camera: NikonD100 Housing: L&MTitan Lens: Nikon 60
Lighting: 2 Sea& Sea YS 90DX. Film: none IBM Microdrive
1/125 f/11. Manual exposure

tray. There is also a moisture sensor, which will set off a "light show" on the ROC board if any moisture is detected.

Although I am embarrassed to admit it, I was inadvertently able to test this system...not once but TWICE. Yes, I flooded my Titan D100 on 2 different occasions while in Kona (the first time I have ever flooded any type of housing). The first time it happened I was sure both my camera and housing were toast. I was so confident of the Titan's double o-ring system that I didn't realize that the moisture alarm was "yelling" at me until I had descended about 20 feet. Once I realized what was happening, I ascended slowly to the Aggressor's swim step, handed the housing up to one of the dive staff, and made a beeline for the camera table.

To make a long story short, there was about 2 inches of water in the port area (I had pointed the housing port down as soon as I realized what was happening), the camera bottom, tray and other electronics were very wet. I dried everything off and put the camera and housing in the engine room overnight to absorb all remaining moisture. The next morning, to my amazement, the camera and housing worked perfectly.

After some investigation, I figured that the leak was caused by my carelessly pinching an o-ring on the front port. So, from that point on I began to check the housing in the rinse tank prior to each dive, as well as immediately upon entering the water. It was during my second week on the Aggressor that it happened again. But this time I was ready and only a little bit of water made it into the housing. After drying everything off on the camera table, the camera and housing worked perfectly and I just went back in the water as if nothing happened. From that point on I realized that the electronics in this housing have really been perfected.

Housing Optics

As with other Light & Motion products, no expense has been spared in the development of housing optics. The most impressive feature here is an

Camera: NikonD100 Housing: L&MTitan Lens: Nikon105
Lighting: 2 Sea& Sea YS 90DX Film: none IBM Microdrive
1/125 f/18 Manual exposure

Camera: NikonD100 Housing: L&MTitan Lens: Nikon 60
Lighting: 2 Sea& Sea YS 90DX Film: none IBM Microdrive
1/125 f/11 Manual exposure

all Optical Glass 8" Dome wide angle port which supports Nikon 14mm, 16mm, 18mm, 20mm, 24mm, 17-35mm, 18-35mm, and the new 12-24mm lenses. Some lenses require an extension ring.

Also available is the Macro port that will accommodate the Nikon 60mm Macro and the 105mm Macro (with an extension ring) and

Conversion Rings are available for Sea & Sea, Subal, and Aquatica ports. Zoom and focus rings are also available for supported lenses.

One of my favorite features: Latches

Probably one of the most overlooked features of any underwater housing is its latch system. I am of the opinion that Light & Motion makes the most user- friendly latches available. Unlike other housings that require 3 and sometimes 4 release latches, Light & Motion makes it very easy to install and remove the housing back. Other latch systems I have used can be tricky when installing the back and the latch can get caught between the front and back elements of the housing, possibly damaging an o-ring.

Camera Tray System

The camera tray system is another elegant solution. The tray contains the ROC electronics, hot shoe connector, camera connection, gears for the focus mode selector, and a lever to allow lens removal when

Camera: NikonD100 Housing: L&MTitan Lens: Nikon105
Lighting: 2 Sea& Sea YS 90DX Film: none IBM Microdrive
1/125 f/18 Manual exposure

Camera: NikonD100 Housing: L&MTitan Lens: Nikon 16
Lighting: 2 Sea& Sea YS 90DX Film: none IBM Microdrive
1/125 f/16 Manual exposure

changing ports. You can easily change lenses without having to remove the camera from the housing.

The camera tray is mounted to the housing through a pair of metal guides that keep the camera in exact position inside the housing. By pressing the metal release bar on the right of the camera tray, the camera and tray just pop out.

Attention to Detail

Since the Titan D100 has a number of electronic controls, it needs to communicate with the camera. On the bottom of the Nikon D100 are a series of contact pins that allow the housing to access all of the features electronically.

These pins are covered by a rubber gasket, and until I used this housing and had to remove this cover, I didn't even know that they were there. It is necessary to remove the gasket to reveal the contact pins, and when the camera is mounted on the tray it actually plugs in.. This allows for total housing to camera communication.

Paying great attention to detail, Light & Motion designed the camera tray with a little cutout area that allows you to safely store the rubber gasket while it is off the camera. Very cool.

Camera: NikonD100Housing: L&MTitanLens: Nikon 60
Lighting: 2 Sea& Sea YS 90DXFilm: none IBM Microdrive
1/125 f/11 Manual exposure

Wish List

There are a few things I would wish Light & Motion had done differently:

* The camera can only be turned on when it is inside the housing. You cannot turn the camera off. According to Light & Motion, this was a design decision dictated by the placement of the shutter release. Since the camera will "go to sleep" by itself, there shouldn't be significant battery drain...but I just like to be able to turn the camera completely off while it's inside the housing. If I don't want to remove my Microdrive or change batteries between dives, it would be great if it wasn't necessary to open the housing to turn the camera completely off.

* I wish the moisture sensor gave an audible alarm and not just a visual alarm on the ROC. If the housing is going to flood, it will most likely happen at the beginning of a dive, so it's necessary to pay attention to the ROC once the housing is in the water. If you are diving off of a skiff, say in Fiji or Coco, hearing an audible alarm would be of great value.

Overall Impression

The Light & Motion Titan D100 is really an impressive system. Perfectly balanced in the water; outstanding optics with ability to use your existing ports; extensive feature list including all camera controls and the upgraded ROC system, I have to say that I love this housing.

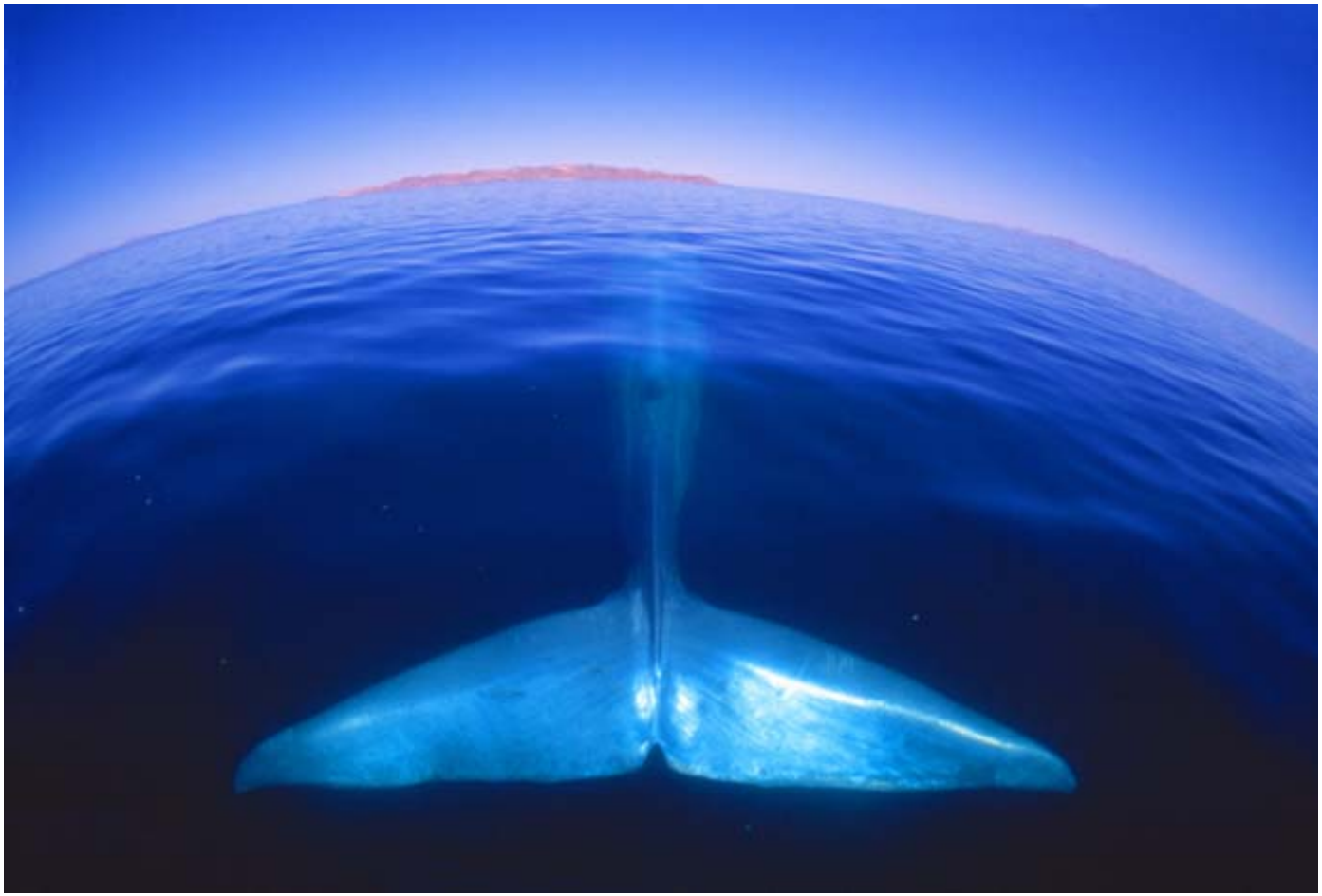
Rodger Klein
www.rhkuw.com

Rodger Klein is the Digital Editor for Fathoms Magazine
www.fathomspub.com

Making Pictures versus taking them (Part 2)

by Amos Nachoum

Blue Whale tail, Sea Of Cortez, Mexico.



Nikon F4. 16mm lens. 1/250, f-16. Fuji, Velvia 50ASA

In the annals of Big Animals there has never been one larger than the Blue Whale, Dinosaurs included. Flip Nicklin produced one of the best and most powerful images of a these creatures when he caught a rare image in the Sea of Cortez of a Blue Whale's head and half its body gliding on the surface in the late pink evening light, with the rugged mountains in the background. Just breathtaking.

This image burned into my mind's eye like few others and drove me to pursue Blue Whales in Baja and the chance to create my own photo opportunities.

It was the third week of four I had budgeted for the Blue Whale shoot and I was experiencing limited luck. It was another hot and dead calm day in Baja. It was midday and I was overheating in my wetsuit, sitting ready to get into the cool water if and when the opportunity arose. We waited, but no whales came. We were dead in the water, engine off, Loreto and Eran (my guides) listening to ocean clues and I was slipping in and out of the catnaps that I am infamous for when Loreto whispered, "Belina Azule". I woke up and looked around excitedly, but saw nothing, so looked to Loreto and with my eyes asked him "Where"?

Loreto started the panga and I scrambled for my camera bag. Out of the blue and as if in a dream, there it was - the giant tail of a Blue whale. It was directly in front of the panga that Loreto was maneuvering so skillfully.

The tail was fanning ten feet on each side of the bow where I was bracing myself. The rest of the gargantuan body, some 80 feet long, was disappearing just inches below the surface of the blue water ahead of us.

My hands and knees were trembling. I whispered urgently to Loreto in my broken Spanish, "Mas cerca" ("Get closer"), as Flip Nicklin's image surfaced in my mind. I turned to my camera bag and pulled out a Nikon F4 and the 16mm fish eye lens from among the many lenses. As I composed the image, I realized there had been divine intervention here. Looking through the super-wide angle lens, I brought into focus the giant whale's tail and the island in the distant background. And I prayed (one of the few times ever) that I had captured the image I had seen in my mind's eye for so long.

“Renaissance” Humpback whale, mother & calf Kingdom of Tonga

Nikonos III, 15mm 1/60 f –5.6
Kodakchrome 64 ASA

I noticed (during 1991) that images of Humpback Whales were mostly taken horizontally. None or very few had been shot vertically. I hoped I would have an opportunity for such a vertical shot. For seven years I came up empty-handed, but I held fast to my vision.

It was during a six-day project in the Kingdom of Tonga in ’97 that it happened. It was late morning when we came upon a female and her young calf about two weeks old. We were three free divers on board the boat. Jim Watt, a well-known whale photographer from Hawaii. Paul Sutherland a good action photographer from New Jersey and myself. We went into the water, Jim leading the pack as we slowly approached the mother and calf.

On a pre-agreed signal, we started our free dive together. Jim was upfront with Paul and me shoulder to shoulder behind him. When I leveled off at about 40 feet deep, the female Humpback was suspended almost vertically in the water, looking at us below her. Jim and Paul were just above me and closing the distance toward the motionless female and her calf.

I raised my Nikonos III with the superb 15 mm lens. I viewed the action through the viewfinder and it was classic. This was the image I had held in my mind’s eye for the last seven years - a Humpback whale with her calf vertically! I was so excited I spat the snorkel from my mouth, but I could not take the picture yet, because Jim and Paul were still in the frame. I was running out of air but had to wait for them to leave.

The desire to breath was excruciating, but realizing my dream image was more powerful. I kicked a few steps closer to the whales that were towering above me. The divers gone, I raised the camera again and triggered it once, but closed my eyes out of pain.

I open my eyes and was starting my ascent when the young calf left the far side of its mother and positioned itself on the opposite side, between her and the camera. I stopped ascending, despite the throbbing pain in my lungs, and took a second and third image (the only ones could muster), then moved out as fast as I could.

The power of having captured the vision I had lived with for so long inspired the creation of the poster, “Renaissance”. Five thousand of them sold within eight months and the image was also used for many editorial, education and advertising applications.

The Great White climbing on board...

There are many great images of the Great White with jaws open above the water. Two years ago, I traveled to South Africa to try and capture the same shot underwater and return unharmed. The image that had formed in my mind was of wide open shark jaws heading for my camera, so that I could see all the teeth and deep into this jaw cavity.

I was excited about capturing this vision with my new "pole cam", but a few days into the assignment, it became clear the pole cam was not going to deliver the image I was after and that I would have to find a new approach. When I landed upon it and explained the idea to Andre, the shark wrangler I was working with, and his assistant, Rozier, they both laughed and said I was crazy. The idea was that Andre would pull the bait close to the boat, luring the shark close to the platform and then pull the bait on board. At this point I would hold the camera out in front of the shark in the hope that it would open its jaws to take the moving bait. A human pole cam!

We set out the next morning with my Nikon F4 and a 16mm Fish Eye lens in an Aquatica housing. I had rehearsed the action many times in my mind and was ready for action. Lying face down to the water with half my body overboard, my hands were extended into the water with the camera and housing. Aperture priority at f8, focus on infinity, I was determined that this setting would get me enough depth of field to cover the subject and that the 400ASA film at f8 would be fast enough to freeze the action.

Andre threw the bait and the shark started its way toward the boat. Rozier was standing above me holding onto a belt around my waist that he would use to pull me out of the water if I could not withdraw in time. I extended my arms fully in order to get the camera as close as possible to the incoming shark. The bait that had been floating in front of my lens was pulled away and the shark came into my view.

I was holding the housing tightly, aiming and concentrating, anticipating releasing the shutter, but instead I felt a powerful force twisting the housing to the right and out of my hands. The shark had my housing in its powerful extended jaws. Without thinking, I turned my body and hands to the opposite side of the shark's pull in the hope of levering the housing from the powerful grip of the massive jaws. At the same time Rozier was pulling the belt to keep me on board the boat.

At the split second the shark let go I took this image. It was just what I had wanted, but reflecting back on the experience, while the "human" pole cam turned out to be far better than a remote pole cam, I would think again before putting myself and my team mates in such jeopardy.

Walrus's last frame

Nikonos RS, 18mm lens. F16 on Auto

I had been free-diving under the ice after Bowhead whales around Igloolik in the Canadian High Arctic and surfaced to see my team looking in the direction of a giant Walrus basking in the arctic summer sun. She had removed herself from her family group to begin the process of dying.

She was a grand animal of about nine feet in length and stretched out on the ice, anchored by two enormous tusks that reflected the bright sunlight. As I looked on in admiration, a picture started to form in my mind's eye. Majestic in her isolation, the animal contrasted starkly with the pure white ice and the deep blue of the sky. It was unusual to see a solitary Walrus and with such sizeable tusks and I wanted this picture badly.

There was, however, at least 200 feet of three foot thick sheet ice between us. For a good picture, I would have to get extremely close, since the only lens I had with me after the dive was the Nikon RS 18mm with six frames left. I couldn't crawl toward the animal because she might scare and move away so I decided to take my chances and approach by water. This meant I would have to break the ice in order to advance, but none of us had a diving knife, ice axe, or any other tool to break the ice with.

As the opportunity started feeling like it might slip away, I landed on a solution. I took the strobe tray from the base of the RS and starting using it to chisel my way through the ice toward the Walrus. Three hours later, it had been slow progress indeed, but I was where I needed to be for the shot - about one foot away just below the Walrus.

The foot long blond whiskers shimmied with each powerful (in more ways in than one) exhaling breath. With the sun behind me, illuminating the giant creature, I slowly immersed myself in the water again, extending the camera slowly above my head onto the ice, close to the Walrus tusk and took one image. As I cautiously moved the camera even closer, I knew that I had only a few more seconds before the Walrus would react to the intrusion. I raised the f stop to f-16, giving me more depth of field, to ensure I captured the full length of the ivory tusks. I managed to capture two more shots before the Walrus became uncomfortable at my presence. As the Walrus started, I moved the camera out of the way quickly and left her to her peace and solitude.

Amos Nachoum
www.biganimals.com

Golden Dolphin have recently released the first DVD edition of Golden Dolphin.

It's a double sided DVD-ROM that contains issues 1-12 of Golden Dolphin. All up, it contains over 3000 full screen pictures plus some six hours of video and 150 feature stories.

With worldwide coverage and extensive work from people like Gerald Allen, Michael AW, Douglas Faulkner, Tim Rock, Roger Steene, and Mark Webster plus an RRP of $19.95 (+$5 shipping worldwide) it must be the best buy in dive publishing.

There is more info at www.goldendolphin.com

Galapagos

A megapixel evolution

by Michael Aw

On a windy September morning I arrive on Baltra Island, some 1000 km west of the South American coast. This is my fourth trip to the enchanted islands of Galapagos. It has cost megabucks to come, but these far-flung equatorial islands of Ecuador are celebrated as the world's greatest natural history asset, unique diversity of marine and land fauna providing a living textbook for ecologists, scuba divers and naturalists alike. What makes the Galapagos outstanding from other wild places I have known is that not only can I feel and see wilderness right on the street of populated islands, but that I become part of wilderness. Isolated from the mainland of South America, Galapagos creatures lack an instinctive sense of fear for humans and will allow interaction with benign curiosity both above and underwater.

For this beyond-the-ordinary tour, I have made up a mega shooting list comprising of whale sharks, schooling hammerheads, Galapagos sharks, sea horse, Mola Mola, marine iguanas above and below water, sea lions above and below water, penguins above and below water, the Wave albatross, flightless cormorants, dolphins and of course the usual suspects of giant tortoises, sea turtles, Red Lip batfish, frigate birds and boobies. The cunning plan for this special tour is to track the route of Al Giddings when he worked on the IMAX 3D in 1998, packing in the best of the Galapagos both above and below all into a 12-day sojourn.

I once wrote that the Galapagos is a place where one can feel and see evolution in motion. Well, as part of natural progression, I am evolving during this trip; evolving from shooting 100% film to 100% digital – sort of a megapixel photographic journey. My equipment of choice is the Nikon D1X and D100. An arsenal of lenses comprise the 12-24mm D lens, 18mm f2.8, 16mm f2,8 fisheye, 24mm f2.8, 28-70mm f2.8 and the 80-400 f4 ED lens. Digital films are just 2 x 1 gig compact flash card and 2 x 1gig IBM Microdrive. Though I have a notebook computer, digital media is downloaded after each session into a portable 40 gig XDrive. Heeding my own advice to anyone visiting the Galapagos to bring twice the amount of film stock, I brought along 2 portable drives and there's always more hard disk space in my trusty note book with a combo DVD/CD RW drive. I came

*Marine iguana (*Amblyrhynchus cristatus). *NIKON D1X. 1/90 @ f 11.0. Zoom Length : 24 mm. Exposure Bias :-667. Zoom Length : 24 mm*
Ambient light. Location: Punta Espinosa, Fernadina
This is a photographer's vision of Galapagos – an iguana underwater. The shot I always wanted. Whilst they are easily seen topside, to see them underwater, careful planning is essential. The right tide, hot sunny afternoon and because of their diet of algae, getting pictures of them underwater means diving in surgy green shallow water. I was in ecstasy after this shoot.

Sea lion in Bubble bath. NIKON D100, 1/160 @ f 8.0, Zoom Length : 24 mm, Exposure Bias :- 667. Ambient light Champion, off Floreana
In between dives, we took time to play with a small sea lion colony at Champion Is. I caught this one enjoying a 'bubble bath' right in front of Paul's camera. I would have loved to shoot from his perspective!

*Gotcha! Scallop hammerhead shark (*Sphyna lewini*). NIKON D100. 1/60 @ f 5.0. Zoom Length : 20 mm. Single Ikelite S200 strobe. Location: Darwin Arch This shot is by Paul Tsai, my buddy for many years. Generally Hammerheads dislike bubbles. To get them close for a decent portrait we often resorted to holding our breath. This one came real close, I pressed the shutter and exhaled, causing him to turn right towards Paul. He got me and the runaway shark.*

'well prepared', just in case all else failed, I brought along a spool of 50 x 700mb CD's. My stomach churned as I embarked on this digital journey, hard disk and digital media do fail, and humans are known to err, what if I accidentally erase or format a disk! Fragile as it is, one can not erase a roll of film just by pushing a 'Delete' button.

Without doubt, digital has its advantages. With a 1 gig media card, I get 131 frames in the D1x and 103 frames in the D100. With two camera systems set up for each shoot, there were only five instances that I ran out of frames before I ran out of time. With the fickle weather conditions in the Galapagos, the ability to change ISO during a dive to adapt to changing light is a luxury afforded only by digital shooters. I shoot entirely manual underwater; the ability to have an instant 'test' on exposure, enhances productivity and success ratio. One clear difference became noticeable with digital; I have less time to rest between dives - instead of sleep and a book I will be culling and downloading images. For me, it is cardinal to have a fresh reformatted media in the camera for each dive. Realistically every dive in the Galapagos is good, but there are magical ones when it all seems to come together and then 130 frames is hardly enough! Working topside is not a problem with a spare 1 gig card, just pop the fresh one in while downloading the other in the portable

Tourists and the marine iguanas on Fernadina Island

Galapagos Barnacle Blenny, Acanthemblemaria castroi. *NIKON D1X. 1/60 @ F40. Zoom Length :60 mm. Single S200 Ikelite strobe. Location: Leon Dormido, San Cristobal. These endemic Galapagos blenny dart out from their refuge of barnacle shells into the current to nab bits of food. I have a definite affection for blennies but shooting them in a surge is akin to shooting moving targets from a rollercoaster. The Seacam S45 viewfinder, with enlarged 1:1 magnification is an invaluable tool getting these images.*

Xdrive. I shoot in NEF (raw) mode and images are processed with the Bibble software www.bibblelab.com.

In 12 days, we dived and visited 12 islands, which is including 3 days diving with the Hammerheads, dolphins and whale sharks at Darwin and Wolf. In a nutshell, we saw everything that we hoped to see. Iguanas overload – by the hundreds, piling on top of one another resembling a mountain of discarded worn out tires and at Espanola and Floreana Islands we got them in their mating colouration of red and green. But to catch them underwater, I had to wait to the second last day to shoot them in the surgey green water off North Fernadina. We were overwhelmed to find about 10 young adult waved albatross at Espanola socialising, each looking out to find their mate for life. We caught them in the air, on the ground and young chick as well. I've got a bit blase after awhile with the number of hammerheads and whale sharks but was delighted to find half a dozen Sunfish (Mola Mola) at Punta Vicente Roca. Of course, the sea lions were determined not to share our attention and proceeded promptly to chase them away. Except for 3 days at Darwin and Wolf and one day at Roca Rotunda where we dive all day, we only do 2 dives in the morning and spend 3-4 hours on each afternoon for each land visit. We have Salon Intriago and Collette Moire, as our dive and naturalist guides providing hand on interpretation of the ecology and showing us the highlights of each location. They commented that in their 10 years' experience, our itinerary is the best and most meaningful ever put together for the ultimate experience in the Galapagos.

Both the D100 and D1X did exactly what they were supposed to do. Because of the bigger buffer and

Land Iguana —Conolophus subcristatus.*NIKON D100. 1/1000 @ f5.6. Zoom Length : 16 mm Exposure Bias : -0.667. Lens: fisheye 16 mm. Location: Plaza Island*
Equally as enigmatic as their marine counterpart, the land cousin is definitely more glorified in appearance. There's no problem getting close, as long as they are within the trail.

Giant tortoise Geochelone elephantophus porteri
NIKON D100 1/19 @ F 5.6 Zoom Length : 70 mm
Exposure Programme :Aperture priority
Exposure Bias : 1.667
Metering Mode : Pattern
Location : Santa Cruz, Sub species found on Santa Cruz
Giant tortoises - the signature of the Galapagos islands. Each island has own sub species adapted to survive on the terrain to which they live. Nowhere else in the world where the process of evolution is more visible.

auto focus speed, for underwater I set up the D1X for macro and the D100 for wide angle and portraits of big animals using the 24mm lens. As a result I was able to get some publishable image of those iffy endemic Galapagos blennies and gobies. The 24mm lens is perfect for portraits of sharks, sealions and sunfish. Again for topside I used the D1X for shooting birds in flight and the D100 mostly for sedentary animals and landscapes. Even with relatively new stock, I make it a point to put in a freshly-charged battery in the D1X on every second dive but for the D100, one battery change is sufficient for an entire day of shooting sometime exposing more than 500 frames. With both cameras, I average about 700 frames per shooting day. Both cameras performed flawlessly above and underwater and a spare D100 body was never used.

Problems: I did have a major one. On the second day, the USB2 socket of the Xdrive became detached from the internal circuit board. I was still able to download images, but there was no way to connect the drive to the notebook to verify the download or to review the images. A quick swap to a back up portable case, allowed me to continue using the same hard disk. Another photographer using a 1 gig card was less fortunate. Due to insufficient back up media, he chose to shoot in NORMAL mode using a 5 megapixel camera which should yield him about 842 images for the entire trip. On the 10th day of the tour, the card decides to freeze up during a dive in the 15C water – the camera menu literally turns upside down. He lost all the stored images; 10 days of wildlife experience vamoose in a FLASH card instantly! It is vital to download, and even back up the back up images. I am an optimist, but still never trust digital media, they do fail.

By culling unwanted and test shots, I returned with 3981 file images, equivalent to 110.5 rolls of conventional films which would have cost about $2210 for the stock and processing. In this instance, the images are almost ready for use, and all I have to do is to format those 1gig media and I will be all set for the next assignment. Though I am happy with the result, I am an old fashioned photographer still preferring the colour of films for fine rendition and colour dynamic. Generally digital image lacks tonal range and the contrast is sort of clinical. Don't

*Scallop hammerhead sharks (*Sphyna lewini*). NIKON D100. 1/100 @ f 9.0. Zoom Length : 24 mm. Exposure Bias : - .667. Zoom Length : 24 mm Ambient light. Location: Darwin Arch*
Schooling hammerheads – signature of the Galapagos; they are seen on every dive at Darwin and Wolf.

get me wrong, digital is here to stay, it is the future, and it will get cheaper and better. As in the thoughts of Charles Darwin's "On the Origin of Species by Means of Natural Selection" – it is not the fittest that survive, but the one that is adaptable to change. There's significant truth in that observation some 150 years later– half the E6 film labs in Sydney have gone belly up in the last few years. The survivors are those that have adapted to supporting digital media. But again Darwin's Theory of Evolution is a very slow gradual process. Natural selection acts only by taking advantage of slight successive variations; she can never take a great and sudden leap, but must advance by short and sure, though slow steps. Change comes but very slowly.

Michael AW

For information on 2004 Beyond the Ordinary tours check out www.michaelaw.com or email one@michaelaw.com

Happy holidays

The reality of digital underwater photography

By Alexander Mustard

A few issues ago, the editor asked what we would most like to see in UWP and our number one response was

"Photo Tips". Well, having just spent a week on a liveaboard with 11 other underwater photographers I have a great one: if you don't want the conversation hijacked by opinion and argument don't mention the word "digital"! One small slip with the d-word and you can wave small talk goodbye for half an hour. The digital debate is lively one, made worse when a few digital divers get together and the torrent of jargon and acronyms quickly becomes impenetrable to all but a (flash)card carrying, digital enthusiast. "Talking megapixels" is how one photographer summed up this new language.

This article is my contribution to the debate. My thesis is simple: digital is better than film because it is more fun! In the digital debate I don't care about the pixel count, the numbers of shots per dive, instant image review, highlight vs shadow detail, control, storage etc. I'm not David Duvet. I, like most underwater photographers, take pictures because I enjoy it and the best camera for me is the one I enjoy using the most! Simple.

There is a serious side to this article. My intention is to tell you about the experience of being a digital photographer What are the differences between a typical dive vacation on film and on digital? To reduce the bias of my own experiences I asked the members of the wetpixel digital photography forum for their opinions and I'll include some of their quotes on why digital is more fun than film. These quotes may also go some way to reveal a bit about the psyche of the "average" digital underwater photographer!

My personal favourite advance of the whole digital revolution is the stress relief button. When we shoot film, we have no idea how we are doing. And while experience reassures us that we are OK, we can only remember what it looked like through the viewfinder. We are left comforting ourselves "I am pretty sure my TTL was working, and I think I loaded the film correctly, and I hope that the strobe was aimed at the whale shark and not that massive cloud of sediment that my buddy kicked up,

Digital photography brings a host of new experiences for the underwater photographer, like sitting in a van in a wetsuit full of sand and salt downloading images to a laptop. Photograph by Steve Broadbelt.

and I pray the X-rays at the airport haven't fogged the film, and I hope that I remembered to take the lens cap off, and my camera strap wasn't over the lens and the strobes had recharged hadn't they?" etc; but we can never be 100% sure. On top of this, the better the diving, the more stressful the holiday becomes. Each once in a lifetime opportunity adds to the torture. Soon we're as tightly coiled as our exposed film wound up in those little green canisters.

This is where digital cameras and that marvellous stress release button come to our rescue. The stress relief button is only small, on the back, next to the LCD screen, but once I press it all my concerns vanish. One little push and I see exactly what I've just taken. The worry, the stress, just drifts away with my bubbles. If its good, I know I've got the shot, and if I haven't I know to try again. In addition, as one wetpixelite points out, the stress relief button can also keep

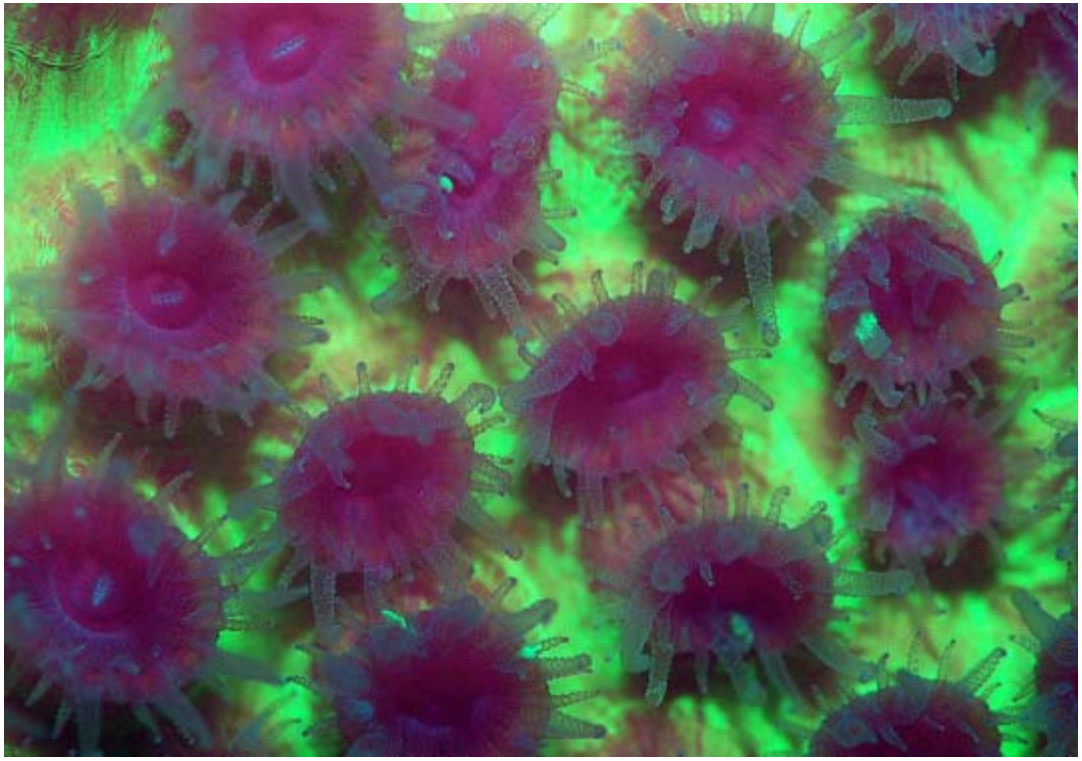


Image review also gives you the confidence to experiment with techniques such as this coral fluorescence image. Nikon D100, Nikkor 60mm, f11 @ 1/180th. SB80DX flash on 1/2 power. Fluorescence filters.

When you see something rare, like this star coral which spawns for only about 20 seconds a year, being able to see you have the shot is very reassuring. Nikon D100, 17-35mm Nikkor at 35mm. f11 at 1/180th. Subal housing. 2 Subtronic Alpha strobes

your boat cred: "I can fix my mistakes while still underwater and then delete the bad ones before anyone else even gets to see them."

The LCD screen has other bonuses too: "when you are standing on the deck of the boat after the dive explaining how you saw the rare and elusive creature, and the other divers don't believe you, you can pull the picture up on the LCD and show them right then and there". Plus "then they will buy you beers to take them to the spot". Of course, you can also do this underwater "when after half an hour or so you bump into your buddy again, you can compare critters on your LCDs and decide which you want to show each other". Also I"have

Instant image review allows you to correct the mistakes, even when they weren't your fault. Nikon D100, Sigma 28-70mm, f16 @ 1/180th. SB80DX flash on DTTL.

All the extra shots mean that you can mix in a few fun shots with more serious photography. Here my friend Rob is grinning through a piece of wreckage. Nikon D100, Nikkor 16mm, f8 @ 1/120th. 2 x Subtronic Alphas at 1/4 power.

never had such pleasant safety stops, these days I pass the time reviewing, editing and enjoying my images!

Being able to get your hands on your images immediately after the dive is another big draw for the digi-snapper: "you can swap pictures with others while still on your trip", and "you can email pictures back to your office co-workers just to torment them"! The more kind hearted also add "you can share your photos with friends all over the world using the 'net, while on vacation." This seems a popular feature. There is a serious issue too: I have sent images back to a magazine in the UK while I was away in Grand Cayman, although I should point out that the issue didn't come out until several weeks after I returned home! It is also fair to note that all this sharing and caring might not improve your holiday "while everyone else is sleeping you can sit out on the bow of the boat swearing at the satellite phone for dropping your live-webcasting-call every 2 minutes"!

Showing off your images can have unexpected benefits, in addition to the ego massage. I have found that the customary negotiations with the divemaster go much smoother when they see you are producing some decent shots and your strange requests are not wasting everyone's time. "Little did they know that I had downloaded them off somebody else's website and copied them onto my flash-card!" The same thing goes for your fellow divers, who become a bit more understanding of the photographer's needs.

The toy count has always been a major attraction to underwater photography, and digital provides an even bigger gadget-endorphin hit: "the adrenaline surge you get every time you back-roll into salt water with $14K worth of moisture sensitive electronics in your lap". The digital photographer's watchwords are'"smaller, faster, cheaper". A perfect sentence would be "I can transfer 1000 images a second onto my laptop with this finger-top card reader, and it only cost me $5 in Singapore".

A more thoughtful technophile argument is "digital gives you an

You are not the only one to benefit from the LCD replay. This divemaster had never modelled before, but because I was able to show him the results as we went he could immediately understand how to position himself in the shot. Nikon D100, 16mm Nikkor. f13 at 1/30th. Subal housing. 2 Subtronic Alpha strobes.

Sharing images while on vacation is great fun. Plus you can benefit from your friend's critique of your photography and take better pictures.

excuse to bring your laptop on vacation". Obviously a computer is just another gadget to add to the toy count "pulling out the laptop right after the dive is the ultimate kick for any gearhead". But these days a laptop is an ideal travel companion. Laptops have word processing and they have Photoshop, allowing me to work on that unwanted backscatter using that marvellous anti-spot cream that Adobe calls the clone stamp. Computers have space for an extensive MP3 music library, thousands of songs so you have just the right sound track for when you're the only one to see the whale shark, and for when you realise you had a plus 4 dioptre on your 105mm. Laptops can also play DVD movies and computer games; a good way to get popular with the liveaboard crew in the evenings, especially when your DVD's have Arabic subtitles!

The final bonus to about shooting digital is that you are not shooting slides! Digital photographers love this for two reasons: first, RAW digital files allow exposure (and other) corrections that is more akin to print film, which translates to a higher hit rate per dive, "very important to those who make just one overseas vacation a year". Second you can shoot loads more pictures on one dive or to be more accurate "you can make a hundred mistakes a dive instead of only 36". In addition all the extra shots encourage you to experiment, or even take some fun pictures of "your friends looking silly underwater" and then "blackmail them for beer" later. This is a serious point. How often do we return from a dive trip with beautiful underwater images but no images of the actual holiday or our family and friends because "I didn't want to start a film".

Of course it is not all doom and gloom for the E6 traditionalists. There is a certain magic lost from not having to wait for your slides. It is a part of the hobby that digital photographers certainly miss, though not always for the right reasons: "because I no longer have an excuse to see that girl at the film developing counter"!

Digital cameras may not be the complete replacement for film underwater yet, but remember trips with digital are much more, well like holidays. Wish you were all here!

Alexander Mustard
with help from wetpixel.com

The Nudibranchs and flatworms of Ligpo Island

by Nonoy Tan

It is 10 o'clock in the evening, I have just completed my second night dive. Although it has been an exhausting day, I exit the shore with a usual smile of delight. Again, the waters of Ligpo Island have not disappointed me. Ligpo always presents me with something new to discover, and I always finish an entire roll of film during each dive.

Located 100 kilometers south of the Philippine capital of Metro Manila, Ligpo Island can be reached by a two-hour land travel and a 10-minute boat ride. With a tiny land area, the island can be circumnavigated in one dive.

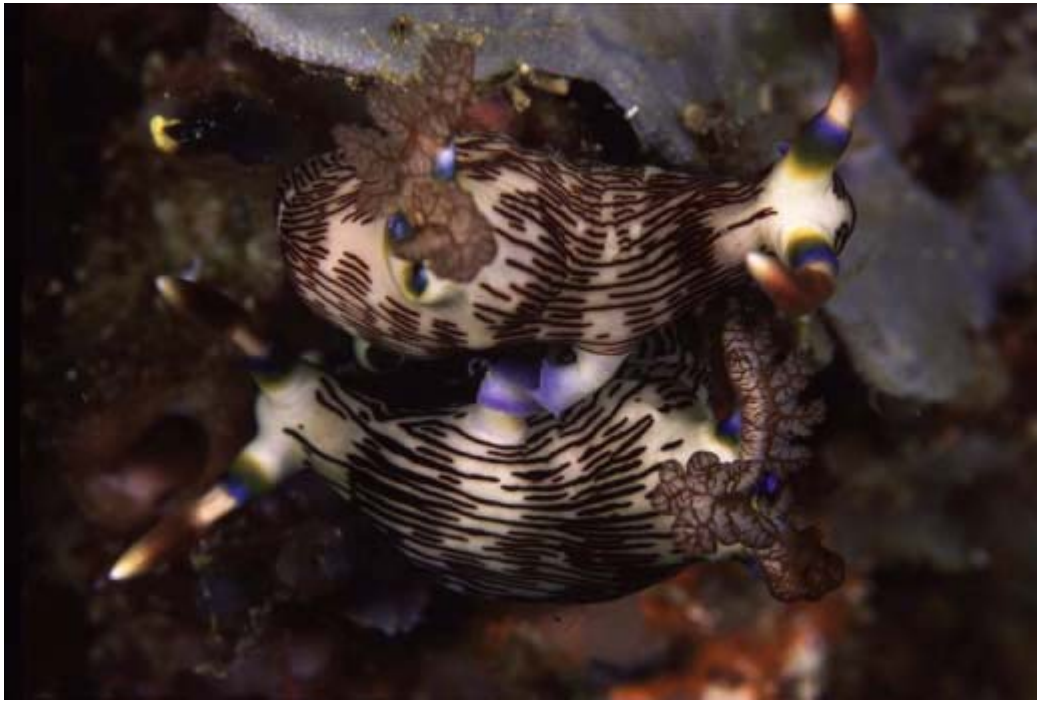
Divers love Ligpo for its magnificent drop-offs. On its south and west sides, huge coral fans stretch out against the water current. One hundred feet below, divers encounter seasonal pelagics; Ligpo is a popular destination for wall and recreational deep diving.

Not known to many, however, it is also a haven for critters. The waters on the north and east sides of the island are shallow (from 10 to 40 feet). In this area lives a circus of small creatures that makes a muck diver like me ever happy. It is home to the ghostpipefish, blue-ring octopus, spearer mantis shrimp, orangutan crab, frogfish, crocodile snake eel, flamboyant cuttlefish, seamoth, dragonet, squat lobsters, just to name a few. Among all the critters, however, the nudibranchs and flatworms are the superstars.

I have done several hundred dives during the last five years, but I am amazed at how Ligpo still gives me the thrill of discovering new shapes, patterns and colors of the nudibranchs. A dive is not complete without a nudibranch photo opportunity. Even at night, it is common to encounter the Spanish dancer with its commensal emperor shrimp, or a green flatworm emerging from a sea squirt. Sometimes, the evening reveals strange species of nudibranchs or flatworms that I haven't identified up to now. With such a large nudibranch population, Ligpo is one of the best places to observe these critters feeding, resting, laying eggs, competing, courting, and mating.

Although nudibranchs are hermaphrodites, they normally need a partner to mate successfully. By chemoreception, they are able to recognize a potential partner. When the pair meets, the process of courtship proceeds with body contact. At this point, the genitalia located at the right side of their necks are

Portrait of Nembrotha kubaryana. Nikon F100, Ikelite Housing, 105mm 2.8 AF lens, Ikelite Substrobes 200, RVP135, F18, 1/250, TTL



A pair of Nembrotha lineolata initiating to mate. Nikon F100, Ikelite Housing, 105mm 2.8 AF lens, Ikelite Substrobes 200, RVP135, F22, 1/250, TTL

The Spanish Dancer is host to a resident emperor shrimp. Nikon F100, Ikelite Housing, 105mm 2.8 AF lens, Ikelite Substrobes 200, RVP135, F22, 1/250, TTL

readily stretched out. The courtship process usually doesn't last long, and the act of copulation begins when the genitalia are engaged. I have seen a pair of Nembrotha that were so "hot" that they immediately began mating without any noticeable courtship ritual. Mating can go on for several hours.

On several occasions, I have observed a Chromodoris subsequently mating with at least two partners, especially when they are in a group of three or more. Yes, orgies are common in Ligpo (I mean, the nudibranchs). On the other hand, I have also witnessed a pair of Pteraeolidia ianthina in an intensely aggressive courtship behavior - more like a rape attempt. Having sensed a potential mate, the aggressor chased the potential victim, who was obviously disinterested as it tried to push back the assailant using its anterior.

In an apparent show of

Hypselodoris bullocki. Nikon F100, Ikelite Housing, 105mm 2.8 AF lens, Ikelite Substrobes 200, RVP135, F22, 1/250, TTL

desperation, the attacker started to purse its mouth against the defender. The struggle persisted until they reached a ledge and fell separately. After observing what had happened, I felt that I had witnessed a crime.

Subsequent to receiving a reciprocal exchange of sperm, each individual will produce a "ribbon" of eggs that come in different patterns and colors, depending on the species. Then, the eggs are left to develop on their own as most adults proceed with their regular activities. However, Pteraeolidia ianthina parents tend to stay with the eggs while other adults accompany them. Thus, wherever there is a brooding parent, then there must be more individuals in the vicinity. And since they prefer to stay in the same locations throughout the year, I am able to find them consistently.

The feeding preferences of nudibranchs are diverse. Some like to eat algae, sponges, ascidians, or even fish eggs! Sea squirts seem to be the favorite food of the Nembrotha as they are often seen sucking within them in absolute pleasure. In another instance, a Hypselodoris was enjoying a buffet of fish eggs so plenty that it seemed like food paradise. In Ligpo, I learned that each nudibranch species could be found near its particular food source.

The amount of time I spend with the nudibranchs provides me the opportunity to observe and learn more about their behavior and at the same time capture it on film. With a lot of available subjects getting these images is uncomplicated. All I need is a housed Nikon SLR with a 105mm or a 60mm lens, twin Ikelite substrobe 200s (especially useful at night because of its reliable built-in torch), Ultralight arms, and lots of Fuji Velvia film. Set at TTL, all I do is to concentrate on critter hunting and image composition.

Moreover, at the usual shallow depths of around 15 to 25 feet within an area of 500 square meters, I don't even have to care about decompression or about getting lost! Dives that last for two hours are the norm.

I have already taken a lot of photographs of marine life around Ligpo Island and I continue to add images of freshly-seen nudibranchs and flatworms. Managing the accumulating number of photographs is becoming a challenge, but with the delight that each good picture inspires in me - not to mention my occasional yell of enjoyment underwater - it is all worth it.

Ligpo Island offers an inn where the bedrooms are just a few steps from the shore entry so I can go diving easily as well as get rested immediately after a full day of marathon dives. The inn's kitchen (food!) is similarly accessible. What more could I ask for?

Nonoy Tan
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Scorpion Fish

by Mark Webster

One of the most common misconceptions regarding diving is the danger of large denizons hunting us down and consuming us or at the very least biting off large portions. History is full of myth and legends surrounding giant squid, octopus, whales and any number of sea monsters, whilst in recent years it is inevitably the shark which generates the greatest undeserved fear. But the reality for most of us is that we feel blessed when we encounter one of these larger beasts whilst the real dangers come from much smaller venomous species. Many of these fish and invertebrates often have incredible camouflage which increases the hazard for the unwary diver, whilst others advertise their danger with gaudy colours and patterns.

Possibly the most prolific species are the scorpionfish and their relatives which are found in almost every sea around the globe. Their defensive venom can range from a sting that is barely felt to one that can result in almost certain death. There are in fact some 45 genera which include around 380 species of scorpion fish worldwide, so it would be quite a challenge to observe every species. Most species are sessile bottom-dwellers using their remarkable camouflage aggressively for predation rather than defence. They are safe in the knowledge that their venomous spines, predominantly dorsal, are enough to discourage even the largest and most determined of predators. The exception to this behaviour are the lion fish who are brightly coloured and free swimming and also known for their communal hunting when they will herd schools of small fish almost like a group of sheep dogs.

Short-spined sea scorpion - In addition to excellent camouflage the UK species often like to hide amongst seaweeds and hydroids as extra cover from their intended prey. Nikon F90X, 105mm micro, Subal housing, Inon Quad flash, Fujichrome Velvia, f16 @1/80th.

Diving in our temperate waters around the UK you will almost certainly encounter at least two species if you look carefully. The short spined and long spined scorpion fish are both relatively small at 10-15cm and have excellent camouflage. They are most often found amongst weed and sponges on shallow reefs where they lay in wait for small crustaceans, fish and fry. They are often found stranded in rock pools between the tides and could give a shoeless child explorer a nasty surprise! The sting that you might experience from one of these is relatively benign but might cause some discomfort to those who are sensitive. Even when found, like most scorpion fish, they will totally ignore you unless you disturb them when they will swim explosively for a short distance before settling once more. Camouflage and colour will vary with the habitat as all scorpionfish are able to change colour

Long-spined sea scorpion - In the temperate waters of the UK we have smaller relatives with more benign venom, to photographers at least. These scorpionfish are no less colourful and have impecable camouflage and so present a satisfying challenge to track down. Nikon F801, 60mm micro, Subal housing, Sea & Sea YS50 and slave, Fujichrome Velvia, f8 @ 1/60th.

to suit a new location. Those in esturine locations will be brown and muddy whilst the reef dwellers maybe decorated with deep purple and red markings to match weed and sponges. In the south west and the Channel Islands we might occasionally encounter a larger species from the warmer waters of the Mediterranean or the Canaries. The black scorpionfish has been recorded most often and can reach a length of 30cm and has a more potent venom.

Species encountered in the Mediterranean and Canary Islands are very similar although their colours and patterns will be much more vivid to match their surroundings. There are some quite large examples, notably Scorpaenus notata and Scorpaena porcus which may grow to more than 30cm and have a sting to match. They are again prolific in shallow waters and are difficult to spot in the short weeds and eel grasses which grow on the reef slopes.

Moving to tropical waters brings a big increase in the number and diversity of species. In the west the Caribbean has several of scorpionfish which are very close in appearance to their Atlantic and Mediterranean cousins. Moving east to the Red Sea offers a wider range from the elegance and beauty of the lion fish to the perhaps repulsive gargoyle features of the stone fish and a host of alternative creations in between. The common lion fish (Pterois volitans) are unique amongst the scorpion fish as they are often free swimming and use schooling tactics to hunt their prey. They hunt predominantly at night or during the dusk hours and groups of up to twenty or thirty individuals are frequently encountered on reefs and particularly wrecks. Here they will act as a pack to herd their target prey, often schooling glass fish, to a position where each

Mediterranean scorpionfish - The warmer waters and colourful seaweeds and algaes in the Mediterranean are also matched by the scorpionfish here. These bright colours make terrific portraits. Nikon F801, 60mm micro, Subal housing, Sea & Sea YS50 and slave, Fujichrome Velvia, f8 @ 1/60th.

Stonefish - This species has a deadly venom and is very hard to spot. Most are found by accident and even then it is difficult to accept that this is a fish! It pays to check the seabed carefully especially amongst coral rubble just in case. Nikon F801, 60mm micro, Subal housing, Sea & Sea YS50 and slave, Fujichrome Velvia, f8 @ 1/60th.

Bearded scorpionfish - This species favours the reef and will be found almost anywhere. They grow to quite large proportions and occasionally their position on the reef will allow the use of extreme wide angle lenses, as in this example. Nikon F801, 16mm, Subal housing, Sea & Sea YS120, Elitechrome 100, f11 @ 1/60th.

White scorpionfish - The Lembeh Straits in Indonesia has a tremendous selection of scorpionfish which will mimic almost everything. This white example appears to be copying the appearance of a discarded pair of trainers close by! Nikon F90X, 60mm micro, Subal housing, Sea & Sea YS60 and YS30, Fujichrome Velvia, f11 @1/80th.

individual can take its turn to feed. During daylight hours they are most often found clinging to overhangs but will move if disturbed. They show no fear of divers and are rarely aggressive. If cornered or threatened they will most likely roll to a near vertical position and swim towards you occasionally making short threatening moves forward. There are two other common species here, the red or clearfin lion fish (Dendrochirus radiata) which are normally encountered individually and the dwarf or short fin lionfish (Dendrochirus brachypterus) which rarely swims and will mostly be found resting on rubble or sand in shallow water.

Looking for the less obvious Red Sea species reveals an interesting selection of rogueish characters. Perhaps the most often seen species is the bearded or tassled scorpionfish (Scorpaenopis oxycephala) which will be found in almost any reef environment matching its colour and pattern to hard and soft corals, sponges and algaes. They are perhaps the most colourful species who will raise their dorsal spines in a threat posture as you get closer. This may be followed by a wide yawn which is further threat posture but is most likely to be a fast dash away from you for a few metres before settling again. But for the most part they will happily stare you down knowing that you are no real threat. Other species are less easy to spot and these include the devil scorpion fish, dwarf scorpion fish, false stone fish and devil fish or Inimicus. All of these have increasingly effective camouflage and powerful venom to go with it and like the bearded scorpionfish are reluctant to move unless there is no alternative.

One variation to this behaviour comes from the devilfish or Inimicus which have developed the ends of their pectoral fins to act almost like hands or feelers. They will slowly walk across the seabed probing the sand searching out small crustaceans to feed on. If they are threatened or forced to swim then bright swirls of colour are revealed as they open their pectoral fins fully and the viscous-looking dorsal spines are raised as a warning.

The most difficult to find and most dangerous species is of course the stone fish which lives up to its name and even when found its appearance almost defies belief. This species and its close relative the devil or false stone fish are able to exude a mucous on their bodies which will attract growth and encourage algae and hydroid growth which - coupled with colour changes which perfectly match their surroundings - makes them master chameleons. You can most readily identify

Inimicus scorpionfish - One of the more venomous species is very common in the Lembeh Straits. They are often seen picking their way over the seabed on their modified pectoral fins, but many also bury themselves in the dark sand and are invisible - good buoyancy control is a must! Nikon F90X, 60mm micro, Subal housing, Sea & Sea YS60 and YS30, Fujichrome Velvia, f11 @1/80th. (Above right) Tassled scorpionfish - In the far eastern waters of Indonesia the colours and patterns often range from the sublime to extreme. This fish seems to be suffering and identity crisis and seems to have gone for every colour and pattern he can summon. Nikon F90X, 105mm micro, Subal housing, Inon Quad flash, Fujichrome Velvia, f16 @1/80th.

the stone fish from the shape of its mouth which points directly upwards like an upside down 'U' and the fact that they normally rest with their tails curled tightly to one side. The false stone fish has the more usual horizontal mouth position and elongated piscine boby shape. The stonefish venom is reputedly one of the most painful known to man and victims have been known to die from shock or heart failure before the venom has fully invaded their bodies.

Progressing still farther east to Malaysia, Indodesia and Papua New Guinea adds a few more species which will be commonly seen. All the usual characters are here as well with the addition of at least one other lion fish, the dwarf or twinspot lion fish which as its name suggests is quite small and it normally only encountered at night. There are also regular sightings of leaf scorpionfish and waspfish which in common with their relatives have amazing camouflage. Leaf scorpionfish are most often encountered in a reef environment and can be as small as 2-3cm in length. They adopt a variety of colours from jet black through pastel shades of yellow, pink, red and mauve to pure white depending on where they are resting. They have a very thin body line and so are difficult to see head on. The dorsal fin is high and extended to resemble a piece of leaf or weed debris and they will allow themselves to be moved gently from side to side by the current and surge to complete the subtefruge. They are occasionally seen in pairs either for mating or competing for a vantage point and will most often remain in the same location for long periods which makes them ideal photographic subjects.

Away from the reef in typical 'muck diving' environments you will find species similar to those in the Red Sea and Indian Ocean and also some of the more unusual species like the waspfish and velvet fish. Like the leaf fish these guys resemble leaf debris or flotsam and it is worth examining every collection of rubbish you may encounter on an apparently lifeless seabed. There are several species of waspfish but perhaps the most commonly encountered is the cockatoo wasp fish which has a high dorsal fin resembling the flambuoyant feather headress of its namesake. Here the similarity ends as these fish are certainly not colourful and match the seabed and surrounding debris perfectly. In areas like the Lembeh

Clearfin lionfish - This species is also common in the Red Sea but is of a more nervous disposition than the common lionfish. They will invariably turn its back on a photograper and retreat into a hole - the best time to capture them in the open is at night. Nikon F801, 60mm micro, Subal housing, Sea & Sea YS50 and slave, Fujichrome Velvia, f8 @1/60th.

Straits they are considered common and can be found in groups of two or three gently wafting in the surge and current. Velvet fish (Aploactisoma milesii) are occasionally found in tropical waters but are more likely to be encountered in the semi-tropical and temperate waters around the coasts of Korea and Japan whilst the red indian fish (Pataecus fronto) is endemic to southern Australia only. Here they will be found in similar muck-type environments as well as on the reefs and will come in a variety of colours from drab camouflage to bright oranges and yellows to match sponges and algaes.

Back in Indonesia and Papua New Guinea are two quite rare species which are the holy grail for visiting photographers. These are the Ambon scorpion fish and the weedy or Merlot's scorpion fish (Rhinopias) which inhabit different environments but are equally difficult to track down. The Ambon scorpion fish is a classic small muck dweller reaching lengths of 12cm or so normally found in relatively shallow water. The disguise they adopt mostly resembles a ball of coconut fibre or weed which rolls or sways across the seabed. Even when one of these little beasts is pointed out by a guide it can be very difficult to recognise as a fish let alone which end is which! The eyes and mouth are heavily festooned with hairy appendages and it will take more than a little patience to take a picture which reveals the subject as a fish. By contrast the weedy scorpion fish prefers a reef environment and will adopt some fairly striking colours and patterns to hide itself amongst other reef features. Some have the appearance of feather stars with flowing appendages similar to a lion fish, whilst others may have a smooth appearance rather like a leaf scorpion fish which blends with a variety of backgrounds. They are apparently territorial for short periods, but can be disturbed it seems by repeated visits from divers. Although I have been led to several locations which were trumpeted as a dead certainty this one has so far eluded me!

Photographically perhaps the hardest work is done once you have found the subject. It is always best to look for low angles if possible to try and separate the subject from the background, unless you are trying to illustrate the effect of the camouflage. Head and shoulder compositions are always very effective as their often grotesque features can make very striking portraits. Some species have remarkable patterns when viewed in close up and so macro shots of the patterns on the skin or pectoral fins or perhaps around the eye will also make effective abstract compositions. In general the best lens for most situations will be a 60mm or 105mm macro lens, although a short range zoom can be very effective if the subject is large enough. Wide angle lenses and even the fish eye can be used to good effect when you can get close enough to the subject or perhaps to illustrate the schooling behaviour of lion fish. Scorpionfish make striking subjects wherever you may find them around the globe and half the fun is in finding them in the first place. By training your eyes to detect these Machiavellian characters you will also find that you begin to detect many other hidden creatures on the reef which will consume your time and images even if the main objective of the hunt fails.

Mark Webster
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Moment of Truth

by John Belchamber

As an aspiring underwater photographer, I find looking at underwater photographs in magazines and 'coffee table' books both a rewarding and depressing leisure pastime. Rewarding because it shows what can be achieved, depressing, as you compare those stunning images with the photograph your diver friends thought was excellent and should be "entered into a competition", and realise that it comes up short.

It is this striving for the ideal image that powers the desire to keep taking photos in search for a situation when training, equipment ,location & luck combine, delivering the "moment of truth" which takes the image to the next stage.

So, to achieve, that publishable image, most underwater photography is about identifying and delivering these "moments of truth" more often and from a wider range of diving environments.

I believe that i've just had my first real one and i'd like to share some of the things on my way to its delivery.

I qualified as a PADI Open Water diver in March 1997 in a very cold Stoney Cove. Shortly afterwards, my wife and I treated ourselves to a trip to the Florida Keys. As someone who has always been a keen photographer, I decided to try underwater photography and bought a second-hand Minolta, which gave basic 'snapshot' type results.

It wasn't, however, until I'd undertaken about 50 dives (mostly in the UK), with my buoyancy in all situations under control, that I could start concentrating on the underwater environment and surroundings.

A trip to St Lucia in the spring of 1998 was the turning point as I knew that the Minolta, even if I hadn't managed to flood it, wasn't going to give me the sort of results I wanted and I purchased an MXII. My first dive trip using this set-up was to Ballinskelligs, in South-west Ireland. Out of 6 dives using the camera, I got two shots which gave me the confidence to persevere. There was no doubt about it, not only had I been bitten by the diving bug, but I was now driven by the need to get that perfect photo.

At this stage, I realised that although some shots I was taking were beginning to be more than just the classic species type shot, if I was going to try and really encapsulate in the perfect image the amazing environment in which I was privileged to be diving, I would need to modify both my diving practices and my approach to diving with a camera.

Site: Fan Fare, Coral SeaAustralia, Fuji Sensia 100ASA
Nikon 90X with 60mm Macro in Sea & Sea Housing, Strobe YS120
TTL @ F22

Luckily, this change in attitude coincided with a trip to Bonaire where I took the PADI Underwater Photography specialist course. This taught me the two fundamental principles of underwater photography technique "get close and then closer still" and always try and shoot upwards. With these two mantras always in mind and using a standard lens, I found that I was gradually able to produce consistent in-focus shots which were also lit, for the most part, correctly.

Combining this with the principle of keeping a standard set-up and learning through lots of trial, and even

Site: Challenger Bay - Ribbon Reef Australia, Fuji Provia 100ASA, Nikon 90X with 60mm in Sea & Sea Housing, Strobe YS120 , TTL@F16

Scuba Zoo Barrier Reef Australia, Fuji Sensia 100ASA, Nikon 90X with 20mm in Sea & Sea Housing, Strobe YS120, TTL@F8

more error, what results could be achieved in a variety of underwater situations meant the camera settings became second-nature. This gave me more time to focus on the art of the picture and not the technical detail.

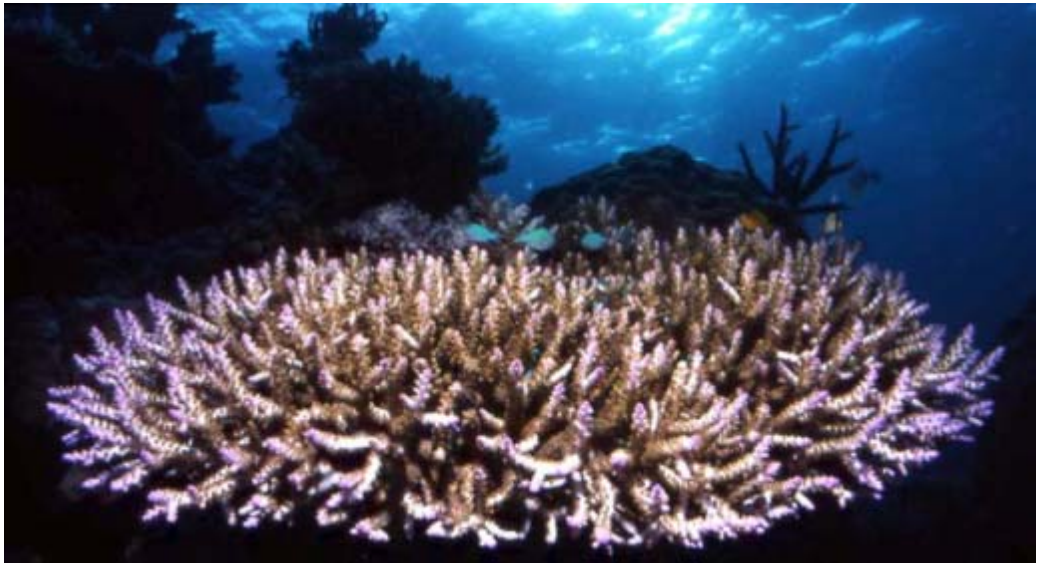
It was only once I'd achieved this level of consistency in macro, and a missed opportunity with some mantas, that I felt confident enough to try using a wide angle lens.

After about 18 months with the MXII, I decided that if I wanted to really improve my results, I needed to upgrade to a housed system. After advice, I chose an Aquatica housing, a Nixon 90X and YS90 strobe. The benefit being that the only bit I would need (and be able) to adjust underwater was the angle & power of the strobe, meaning I could concentrate on getting the right shot. A club trip to Krabi in Thailand provided the perfect opportunity to try out the new set-up. The availability of a fast processing photo shop meant that I could view and judge the results at the end of each day. This proved a real watershed. At the end of the trip I had a set of photos which resembled those you see in some of the location articles in Sport Diver. I'd begun the next phase of my progression from 'snapper' to 'shooter' chasing that "moment of truth"

The next step change was the switch from print to slide film. This apparently small change was crucial in that it had the effect of making me think more carefully about composition, slide film being the photographer's version of WYSIWYG. The purchase of a slide scanner for my home computer also enabled me to examine the images in more detail and start to identify the subtle differences between an average and a great image.

After a couple of years with the Aquatica, I felt the time was right to upgrade once again. I chose a Sea & Sea housing but for the same camera and strobe.

For the first time, I was disappointed to find that the upgrade had not led to immediately improved



Site: Challenger Bay - Ribbon Reef Australia, Fuji Provia 100ASA, Nikon 90X with 20mm in Sea & Sea Housing, Strobe YS120 , TTL@F16

Site: Exploration II - Barrier Reef Australia, Fuji Sensia 100ASA, Nikon 90X with 60mm Macro in Sea & Sea Housing, Strobe YS120 , TTL@F16

results.

After much soul searching I realised that, rather than getting to the top of my learning curve, I had just reached another plateau and that with the investment of more time, effort and, of course, money, I could improve further.

So, in 2002, I decided to invest in two weekends in a swimming pool in Bournemouth with Martin Edge, as I felt that whilst I could carry on improving at a steady pace, I needed a 'kick-start' and injection of technique to build a better foundation from which to produce even more polished results.

No article would be long enough to include all the hints, tips and practical advice those two weekends provided, and including time spent with other people with the same passion, I came away from Bournemouth in possession of the advanced toolkit I was going to need to continue to improve.

A trip to Tobago with four friends (one non-diving) in January of this year gave me the first opportunity to try to remember and apply all that I'd learned in those sessions photographing silk flowers in a swimming pool.

It wasn't, however, until April this year when, on an unexpected trip to Australia with Mike Ball, all the pieces came together. Coming around a coral head at about 15m in the early morning, I spotted a large cuttlefish hanging just on the edge, looking sleepy. Even in my excitement, I managed to remember to set the camera to F22 to darken the sea around the subject as well as get in as close as I could (I had the 60mm set), shoot from below and think about the image I wanted to create. Luckily, it took about 5 shots before the flash annoyed the cuttlefish enough for it to back away, which was when I got my best shot.

Having to wait for the results was hard, but once I saw them I knew that these were the first set of slides that I'd ever taken that combined effective technique with a powerful image. Being in the right place at the right time helped too. That was my 'moment of truth'. I hope you agree.

Where does this leave me? I am still my harshest critic. I still take a large number of photographs that are un-memorable but I now know that I am capable of taking that special picture. The next one may be a long time coming but it will be worth all the effort, after all, it means more diving.

So, I'll keep persevering and hope this has inspired you to do the same.

John Belchamber
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Back to Basics

Why is it different underwater?

There are two main differences - Physical and Optical and both of them are caused by the medium in which we decide to operate - WATER.

PHYSICAL DIFFERENCES

To take underwater photographs we have to make sure that both we and our cameras are able to operate underwater.

We put on a diving mask and air tanks to help us see and breathe underwater and our cameras and accessories must be redesigned to cope with the two main effects of water - moisture and pressure.

Waterproof camera designs

A normal land camera can be waterproofed by covering it in a waterproof material. This can be as simple as clingfilm where the material acts as a water barrier but results in a poor optical quality. An effective seal can be achieved by overlapping clingfim but this is a very basic and temporary form of moisture barrier.

Most modern materials such as plastic, aluminium and glass form an effective moisture barrier but where one joins the other or there are gaps, a waterproof housing must seal these gaps to keep moisture out.

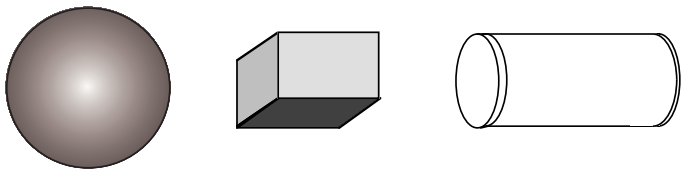
This is done either with a waterproof gasket or more commonly with O rings. These ingenious circular pieces of moulded rubber, when used in a sensible design, will stop moisture getting through a gap.

To use a camera in moist conditions you must either use a camera specifically designed for the purpose or put a normal camera in a moisture-proof housing to keep it dry.

Pressure-proof camera designs

As we go deeper underwater the weight of water above us exerts pressure on the camera which can either force water past moisture seals or crush the camera/housing.

The solution is to design the camera (or the housing) so that it can withstand the pressures which can be expected and still be able to operate the main controls. Most underwater cameras and housings are waterproof and pressure-proof to 50 metres which is commonly regarded as the safe maximum depth for sport diving. At this depth the water is exerting a pressure of 6BAR or about 88lbs per square inch!



Given the same wall thickness and same material, the ideal pressure vessel is a sphere, the poorest shape is a flat bulkhead. Somewhere between the two is a sensible compromise.

The most widely used design is based on a cylinder with flat ends whilst more sophisticated designs use moulded materials to contour the shape, keep the size to a minimum yet still retain good pressure characteristics.

O rings are used on circular shafts to allow controls to rotate and control the cameras functions.

Material considerations

Saltwater is a highly corrosive medium if allowed to be and care should be taken to use materials which resist its corrosive powers. The most commonly used materials are plastic and aluminium with brass being used less and less.

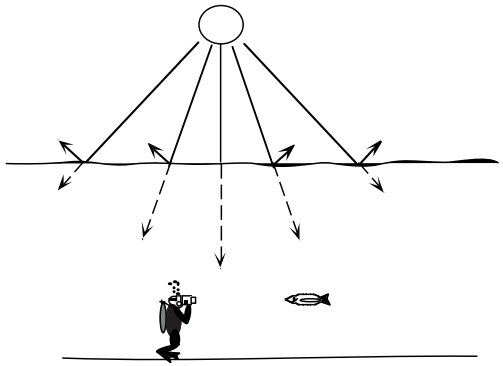
Whilst these materials are fine on their own, care should be taken when combining metals i.e. where flash leads are screwed onto cameras. Some metals react with each other when in saltwater and a chemical reaction known as electrolysis takes place. Here the weaker of the two materials will corrode quite quickly - brass and aluminium are probably the worst enemies and should be kept apart wherever possible.

OPTICAL DIFFERENCES

Light absorbtion/reflection

Water is much denser than air and so light is absorbed much quicker than on land. In addition light is reflected back from the surface before it can

get underwater so light levels are greatly reduced.



The solution is to dive as shallow as possible when the sun is at its highest and keep the distance from you to your subject to a minimum i.e. reduce the water path to a minimum.

Remember

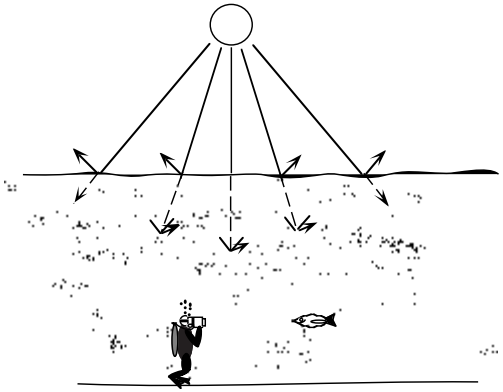
LIGHT PATH = DIVING DEPTH + CAMERA TO SUBJECT DISTANCE

If you need to go deeper, consider a faster film speed.

Suspended matter

Water can also hold matter in suspension which reduces water clarity and so limits our vision underwater and reduces contrast. In addition this suspended matter reduces the light from the surface by reflecting it back.

By far the most important effect is the reduction in visibility. It is worth bearing in mind that if visibility



on land were to be reduced to just 30 metres many activities would grind to a halt yet we would consider this to be excellent visibility.

Once again keep your water path to a minimum by using a wider angle lens and a slower speed film will give more contrasty results.

Colour absorbtion

Water acts as a strong colour filter and even the clearest water contains a heavy cyan (bluish) cast. The more water there is, the stronger the cast. Where there is algae in the water this will alter the colour cast from cyan/blue to green such as in UK waters.

Filters can counteract the cast to a limited extent. A filter in front of the lens of the opposite colour to the cast will help remove it but the deeper you go the stronger the filter will have to be.

Colour is expressed in UNITS OF STRENGTH and for every foot of light path 4 units of colour will be needed to eliminate the cast. Because a filter reduces the amount of light reaching the film, the exposure must be compensated. In general terms, for every 30 units of colour you will need to give one stop more exposure.

For example, you are in the Caribbean taking shots in 10 feet of water of a subject 5 feet away:

LIGHT PATH = 10 + 5 = 15

FILTER = 15 x 4 = 60

EXPOSURE COMPENSATION = 60/30 = 2 stops

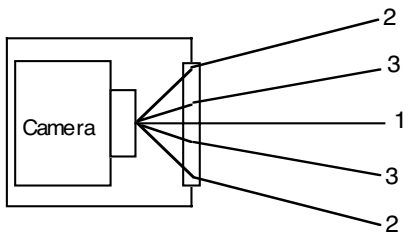
It doesn't take a genius to realise that filters have a limited effect in that the deeper you go the filter will have to be so strong that exposure times become impractical. However, if you need to photograph at depth (to photograph flourescing coral for example) filter accordingly and, if necessary, be prepared to use a tripod.

Fortunately modern digital cameras have circuits which can adjust colour balance but, in most situations, they still need additional filters to achieve the correct result.

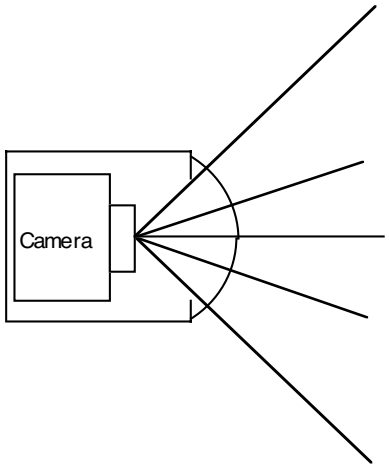
Refraction

Optically, water slows down light rays as they pass from air to water and vice versa. The effect of this is a deflection of the light path in certain circumstances and this will affect

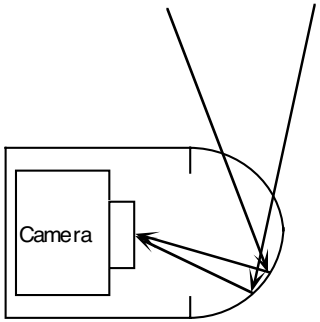
Refraction



The light rays are refracted (deflected) at the air/water interface.
The greater the angle of approach, the greater the refraction. Light rays (2) are refracted more than rays (3). Light ray (1) passes through the flat port at right angles so is not refracted, just slowed down



With a dome port, light rays are undeviated as they all pass the air/water interface at right angles. The result is a restoration of the angle of coverage of the lens



Dome ports are a simple and cost effective way of correcting most of the problems of refraction but can cause flare as light rays bounce from the inner surface of the dome and into the lens. This is internal reflection and becomes more of a problem the steeper the curve of the dome. The solution is to mask the surface of the dome not seen by the lens or use a lower profile dome

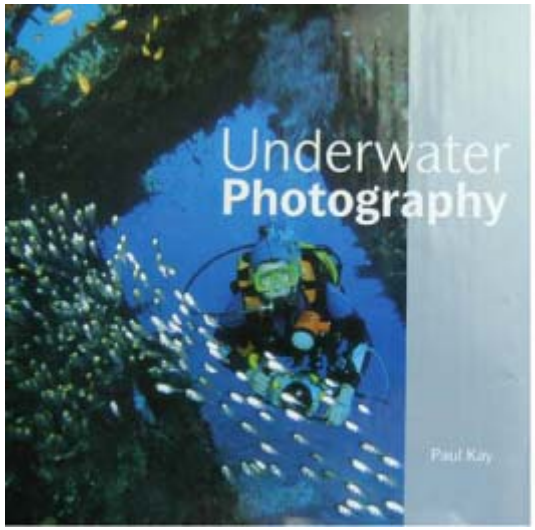
picture quality. This problem occurs when photographing behind a flat port but only becomes a real problem with wide angle lenses from 28mm and wider.

The simplest solution is to use an optical port such as a dome which attempts to keep the light waves at the air/water interface traveling in a straight line. This way, even though the light is slowed down it is not refracted. The dome is a simple and sometimes flawed method of correcting refraction and the ideal is to design a lens purely for use underwater. This is more expensive but will give better results (if the design is good!)

Peter Rowlands
peter@uwpmag.com

Book reviews

Underwater Photography by Paul Kay



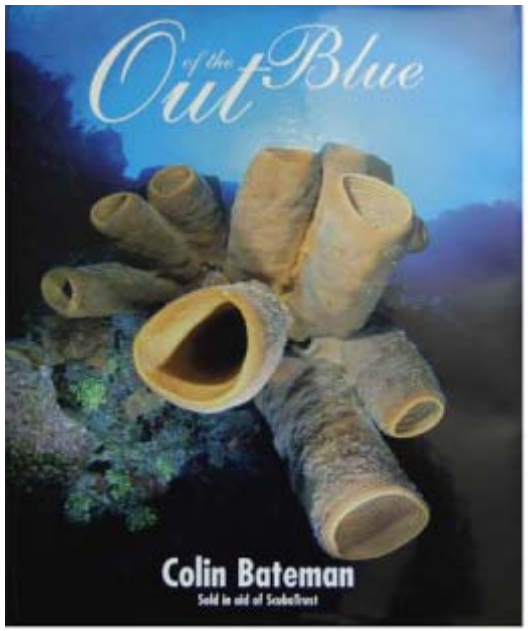
This 180 page book is a comprehensive guide to the basics of underwater photography which is competently illustrated with informative captions and detailed text.

The unfortunate point is that this book comes at a time when underwater photography is hurtling into the digital age and I suspect that the majority of people starting to take pictures underwater will do so with a digital camera. The basics of photography do not change for digital but the way images are recorded varies dramatically and there is a new learning curve to follow.

This book will undoubtedly help a film based underwater photographer to improve their expertise and knowledge base but for those in or about to enter the digital age there will be other books which will cater for your needs.

www.paulkayphotography.co.uk

Out of the blue by Colin Bateman

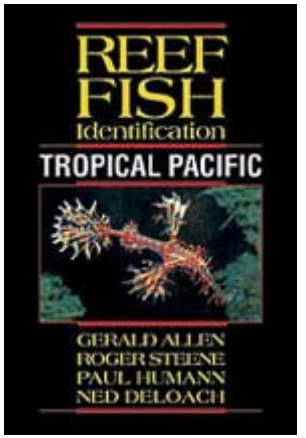


Colin Bateman died in 2002 aged just 49. His wife Lorraine decided to produce a limited edition 157 page book of his photographs to help generate funds for the ScubaTrust, a charitable organisation whose aim is to give people with physical disabilities an opportunity to experience the pleasure and excitement of snorkelling and scubadiving.

"Out of the blue" shows that Colin was a really gifted underwater photographer and in just 12 short years he took images of a very high standard.

For copies e mail Lorraine Bateman lolls@baystockctb.fsnet.co.uk or contact Ocean Optics e mail optics@oceanoptics.co.uk

Reef Fish Identification TROPICAL PACIFIC



This is a comprehensive fish identification guide covering the fish-rich reefs of the Pacific. There are 2,500 photographs of 2,000 species from four of the best marine life authors in the business. Their collaboration makes it possible for underwater naturalists to identify fishes from Thailand to Tahiti with a single, compact, easy-to-use, no-nonsense reference. 108 fish families are presented in one of 20 Identification groups based on a family's related visual or behavioral characteristics, such as LargeOval/Colorul or Sand/Burrow Dwellers.

This book is a must have for anyone diving this region. www.fishid.com

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A step by step guide to underwater video by John Boyle

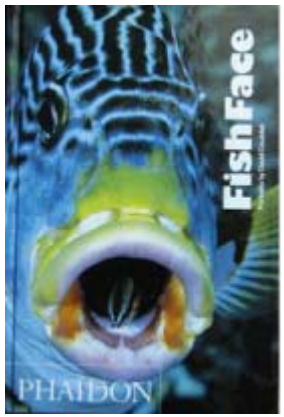
This 128 page book may seem expensive at first (£24.95) but it contains exactly what you need to know and is written from experience.

John Boyle started filming in the late 1980's and has produced over 15 programmes which have been sold to television worldwide. As a result his book is full of practical advice and details of how to make a start in what eventually became a new career for him.

In addition to the usual equipment chapters there is practical advice on filming techniques and lighting but what sets this book apart is the sections on actually planning and making a film as well as how to sell either an idea or a finished product.

The book is attractively laid out and very well illustrated. It will appeal to beginners and experienced alike and will prove a valuable source of information and inspiration. www.divemagazine.co.uk

FishFace by David Doubilet



This chunky little 400 page hardback book is full of fish portraits taken in waters all over the world by David Doubilet during his highly successful career.

As you would expect the quality and composition are excellent but it would have been nice to have more information about the subjects rather than just a name, location and date taken. In addition the small page size and binding mean that horizontal portraits printed over two pages do not display well.

The book is excellent value at £12.95

www.phaidon.com

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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Nikon F100 body only, excellent condition, box, cards etc £500. Contact Charles +44 771 262 2440, charles@dive.uk.com

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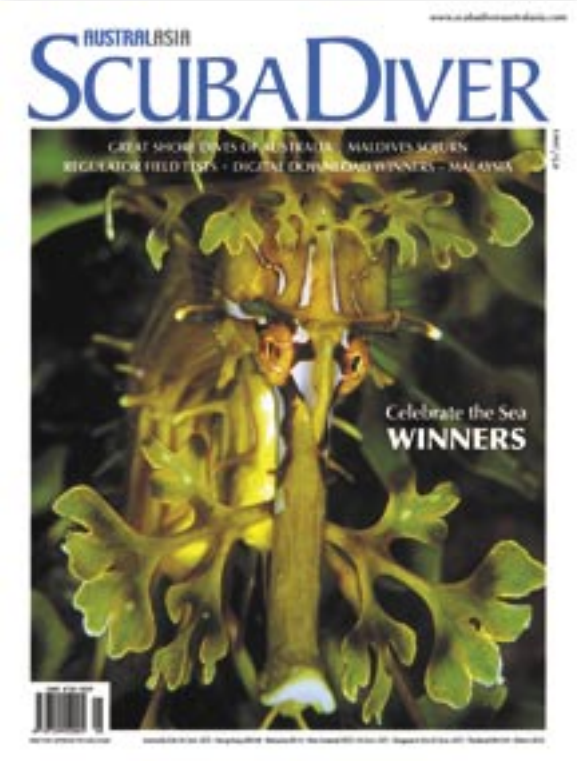

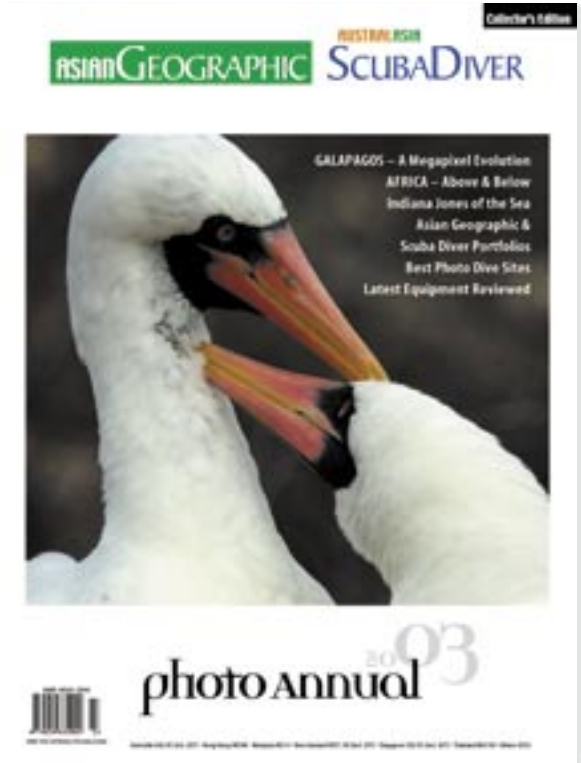

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