Underwater Photography

a web magazine

June/July 2003

Subal Nikon SB80

Subal Canon D60

Ikelite/JVC DV800

Jonah housings

Digital TTL

Bonaire

Humpback whales

Darwin sharks

Schooling fish

Ice diving

Apertures & shutter speeds

Think Digital

With digital cameras underwater photography just got easier and a whole lot more fun. No more wondering if you got the shot, view it instantly on the camera's LCD, don't like it, delete it and take another. At the end of your dive you only have images you want to print, publish or email. No film to purchase or process.

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 tray and handle mounts, digital Substrobes, DS Sensors for full TTL automation, or an EV Controller that gives 10 power settings in 1/2 stop increments and a choice of arm systems.

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

www.ikelite.com

DS125 Substrobe w/ diffuser

DS50 Substrobe

DB Arm system

EV Controller

Tray & Dual Handles

ikelite usa
underwater systems
50 W 33rd Street
Indianapolis, IN 46208
317-923-4523
www.ikelite.com

Digital Still Housings for:

Canon G1, G2, G3

Kodak DC-220, DC-260, DC-265, DC-290

Nikon Coolpix 800, 880, 885, 950, 990, 995, 4300, 4500, 5000, 5700

Olympus C-700, C-720, C-730, C-4040, C-4000, C-3040, C3030, C3020, C3000, C2040, C-5050

Sony DSC-S70, DSC-S75, DSC-S85, DSC-F707, DSC-F717 and many Mavica models

Compact Digital Housings for:

Canon S100, S110 Digital Elph, Digital Ixus, Ixus V

Nikon Coolpix 2000, 2100, 3100

Olympus C-50, D-230, D-360, D-340L, D-320L, D-220L, D-340R, D-380, C-120

D-SLR Housings for:

Canon D30, D60, 10D

Fuji S1 Pro, S2 Pro

Nikon D100

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a web magazine
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e mail uwp@uwpmag.com

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with Mark Webster

by Tom Wilson

by Alex Mustard

by Scott Portelli

Cover photo by Alex Mustard

with Martin Edge

by Jonathan Bird

by Peter Rowlands

Lobby to increase baggage allowance

As an underwater photographer who hopefully can travel abroad to dive, you won't need reminding of the inconsistent policies when it comes to baggage allowance.

Recent events have quite rightly called for a tightening of security but it seems some airlines are using this as an excuse to impose draconian restrictions on air travellers.

SITA (Scuba Industries Trade Association) is a UK based dive trade organisation which is lobbying airlines with a view to getting them to increase baggage allowance for divers travelling overseas.

Their aim is to stress the number of divers travelling to give credence to this and would appreciate an e mail from you simply stating your postcode/zip code to ensure your legitimacy.

It won't take a second to do and you could be helping make dive travel much easier in the future.

E mail

pat@sita.org.uk

Subject:

Increase divers baggage allowance

Message

Your postcode.

No. Don't write 'Your postcode'. Write YOUR postcode.....

Do it today and fly away with more tomorrow!

Editorial

Equipment wanted to review and reviewers wanted

As a specialist magazine with a worldwide readership UwP should be an invaluable medium for underwater photography equipment manufacturers to have their equipment reviewed.

Yet the strange thing is that nearly all of the equipment reviews we have included over the years have been instigated by us. We have not been approached by any equipment manufacturer.

I don't know why this is. We're not unapproachable, we're usually quite friendly but most of all we want equipment to review.

So hopefully to redress the balance and make for even more interesting reading in UwP, this is my plea to any underwater photography manufacturers out there. If you have a new product you would like reviewed, please get in touch and we'll be happy to help out.

Finally if any readers fancy writing an equipment review about your latest acquisition, please get in touch.

The underwater photographic community is small and UwP is here to help you promote your business.

Thank you for subscribing

Following the launch of our .com web site we have received a great response from subscribers to UwP.

The feedback you have given us will help us to steer UwP in the direction you want.

Your comments gave some interesting facts. Here are some of the results:

Photo Tips 72%
Basics & Principles 65%
Digital Cameras 64%
Housed Cameras 60%
Underwater Cameras 56%
Marine Life 54%
Destinations 48%
Film Cameras 44%
Liveaboard Diving 40%
Repair/Maintenance 37%
Land-Based Diving 34%
Photo Classes 33%
Photographer Profiles 28%

It wasn't a surprise that Photo tips, Basics and Digital cameras were at the top of the list but a low vote for Photographer profiles did surprise me. Personally I like to know how others operate but what do I know?

It will take time to comply with your wishes but, as a starter, there's an article on Shutter speeds and apertures in this issue so I am listening!

For those who haven't found the time to subscribe, just go to: NOTE: dashed lines are links!
www.uwpmag.com/subscribe

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What links these sites?

OCEAN LEISURE

London's premier watersports centre
11 - 14 Northumberland Avenue
London, WC2N 5AQ
Tel: 020 7930 5050
Fax: 020 7930 3032
email:info@oceanleisure.co.uk

News, Travel & events

SeaSpace Show June 7 & 8, 2003

The SeaSpace Expo, sponsored by the Houston Underwater Club, is coming to the Reliant Arena, next to the Reliant Astrodome in Houston, Texas.

On June 7 & 8, 2003, the show features an Exhibit Hall; Live and Silent Auctions; a Gallery of Underwater Photography; and a special presentation of the award-winning film "Ocean Oasis."

Seminars and Workshops of special interest to underwater photographers include: Jack & Sue Drafahl, two workshops, "Techniques for Improving your Underwater Photography" & "Digital Imaging for the Underwater Photographer"; James Wiseman, "Slide Shows in the Digital Age"; Steffan Schulz, "Digital Video Production - Editing & Shooting for the Edit" and more.

For more information, visit **www.seaspace.org**

Coral spawning in Grand Cayman with Alex Mustard

UwP contributor, marine biologist and underwater photographer Dr Alex Mustard is leading a trip to Grand Cayman from 1st - 12th September 2004 to photograph spawning coral.

The trip is timed to coincide with mass coral spawning, but you should also witness spawning of many of the reef fish and with luck some other invertebrates.

This is a trip for marine life enthusiasts, but the unusual photographic opportunities will also appeal to both underwater photographers and videographers.

The trip will be based at the east end of the island and Alex will be on hand to help with his extensive knowledge of this marine phenomenon.

For further details, contact Divequest. Telephone: 01254-826322 or e-mail divers@divequest.co.uk

website: **www.divequest.co.uk**

(don't forget to mention UwP!)

Divequest expedition to Dominica with Martin Edge

Martin Edge is leading an expedition to Dominica in January 2004.

It will be based at the Castle Comfort Dive Lodge close to some of the best diving in Dominica.

The expedition will be for 7 nights from 26th January 2004 and prices are from £1599.

For further details, contact Divequest. Telephone: 01254-826322 or e-mail divers@divequest.co.uk

website: **www.divequest.co.uk**

(don't forget to mention UwP!)

Dive Manado and save up to 25%

(Photo - Steve Smithson)

Buddy-up between 1 June and 31 July 2003 and save up to 25% on the price of your accommodation and your diving with Eco Divers.

Based in the Tasik Ria Resort, the diving takes in the five islands and over 20 peaceful dive sites of the Bunaken National Marine Park.

Here's how: Invite your buddy to dive the marine-rich waters of Manado. Book into the comfort of the Tasik Ria Resort. Share a room, both dive or take a course with Eco Divers, Manado. Enjoy a 25% saving on your accommodation and diving

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

(don't forget to mention UwP!)

The World Festival of Underwater Pictures, Antibes Juan les Pins, Antibes in association with OceanNEnvironment & Scuba Diver Australasia Magazine present

'Celebrate the Sea Festival' 14-17 August 2003

It is now going to biggest and the most exciting festival of the sea event ever stage in the Asia Pacific – the festival is now confirmed to be stage in conjunction with the ASEAN Holiday Tourism EXPO 2003 at MID VALLEY Exhibition Centre Kuala Lumpur – Malaysia biggest shopping complex. Celebrate the Sea's static exhibition will share the same hall with Asia Overland Services which will be coordinating the eco and adventure travel exhibitors. The two other halls will feature nature and general tourism product of ASEAN countries and Malaysia. In co-operation with MTS Tourism Planners – organizer of the ASEAN Holiday Tourism EXPO 2003, local and international media partners, we anticipate more than 50,000 visitors through the 3 day static exhibition. This inaugural event is endorsed and supported by the organizers of the Antibes reputed to be the Cannes of underwater films for the last 30 years.

'Celebrate the Sea Festival' is comprised of:

Static exhibition

15 – 17 August; Mid Valley Exhibition Centre: featuring top dive operators in Malaysia, Indonesia, underwater imaging, environmental agencies and display of prints in competitions. Entry is free.

Films & Slides Presentation

15 – 17 August; Hall 10, Golden Screen Cinema, Function room at Cititel & Mid Valley Exhibition Centre: feature films and slides in competition, presentation and talks by David Doubilet, Emory Kristoff, Michael AW, Dr Carden Wallace, Matthew Maer, Andrew Wight, Jacqui Stanley, Bernie Chowdhury, Michael Wong, Daniel Mercier and Pierre Cotton. Entry by Master Pass

The highlights of the festival are the showing of the latest in marine feature documentaries, non-stop screening of films prints in competition, slide show competition, children's painting competition, 'Celebrate the Sea' painting contest and static exhibition of marine arts & craft, diving in South East Asia & Innovative diving equipment.

The core of the festival are the underwater imagery competitions; underwater film makers, and photographers are invited to send in their entries to compete for over USD$ 50,000 prize money, holiday and equipment prizes. In addition to gold, silver and bronze medallions, ROLEX will once again sponsor the David Doubilet Award for Excellence in Underwater Photography and the Stan Waterman Award for Excellence in Underwater documentary. Documentaries and images may be captured from any location. To enter the competitions — www.celebratethesea.oneocean.com

New site for digital video cameramen

Cliff Etzel has launched a new web site for underwater digital video users.

www.uwdv.com is a comparatively new site so it is just finding its way but is developing rapidly and should, in time, become a valuable resource for underwater videographers.

Check it out.
www.uwdv.com

Jim Church School of Underwater Photography Liveaboard Photo Courses

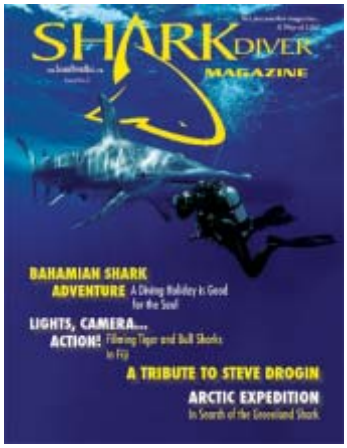
In accordance with Jim's wishes, close friends and associates for 15 years, Mike Mesgleski and Mike Haber will host the "Jim Church School of Underwater Photography" classes aboard Aggressor Fleet liveaboards in 2003 and 2004.

The "Mikes" operate Underwater Camera Repair in Miami, Florida. Started in 1988, they currently service and repair Sea & Sea, Nikonos, Seacam & Seacam & Aquatica underwater photographic systems for photographers around the world.

Their book and video ER - Emergency Repair for the Nikonos V Camera, takes you step-by-step through the inspection, dismantling, drying, reassembly & testing of a flooded Nikonos V camera.

For more information visit:
www.underwatercamerarepair.com
or
www.jimchurchphoto.com

New shark diving magazine



This magazine has been created to fill a void. The shark diving industry has grown into a mainstream eco-tourism attraction worldwide. More dive shops have caught on to the idea that adding an educational shark dive to their itinerary will attract more people and much needed revenue to the economy.

Subscription rates are
1 Year USA $19.95. 2 Year USA . $24.95
1 Year Canada . $29.95 2 Year Canada $44.95
1 Year International. $39.95. 2 Year International. $64.95.

For further details, contact:
Shark Diver Magazine
www.sharkdivermag.com

New products

Ikelite/JVC video package

This package combines advanced digital imaging of a JVC DV800 digital camcorder with a very compact and easy to use Ikelite #6012.32 CyberMarine Video Housing at a realistic price of $1600.

The delightful size housing and camera allows you to capture the moment with the latest digital video technology, including digital stills that can be printed or sent as electronic mail.

The housing is molded in clear polycarbonate, and includes an optical glass lens port with removable UR Pro Filter. Controls for power on/ off, record start/stop, zoom and snapshot.

Size is 10.5" wide with removable handle bar attached, 7.5" tall with removable base attached, and 10" long including the port.

Optional Inon UWL-100 wide angle lens or #58070 Sea & Sea conversion wide lens attach directly to the port.

The GR-DV800 makes it easy to get a grip on Quality and Creativity. The 1.33 Megapixel CCD for Superior Video (540 Lines of resolution) and Still Pictures (1600 x 1200), 123k-pixel 3.5" LCD, 300x digital zoom with Spline Interpolation, Power-Linked operation so you are ready to shoot, a powerful software package and much more. The GR-DV800 will allow you to explore the imagination. For full details

Click to visit **www.ikelite.com**

Light & Motion trade-in offer

Light & Motion has got a deal for you!

Trade in your old video housing (any video housing, Light & Motion or other) and they'll give you cash towards a new Light & Motion underwater video system.

The more you buy the more credit you receive. Here is how it works:

Package for Package - Trade in ANY video housing system worth $1000.00 or more, and they'll give you a $1000.00 credit towards the purchase of any new Light & Motion Travel Package and Monitor Back.

Housing for Housing - Trade in ANY solo video housing and they'll give you a $400.00 credit towards the purchase of any Light & Motion solo video housing.

For more details send them an email at **sales@lmindustries.com or call at 831-645-1525 or contact your local Light & Motion dealer. www.uwimaging.com**

Jonah housings in the USA

Ocean Brite Systems and Jonah Housings are proud to announce the first shipments of the Jonah Underwater Digital Camera Housings designed to fit the Nikon D-100 Camera._ These fine new housings carry the distinctive high quality design characteristics of the rest of the Jonah line, are depth rated to 300 feet and include the Company's 2-year warranty

Digital Still Cameras offer the best in capabilities for underwater picture taking and in keeping with this concept the Jonah Housings are designed to be the best and most affordable Housings available for these Digital Cameras.

Ocean Brite Systems is the exclusive California Dealer for the Jonah Housing line that includes Housings for the Canon D60 & 10D (Coming in August 2003) and the Nikon SB80DX Flash as well as the Canon 550EX flash. They also offer a complete line of affordable ports for both wide angle and macro picture opportunities.

Full information is available on their web site located at: (NOTE dashed lines enclose links.)

www.oceanbrite.com/ND100.htm

Check them out in person at the Seaspace Show in Houston, Texas 6/7 & 6/8 or The Scuba Show in Long Beach, California 6/21 & 6/22.

Inon 67 adaptor for Canon digital housings

All of the recent Olympus range of digital still camera housings come with an aluminium port surround with filter threads to attach accessory lenses for close up and wide angle.

This makes them capable of becoming a true system outfit capable of capturing a wide range of subjects.

Canon, on the other hand, do not provide this facility on most of their housings but those nice people at Inon have come up with a solution.

The Inon 67 adaptor is a well machined accessory which attaches to the base tripod screw of the housing and takes an adaptor which fits over the lens port.

The front of this adaptor has a 67mm thread for attaching their close up and wide angle lenses and they also produce another version which has a bayonet fitting instead which takes their bayonet fitting lenses.

For more in formation contact your local Inon dealer or visit www.inon.co.jp.

Subal D60 housing for Canon EOS D60 / EOS D30 Digital

The SUBAL D60 extends the line of top level housings for digital SLR cameras to include cameras of Canon EOS series. It follows the successful and universally approved design strategy of the new generation of underwater housings.

The ergonomic positioning of all important controls provides comfortable access to the camera's functions. The camera is mounted on a saddle providing precise positioning inside the housing - installation errors are nearly impossible. A large O-ring provides maximum security as does the trustworthy Subal Quick Lock latching system, which makes it virtually impossible to close the lid if the O-ring is not in its groove.

Threaded holes in the base and in the accessory shoe allow mounting of brackets or pilot lights etc. The housing incorporates an excellent viewfinder optic for full frame viewing.

There are controls for:

Shutter Release, Power On-Off, Front and Rear Main Dial, Manual Focus/Zoom, Mode Dial, Push buttons for: Metering System/Flash Power Compensation, AF/WB Selector, Menu, Info, Jump, Index, Playback, Delete, AE-Lock, Focus Area Selector, Set.

The housings are machined from a solid block of aluminium and hard anodised. All parts manufactured from anodized and hard-coated aluminium, acid proof stainless steel or high quality plastics.

W x H x D:
Approx. 240 x 170 x 140 mm (w/o Port and handles)

Flash connector: 2 Flash connectors: Optionally Nikonos V, IKELITE or Subtronic S6 sockets. TTL mode available ONLY with S6 socket and original Canon flash gun!
Flash arm mounts: Two 25mm T-plates, TLC- or Ultralight bases optional
Max Depth rating: 70 m
Weight:
Approx. 2,3 kg (w/o Port and accessories)
Buoyancy:
All but neutral (dependant on port and accessories used).
For further details contact Subal **www.subal.com** or if you are in the UK, contact Ocean Optics **www.oceanoptics.co.uk**

Subal SN80-D housing

Subal has released the SN80-D, a housing for the Nikon SB80DX flash. Complete with flash and batteries, it weighs 1.64kg on land and is slightly positively buoyant in water. The housing is machined delrin and feels very robust.

All of the controls except test flash are available and these include on/off, mode,aperture up/down, zoom in out. These controls and the flash's LCD panel are viewable through a large, elegantly machined perspex window.

The SN-80D with the Nikon SB80-DX is suitable for lenses of 14mm (with built-in diffuser) or longer focal length up to 105mm.

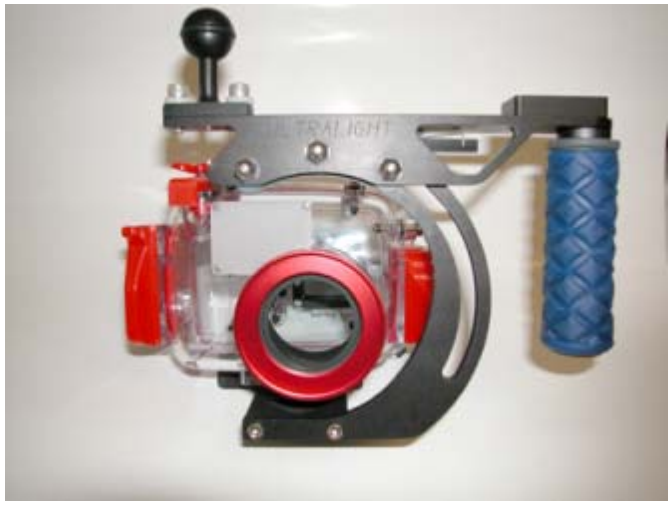
It works directly with Nikonos style Nikon TTL cameras and, with suitable housing hotshoes, can support full D-TTL underwater with cameras such as the Nikon D100.

There is a mounting shoe on the base with M8 and 3/8th W threads and a top M6 mounting shoe for attaching an aiming light.

The SN80-D housing is 109mm in diameter and 22omm long.

For further details, visit www.subal.com to find your nearest dealer or if you are in the UK, contact Ocean Optics www.oceanoptics.co.uk

Ultralight digital pivot tray



As the digital age of photography takes off in leaps and bounds, Ultralight Control Systems keeps up with new products that allow the photographer to use these digital housings underwater with greater ease.

Ultralight has designed a pivot for the Tetra digital housing for the Olympus cameras and the Nikon Coolpix cameras. Customers with Ultralight arms from prior housings or cameras will be able to continue to use these with the new pivots.

Olympus housings for their 4040 and 5050 cameras will also work on these pivots. In addition a single or double tray will also work with these housings.

Also other plastic housings made by other manufacturers, ie Sony, Canon will work on Ultralights trays and pivots.

Most of the larger SLR housings will be able to use Ultralights arms and adapters.

Please feel free to drop them a note to check to see what they have for your camera housing or visit their website at:

www.ulcs.com

See the shop before you buy!

Underwater Photo-Tech has a neat feature on their web site where you can pan along a 360° picture of their shop.

They also have an online store and comprehensive details of their sales and service facilities.

Underwater Photo-Tech,
16 Manning Street, Suite 104,
Derry, NH 03038
Phone: (603) 432-1997
Fax: (603) 432-4702
Hours:
Mon.-Fri.:9:00am - 5:30pm EST
Saturday 9am to 1pm EST

www.uwphoto.com

New underwater photography shop in Kansas City

Underwater Camera Pros has opened up a new shop specialising in underwater photography equipment in Kansas City.

They are authorized dealers for Light & Motion, Sea & Sea, Ikelite, UltraLight Control Systems, and carry a full line of Olympus Underwater Products.

Underwater Camera Pros also sponsor http://www.digitaldiver.net

Scuba Adventures
5100 NE Chouteau Trfwy.
Kansas City, MO 64119
Tel 816 455 1492 . Fax 816.455.2398

www.uwcp.com

Past Times by Steve Warren

Aquamatic 11

La Spirotechnique is an illustrious name. Originally set up as the diving equipment manufacturing arm of the Air L'iquide group to build and market Cousteau - Gagnan Aqualungs, the French company has many innovations to its credit.

One of Spiros most revered products was the Calypsophot developed for the Cousteau divers. Later the rights to this camera were bought by Nikon and the Nikonos line was established and became legend.

In the late seventies Spiro introduced another underwater canera aimed at the mass market. The Aquamatic used 126 cartridge film that yielded a square picture. Exercising extreme caution given the camera would be used by divers, they made it largely free flooding. Only the film chamber remained dry. Even the shutter got wet, reducing the damage that would be done when the inevitable leaks occurred. Internal weights overcame the Aquamatics natural tendency to float. Two shutter speeds and four apertures provided for exposure control. Magicube disposable bulbs permitted four flash pictures to be taken before the cube had to be replaced.

A neat touch is the choice of two close up lenses mounted in a track on the camera front. These made the camera more versatile

yet compact and fast to shoot.

Spiro developed a line of accessories including an off camera bulb flash, additional close up lenses and a back to allow the use of 35mm film. It was depth rated to 90m.

Aquamatics sold for around £80.00. They are rarely offered on the used market.

Steve Warren

Nikon Coolpix 5000 and UK Germany Housing. Only the Price is Understated.

It isn't easy to overstate the attraction of the Coolpix 5000 and UK Germany housing outfit Ocean Optics have put together. For the digital enthusiast it's one of the most versatile systems available at any price.

The Nikon Coolpix 5000 is one of the best specified digital cameras around. 5 Megapixels with recording to TIFF for high quality enlargements you can be proud of. Automated features to get you shooting successfully from the get go with full manual overrides for creative control when you need it, so you won't be limited as your experience grows. It even shoots a minutes video. Superb 28 - 85mm (35mm equivalent) zoom range with built in macro focusing to 2cm for stunning close ups. Optional 19 to 35mm wide angle zoom that's the perfect general purpose underwater lens. There's even a full frame or circular fisheye for sweeping undersea vistas and dramatic wreck portfolios.

UK Germany's housing is custom built to take full advantage of the 5000s capabilities. It's built from sturdy aluminium for a long working life under tough conditions. Yet it is more compact and lighter than many plastic competitors. So its great for overseas trips - camera, housing and T Flash weigh under 5kg, so it can travel in your hand luggage.

Controls are placed to maximise ease of use. So no fumbling and no missed shots. A Nikonos flash socket is standard, so you can choose from the widest possible range of strobes. Interchangeable flat and dome ports for standard and wide angle lenses, with the option of adding the Nexus wet lens for super-macro photography.

And best of all, our special package deal lets you shoot like a pro for an amateur price.

Call now for details. Strictly limited stocks.

Ocean Optics

13 Northumberland Avenue, London WC2N 5AQ
Tel 44 (0)20 7930 8408 Fax 44 (0)20 7839 6148
E mail optics@oceanoptics.co.uk
www.oceanoptics.co.uk

Bonaire's Diving Freedom

by Mark Webster

Underwater photographers are quite a fussy species and we need very particular conditions and opportunities to bring out the best in us. The most crucial elements in the equation is where and how we dive as the correct combination produces relaxation and productivity, whilst the wrong mix will lead to stress and disappointment. Deciding where to go is perhaps easier than the how, but I know many photographers who have made the mistake joining a group of 'normal' divers or who have selected a dive centre or boat who are not sympathetic to their needs. If you can join or form a group of like minded photographers then you are in a better position to dictate your needs to a dive operator, but if you are in a smaller group or travelling on your own then you need to seek out a location which has a relaxed attitude to diving procedures. I am of course referring to that taboo technique that many of us enjoy most, that of solo diving!

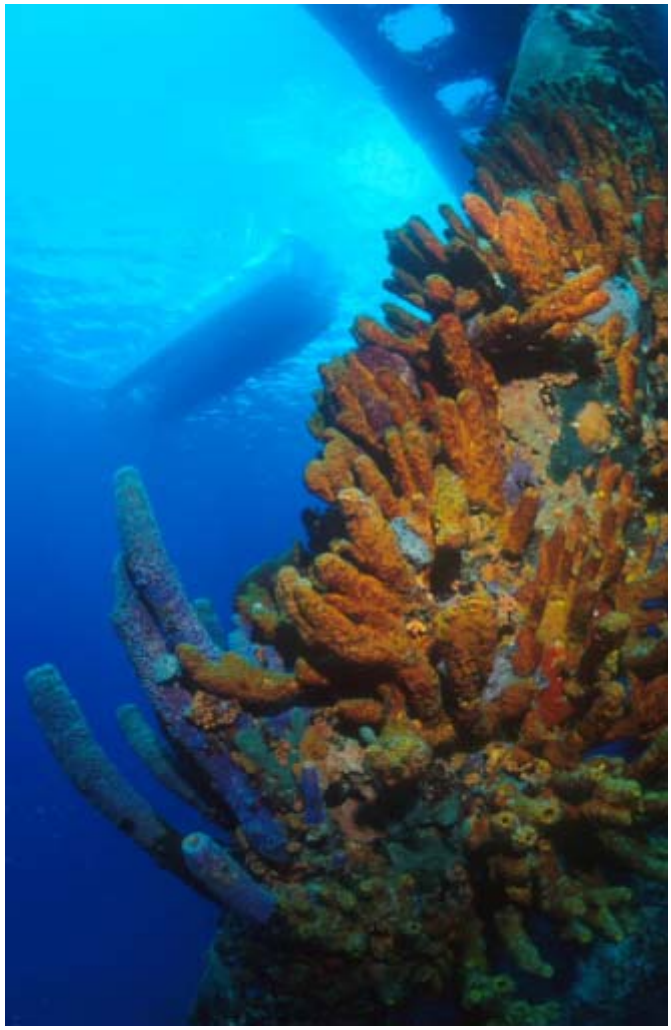
I recently made a return trip to Bonaire with a group of photographers, a location which we switched to at short notice following the terrorist problems in the Far East and the resulting Foreign Office travel advice. Coming back reminded me just how well this location suits our needs and I thought readers might be interested in a reminder or an introduction if you have not tried diving here.

Bonaire is one of the three islands that make up the Dutch Leeward group of Aruba, Bonaire and Curacao, often called the ABC islands. They lie right at the southern end of the Caribbean between 50-70 miles from the coast of Venezuela which places them outside the seasonal hurricane belt which can plague the islands further north. Bonaire itself is a

The Toucan dive centre (at the Plaza Resort) is perhaps the biggest on the island. It ran extremely efficiently and even had an outpost at our bungalow resort to enable you to collect tanks for beach diving without going to the main resort. Nikon F90X, 20-200 zoom, Elitechrome EBX, f11 @ 1/125th.

Green turtle - Turtles are seen frequently at the northern end of the island particularly in the early morning when they are starting the day with breakfast. They show no fear of divers and are very patient with photographers struggling to keep pace and arrange their camera equipment for a shot. Nikon F90X, Subal housing, 18-35mm zoom, two Inon Z-220's, Elitechrome EBX, f11 @ 1/60th.

Yellow long snout seahorse - These yellow seahorses are surprisingly well camouflaged and do not look as bright as this in natural light. Nikon F90X, Subal housing, 105mm micro, Inon Quad flash, Velvia, f11 @ 1/125th.



Sponges Salt Pier - The supporting legs of the Salt Pier complex are encrusted with sponges and invertebrate life and we found we could dive here with a different lens each time and still find new subjects. Nikon F90X, Subal housing, 16mm fish eye, two Inon Z-220's, Elitechrome EBX, f11 @ 1/60th.

boomerang shaped island lying roughly north to south and only 24 miles long and 5 miles across at its widest point. This orientation puts the island directly across the path of the trade winds from the east and so provides a year round lee shore on the western side. Mid way down the island nestled only a mile or so from this lee shore is the tiny uninhabited island of Klien Bonaire. The coral reefs on the western edge of the main island are never more than 15-30m from the shore and Klien Bonaire is only a short run by boat. The entire coast and neighbouring island is a protected marine park and you can choose to dive easily from the beach or from a variety of purpose designed boats operated by a wide range of diving centres.

From a photographers viewpoint perhaps the most important feature is that most of the diving centres operate a policy called 'diving freedom'. This means that for beach diving you can literally collect a tank at any time of day or night and, using your hire car, go diving all by yourself at any one of the numerous beach dive sites along the coast. Each dive centre requires you to attend a Marine Park briefing before you start, where they may recommend buddy diving, but the choice is most definitely yours and you will not be hassled by horrified dive guides. Boat diving presents few problems either. If you are part of a mixed group then the dive master will lead the 'normal' divers on a tour of the site and leave you to operate the 'same ocean' buddy system with your fellow photographers - in short they seem to understand us! This approach was pioneered by Captain Don's Habitat but now seems to have been adopted by almost all the dive centres.

The marine park was established before the expansion of diver traffic and therefore has managed to preserve the reefs from some of the damaging practices which have plagued other parts of the Caribbean. The hard and soft corals are lush and healthy and fish life profuse. A ban on fishing means that most fish are inquisitive rather than wary which is very encouraging if you are a photographer. Beach diving is particularly attractive as you can often have the site to yourself and also have the freedom to dive a site repetitively to pursue a particular subject. All the dive sites have a mooring buoy for the dive boats and all the operators observe a one boat per site policy, which means that sites are never crowded and you will not see the long strings of dive boats which some Red Sea locations are now famed for.

In addition to the reef dives there is a intentionally sunk wreck (the Hilma Hooker), which is slowly being colonised by the reef species, and two pier dives, one at the Town Pier in the centre of the capital Kralendijk and the other at the salt loading pier in the south of the island. Boat traffic rarely precludes diving at the piers and they are both stuffed full of macro life and Salt Pier in particular attracts large schools of fish. Bonaire is often advertised as the macro capital of the Caribbean and, whilst many may dispute that claim, the reefs certainly do have numerous subjects to keep you busy with exotics like sea horses and frog fish to keep you looking hard.

Although the majority of the island's tourist industry is dedicated to the visiting diver, there are other attractions by day and night if the diving becomes too much for you. However, don't expect a cosmopolitan night life here, although there is a night club and casino in the capital entertainment is largely relaxed and low key. There are a wide variety of restaurants to choose from - fast food to sea food - but some are expensive and you can all too easily run up a nasty shock on your credit card bill! The capital of Kralendijk is the size of a small seaside town

1000 Steps dive site - Bonaire boasts it has the best beach diving in the Caribbean and it is certainly some of the nicest I have seen. This site is unusual in that the access road is not at sea level but the trek down these steps (only 77 in reality) is worth it. Nikon F90X, 20-200 zoom, Elitechrome EBX, f11 @ 1/125th.

Slender file fish - These tiny fish are only 2-3cm long and hide amongst the branching gorgonians at the top of the reef. They are very camera shy and constantly change colour as they move from branch to branch with a very fast move every few minutes when they effectively disappear and your search begins again. Nikon F90X, Subal housing, 105mm micro, Inon Quad flash, Velvia, f11 @ 1/125th.

Hilma Hooker propeller - The Hilma Hooker is a former drug running coaster sunk for the benefit of visiting divers. It is still very intact and is slowly being populated by sponges and reef species. Nikon F90X, Subal housing, 16mm fish eye, two Inon Z-220's, Elitechrome EBX, f11 @ 1/60th.

Hilma Hooker amidships - The shape of the wreck superstructure and colour of the sponges make ideal frames for diver photography. Nikon F90X, Subal housing, 16mm fish eye, two Inon Z-220's, Elitechrome EBX, f8 @ 1/30th.

in the UK, but definitely has the imprint of Dutch colonialism on it particularly in its brightly coloured architecture. There is a range of shops from supermarkets to high chic boutiques, but most of the shops are geared to the tourist souvenir market aimed towards American tastes.

If the pace of the diving becomes wearing or you are staying for two weeks then take the opportunity to investigate a little of Bonaire's other attractions. There are two other nature sanctuaries to explore on Bonaire, the Washington-Slagbaai National Park at the northern end and the flamingo reserve at the southern end. In fact the bird population is very varied and prodigious and, surprisingly to divers, some tourists visit only with bird watching in mind! The northern end of the island is surprisingly rugged and hilly with lush vegetation and hides a number of secluded beaches and coves ideal for a lazy picnic watching the island's flamingos and crash diving pelicans grabbing their lunch. At the southern end of the island you will find the salt pans, which is what attracts the flamingos to the breeding sanctuary, and evidence of the history of the island's use of slave labour to harvest the salt. Tiny slave workers huts, which dot the coastline, are a harsh reminder of the common use of slaves throughout the Caribbean.

The choice of accommodation includes traditional hotel rooms, studios, apartments and small villas and cottages and you can easily purchase a diving package from one of the centres if your accommodation is not linked. Many divers opt for self catering as this increases your diving flexibility and allows you to economise on catering if needed.

There are a variety of ways to travel to Bonaire, all of which require at least one change of aircraft en-route from Europe. KLM fly direct from Amsterdam on a daily basis now or you can fly with a number of carriers through Miami and onward with the local ALM airline. There are alternative routes via Lisbon in Portugal, Caracas in Venezuela or several other 'gateway' cities in the USA. The good news is that most transatlantic flights offer generous baggage allowances, although buying a

Vase sponge and diver - The reefs are largely undamaged by diver traffic and you will find all the typical Caribbean species of sponge and corals here. Nikon F90X, Subal housing, 18-35mm zoom, two Inon Z-220's,

Chain moray eel - The fissures of the reef are full of interesting subjects for a macro lens such as this brightly coloured chain moray eel. Nikon F90X, Subal housing, 105mm micro, Inon Quad flash, Velvia, f11 @ 1/60th.

package through a UK travel agent may restrict this through the ticket price. If you travel via Miami it is best to collect your luggage and re-check it for the onward flight as bags often go astray here, although it is a good policy always to check that you bags have been loaded when transferring flights.

Bonaire will measure up to most photographers requirements and, although you won't see much big fish action here, there are a host of other species here to keep you more than busy for a week or two. Successful photographic trips are all down to the planning, flexibility on location and the opportunity to dive when you wish and Bonaire will easily accommodate most of this.

Information:

Currency:

Local currency is the NAF - Netherlands Antilles Guilder - but US dollars are accepted everywhere as are all major credit cards. You can also draw cash from a number of ATM's and banks.

Language:

The official language is Dutch but most locals peak Papiamento, a mixture of several colonial languages. Most locals also speak English well.

Voltage:

110-120v 50hz is standard, but can surge. Bring a transformer to boost and smooth the current to 240v or charge batteries at the dive centre.

Water:

All tap water on the island is produced by a desalination plant just north of Kralendijk. The quality is excellent and can be drunk from the tap without a worry.

Medical:

Yellow head jaw fish - These fish hover above their burrows to feed and disappear when they feel threatened. A slow approach helps, but using a ring flash with these fish for the first time enabled me to get much closer than previously. Nikon F90X, Subal housing, 105mm micro, Inon Quad flash, Velvia, f11 @ 1/125th.

Saucer eye snappers - Salt Pier attracts some of the biggest schools of fish you will find around the island. They are very tolerant of persistent photographers and will gladly pose for you until the shot is right. Nikon F90X, Subal housing, 18-35mm zoom, two Inon Z-220's, Elitechrome EBX, f11 @ 1/60th.

The main well equipped hospital is St. Francis Hospital. There are also local doctors and medical centres.

Recompression:

A recompression chamber is situated at St. Francis Hospital.

Climate:

Truly tropical. Temperature a steady 80-85° with a constant trade wind from the east which get somewhat stronger during July and August. Rainfall is 10-15" per year in short showers generally in the winter months.

Water Temperature:

Between 78-84°, warm enough for a shorty or dive skin if you swim about during your dives. For photographers I recommend a 3-5mm wet suit. Visibility is normally around 30m.

Tourism Corporation of Bonaire - www.infobonaire.com

Oonadivers - Tel. 01323 648924 www.oonasdivers.com

Plaza Resort - www.plazaresortbonaire.com

Lagoen Hill Bungalows - www.lagoenhill.com

Toucan Diving - www.toucandiving.com

Captain Don's Habitat - www.habitatresorts.com

Mark Webster

Mark is the author of 'The Art and Technique of Underwater Photography' (published by Fountain Press) and Diving and Snorkelling Belize (Lonely Planet) and hosts regular workshops both overseas and in the UK. For further details visit Mark's website at www.photec.co.uk

Cold as ice

by Tom Wilson

Cold, dark and a little scary: while these words have likely been used to describe many an ex-spouse, we're here to talk about ice diving. For those of you in the tropics blessed with seemingly limitless visibility, myriad fish species, and water the temperature people bathe in, this is not your average day at the beach.

I'm sure there are many areas around the world where ice diving is as normal as any other form of diving, and the Southern Ontario region of Canada is one of them. Sure, most of the diving here is done during the summer when temperatures reach 30 degrees Celsius, but not everyone is blessed with having their own sled dog team around here (to be honest, I don't know anyone with one, despite what some people like to tell visiting American tourists) and ya hafta do SOMETHING in the winter, so why not ice dive?

Right behind "Are you insane?", the question we hear the most is "Isn't it cold?", and the answer is not as easy as you might think. We tell eager ice diving students, "It's not the cold, it's being cold which is uncomfortable." It seems to make them feel better about entering water which is as close to freezing as socks are to feet. What it means is that just like when you're above water on even the coldest winter day, if you dress appropriately for the conditions it's not a problem. Drysuits are common but most people do their first ice dives in a 6mm wetsuit, filled with warm water before their dive begins to

The Nikonos V is well suited to under-ice photography due to itís small size, exceptional optics and simplistic controls which can be manipulated even with chilled fingers. Threesome ice diving around here is performed using a safety line attached to each diver which makes navigation a snap for even the most directionally challenged. Nikon F4, 24-120 lens at f8 and 1/125 sec.

Using a motorized auger is the easiest way to start creating the hole for ice diving, which is cut in a triangle for strength, safety, and ease of access. Nikon F4, 80-200 lens at f4 and 1/250.

Green tinted water makes the blue sky stand out even more when you look up through the triangular hole. Patches of snow on the ice lead to dark areas which can cover miles. Nikonos V with 15 mm lens at f4 and 1/125 sec. on Fuji 400 print film.

prevent that initial chill of frigid water trickling down your back. Usually people come out of the water after 30 minutes or so with only a chill to hands and feet (adrenalin works wonders). However, more than one person has emerged from an ice dive and moaned "It's better than sex!!" when having warm water poured into their gloves to ease the pain of frozen fingers. Research into that claim continues.

Safety precautions abound: harnesses, safety lines from divers to the surface, safety diver, line tenders, special courses, and around the hole procedures like shovelling circles and radial spokes to aid in navigation in the extremely unlikely event a tether breaks loose. People have died ice diving, but it is incredibly rare. There are stories of people who've disconnected the line to their harness or who used cotton-based rope which froze and broke, but when following

Chainsaws are the preferred method for cutting the hole in the ice, but if the ice is thicker than the chainsaw is long then you may have to get creative. Nikon F4, 80-200 lens at f8 and 1/250 sec.

Cutting a good hole for ice diving is time consuming, but critical. When things are rushed and the hole is too small, instant over-crowding can result. Nikonos V with 15mm lens, f4 at 1/125 sec. on Fuji 100 print film.

Ice diving around here is performed using a safety line attached to each diver which makes navigation a snap for even the most directionally challenged. Nikonos V, 15mm lens at f2.8 and 1/60 sec. on Fuji 400 print film.

Finding a site where you can combine ice diving with wreck diving, and get them in the same photo, are fairly rare. Nikonos V, 15mm lens at f4 and 1/60 sec. on Fuji 400 print film.

proper procedures problems other than entirely-manageable regulator free flows are incredibly uncommon.

A number of factors limit where you can ice dive: convenient proximity to shore for hauling gear back and forth, low current, good visibility (since the ice prevents wind from reaching the water, visibility is usually excellent, which around here means approximately 40feet). You also need decent ice thickness - six to eight inches is fine but it's nicer when there's enough to drive cars and trucks onto (12 inches) so you can circle-the-wagons and block the

Coulda been alive, coulda been dead, with the water temperature this low marine life slows to a drawl. Nikonos V, 35 mm lens at f22 and 1:2 macro framer, Fuji 100 print film.

This photo gives you a sense of the thickness of the ice. What she is holding onto is the triangular block that was cut to form the hole, then pushed down to move it out of the way. Nikonos V, 15mm lens, f4 and 1/125 sec. on Fuji 400 print film.

bone-chilling wind. Around here, ice not being thick enough is rarely a problem, but too much can be unless you have a particularly long chain saw to cut through it - around 22-inches by mid-February. We're fortunate to be able to measure ice in inches, a few hours north and they measure in feet (ok, so we're not entirely metric).

Photography under ice is not particularly difficult, right up to the point you lose feeling in your hands. Like your dive gear, it's best if you can keep camera equipment in the car until immediately before it will be used, and keep it dry before going into the water to prevent water from entering controls and freezing. Afterwards get your gear somewhere warm if possible for the same reason.

While it may be a blisteringly bright day above with the sunshine glaring off the snow, that same snow will keep the light levels low under the ice. Exposure presents something of a problem. The scene will be brightest directly above you, and the light falls off rapidly as the lateral distance increases so it is not uncommon to have the top of the frame overexposed and the bottom severely underexposed.

If you're really lucky and can find a wreck that meets all the criteria for a good ice diving location, it's a real accomplishment if you can get the wreck and ice in the same shot. I've checked, but none of Jim Church's books list ice-wreck photography, so you have to wing it. I prefer the look of available light, but you can also use strobe with it to bring out otherwise lost details which is a tough balancing act if you want to make it look natural.

There are actually some advantages to diving in winter: sites are less crowded, fish are more approachable (i.e.: nearly frozen), sites which are off limits due to summer boat traffic are finally free of those pesky jet skis which seem to like using dive flags as turning markers, and you can dive in the middle of the lake without worrying about getting seasick.

Tom Wilson

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The Nexus Wet Lens is the convenient way to shoot larger than life. Add it to your 1:1 macro lens and get a 30% increase in magnification for just £79.95.

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The Nexus Wet Lens is available in three sizes - 110, 100 and 90mm diameter so they may fit other systems but they can be fitted directly onto Subal and Nexus macro ports. In addition, as is shown above, they also fit the UK Coolpix 5000 housing.

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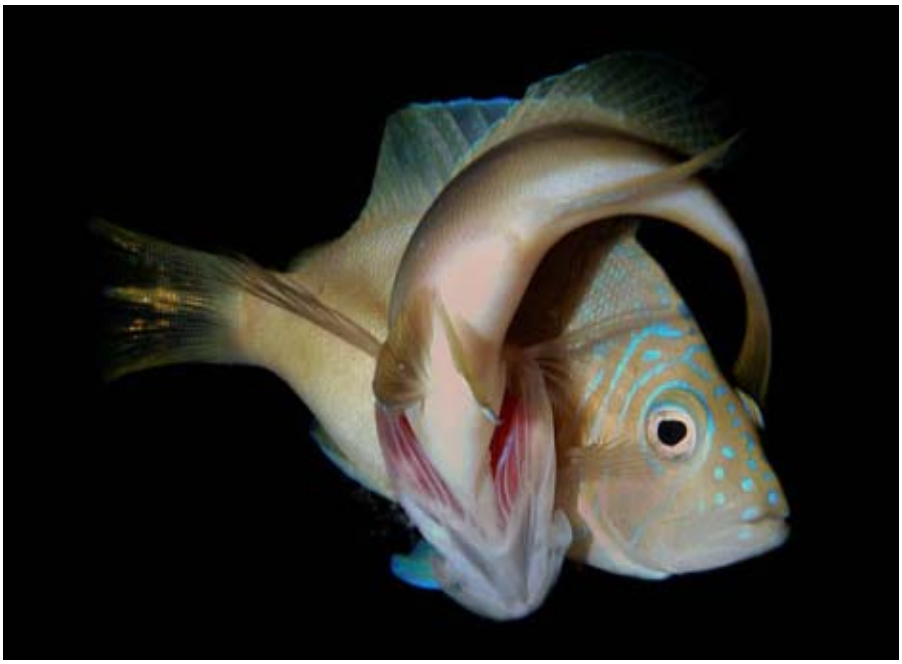
Shedding light on the D100

by Alexander Mustard

The Nikon D100 is big news and in the last couple of issues of UwP it and its various housings have been the subject of three reviews! But while we have seen lots of pictures of cameras and housings there has been a bit of a lack of underwater images taken by the camera under the sort of conditions it will see most of its use - a typical diving holiday! One aim of this article is to correct that. However the main goal of this article is to shed a bit more light onto the main problem that is concerning current and potential D100 users, that of lighting pictures...

The problem is simple - at present "there are NO underwater strobes that offer Through-The-Lens (TTL) flash metering with Nikon's D100 (or D1 series) camera!" Why is this? The problem lies with the cameras, they cannot perform standard Nikon TTL flash control, so as an alternative Nikon has developed DTTL. DTTL is NOT the same as TTL and all existing underwater flashes are designed for TTL. The only guns that will do DTTL are Nikon's land guns - the SB28DX, SB50DX and SB80DX. And these aren't waterproof!

Nikon's standard TTL (with a modern Nikon SLR and Nikon Speedlight) works by monitoring the light coming in through the lens (TTL) using BOTH pre-flashes in the microseconds between the kill button being pressed and the shutter opening AND during the actual flash exposure once the shutter is open. The pre-flashes are used to predict the amount of light an exposure will require, AND then this is fine tuned while the shutter is open by monitoring the amount of light reflecting back of the film. Once enough light to produce a correct exposure has reached the film the camera quenches the light output from the flash.



These hamlets are spawning (it is possible to see the eggs next to the fish acting as a female's anal fin). To catch a moment like this you may only get one chance and DTTL is essential to achieve a correct exposure. Nikon D100. Sigma 28-70mm @ 55mm. Subal D10. SB80DX. 1/180th @ f27. (ISO 200)

Submersible strobes are not as sophisticated as modern Nikon Speedlights and cannot do the pre-flashes. Luckily our film cameras are pretty smart and realize this and revert to TTL without the pre-flashes. Problem solved!

Well, the problem was solved until the D1 and then D100 came along. The CCDs in Nikon's digital SLRs do not reflect light in the same way as film. This means that they cannot perform TTL metering while the shutter is open (which relies on monitoring the light reflecting off the film). As a result all flash metering is done using only the pre-flashes. In practice this works fine with the SB28DX, SB50DX and SB80DX, but underwater strobes cannot do the pre-flashes. So can't do DTTL.

At present there are a number of "digital" underwater strobes on the market, but, at the time of writing, none of these offer DTTL (despite sometimes confusing naming, such as Sea and Sea's YS90 DX). Hopefully things will change on this front

DTTL is better than manual flash for stalking fish when camera to subject distances (and thus required strobe power) is constantly changing. Nikon D100. Sigma 28-70mm @ 65mm. Subal D10. SB80DX. 1/60th @ f16. (ISO 200)

Manual flash is best for wide angle and easy to use. I used image review to alter the power of my two strobes to get the most even lighting (the top one was on 1/4 power, the bottom one on 1/16). Nikon D100. Nikkor 16mm. Subal D10. 2 x Subtronic Alphas. 1/30th @ f13 (ISO 200).

and DTTL underwater strobes will be available soon. But Nikon so far has been unwilling to tell independent strobe manufacturers how DTTL works. One of the golden rules of diving safely is "don't hold your breath!". That applies now!

Solutions

There are several ways to overcome this problem and in the rest of this article I will pass on my experiences with each method.The simplest approach is to shoot manual flash exposures. For those coming to the D100 from a 35mm SLR, like me, the idea of giving up TTL seems crazy. But shooting manual flash is very easy with a digital camera because you can immediately check your exposures (with image review) and change your settings and re-shoot if required.

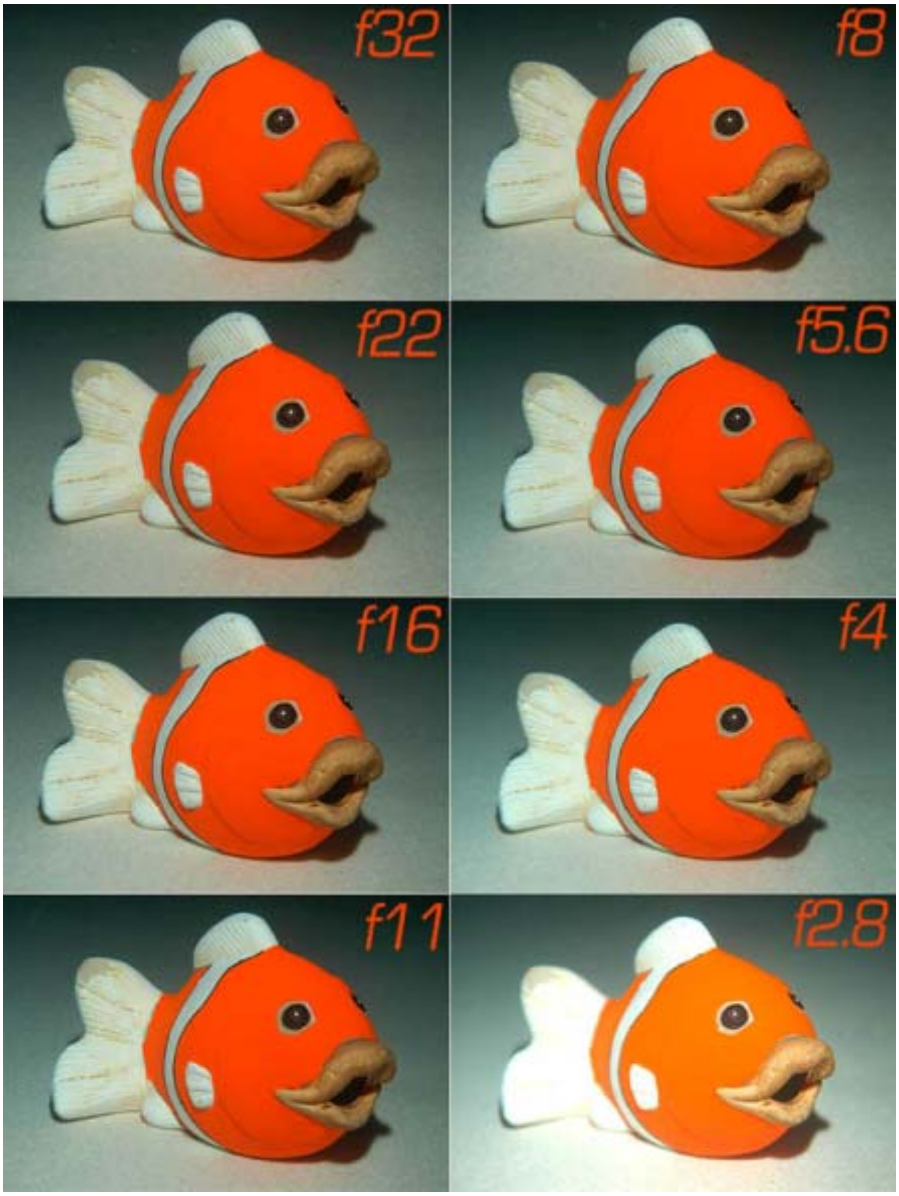
Furthermore with digital pictures it is easy to make quite substantial corrections to the exposure of the resulting image on the computer without any significant loss in image quality. This is particularly true in the NEF RAW format, which I use exclusively underwater. In this respect digital is much more like shooting on print film than on slide film. It is much less important what your negative/ RAW file is like, what matters is your final print or full resolution TIFF file.Most photographers who have tried digital SLRs underwater are more than content shooting with only manual control over their flashguns (see Charles Hood's article in UwP 12). For wide angle this is without question the best solution; many wide angle scenes require complex lighting and with manual strobes and instant image review we can achieve this easily. When shooting scenics with the D100 I often end up with my two flashes set on very different powers to achieve the most pleasing lighting.

Because manual flash exposure is so easy and offers more control than TTL metering many D100 housings are supplied configured to only fire strobes in manual (with only two of the 5 standard flash connectors actually wired up). This means we can plug in our existing Nikonos/Nikon compatible guns, using standard Nikonos connectors, and they will work on manual. But they will not TTL.

An ideal manual strobe (or strobes) for digital is one with lots of power settings which is the easiest way to adjust artificial light to get the correct exposure and colour. But such strobes are not essential and I have happily shot the D100 with a Sea and Sea YS30 which has only one power setting - ON! With the YS30 I cannot vary the flash power output, but I can control the light recorded by the camera by changing the flash to subject distance and by adjusting the lens's aperture.

If, like me, you like to photograph marine life behaviour where we often only get one moment to get the shot or just can't face the idea of going down without TTL as your buddy then you only have one option. You have to house a SB28DX, SB50DX or SB80DX. In my opinion the SB80DX is the best of the DTTL compatible guns because it will fit in existing housings for older Nikon Speedlights plus several manufacturers are working on or have already produced a new housing for it.

To make the housed SB80DX work with the D100 all of the five flash connectors must be wired up. I have found DTTL performance is very good even on tricky silvery subjects and in pool tests it was capable of producing correctly metered flash exposures over 7 stops of aperture. Furthermore my D100 in its Subal coat, fitted with a flat port and a housed SB80DX is truly neutral - and although just about every underwater camera I have ever tried claims to be neutral this is the only I have been able to let go of and it just sits there next to me! Its handling is obviously fantastic.



DTTL produced reliably metered flash over 7 stops. Nikon D100. Sigma 28-70mm @ 44mm. Subal D10. SB80DX. I was able to get reliable DTTL metered flash over 7 stops (f32-f4) without moving strobe or camera. Excellent. Exposures were all at 1/160th @ apertures: f32, f22, f16, f11, f8, f5.6, f4 & f2.8 (ISO 200).

However, the SB80DX is not the complete solution for the D100. First the light beam of the SB80DX does not have sufficient coverage for ultra-wide lenses, such as the Fisheye, 14mm or the new 12-24mm Nikkors. Furthermore, when a D100 housing is wired up to shoot with a SB80DX it will not (as Charles Hood pointed out in UwP 12) fire any UW strobes, even with them set to manual. This is because with full

The D100 is very capable of producing colourful images without any strobes. This picture was taken in available light using a red filter over the lens. Nikon D100. Nikkor 16mm. Subal D10. 40CC Red filter. Grey card and custom white balance. 1/100th @ f9.5. (ISO 200)

The author very happy with his neutral D100. Photo by Giles Shaxted

communication down all 5 flash wires, the camera detects it is not a proper Nikon flash and refuses to play ball. On the D100 you cannot even take a picture. The way to solve this problem is to disconnect the wires to the three small connectors on the cameras hotshoe, just leaving the manual trigger and ground connected. Housing manufacturer's are starting to address this problem (see Peter Rowland's Nexus D100 review in UwP 12) making it easier to switch between a DTTL gun and a manual UW strobe.

So my approach is to use the SB80DX for macro, fish portraits and behaviour (28-70mm, 60mm and 105mm) where DTTL has the reactions to catch that moment of behaviour or the pose I want. Then for wide angle I block the three connectors and switch to a pair of Subtronic Alphas, both wired into the housing, and shoot them on manual for wide angle (16mm and 17-35mm). For most D100 users their choices will be determined by the strobes they already own; I already had the Subtronics for my 35mm camera and also had an old tubular flash housing, which luckily the SB80DX fitted into. But from my experiences I can reassure those interested in the D100 that manual flash is easy and DTTL is very reliable underwater. End of story?

Well, not quite. There is another way to get colourful underwater images with the D100 without any of the above, and that is to use colour correction filters. Combining a coloured filter (such as a URPro, see "Filter Fulfilment" in UwP 11) with a custom set white balance, tuned in situ with a grey card, the D100 produces great colours without any of the fuss of blocking connectors, DTTL and manual flash. But this is a story for another issue of UwP...

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Swimming with Giants

by Scott Portelli

Nikonos V 35mm lens. Natural Light. Provia 100f . f8 1/125

There are few words to describe the exhilaration of swimming with a Humpback whale. And, as with many travel adventures it can be hard to share the emotion of the experience. But, for anyone who is looking for the adventure of a lifetime, not to mention the unique photographic opportunities, you cannot surpass the experience of interacting with these awe inspiring creatures. Oh, and no! The whales aren't going to eat you.

In August last year I had the opportunity to swim with Humpback whales in the tropical islands of Vava'u, Tonga. Each year between August and October Humpback whales migrate north from Antarctica to warmer waters to give birth. The islands of Vava'u provide sheltered waters for the females to nurture their young through the first stages of their life.

Each morning we would embark on our search around the islands for cooperative whales. Once we spotted whales, we would take the boat to within 100 metres from the whales to remain unobtrusive. Practicing a minimal impact encounter policy, four people would slowly enter the water at any one time and swim in the direction of the whales. As we swam closer we would slow down our approach and just gently swim as a group trying to stay together so the whale would not feel surrounded or threatened. The mother would usually be hovering just below the surface while the calf would enthusiastically swim up to the surface entertaining us with its curious activity and playful antics. We could be in the water for 5 minutes or 25 minutes, depending on how comfortable the whales felt with us and how willing they were to interact.

There is no doubt these creatures are intelligent, which usually sounds like a cliche that some conservationist or researcher might spout, but you can observe these remarkable creatures analysing us little humans each time we entered the water, they really had their own unique personality. Without sounding too Zen, when they look at you it is like they see or feel what you are thinking. I looked into the calf's eyes each

Minolta 7xi. 100 - 300mm lens. Natural Light. Kodak Elite 100 f11. 1/150th

Nikonos V 35mm lens. Natural Light. Provia 100f . f8 1/125

time he swam up to me and I knew he was looking back at me in the same absorbing way. These newborn calves are so inquisitive around swimmers that I was in awe of their presence, and treated every experience like it was my first.

The willingness of these mammals to interact with us made photo opportunities plentiful, and conditions were quite ideal on most occasions. 30 metre-plus visibility, an overcast sky providing just the right amount of diffused light to eliminate harsh shadows, and enough swim time with the whales to adjust camera equipment and assess the right type of wide angle lens to use. You don't realise how incredibly massive these creatures are and how close you actually get, so choosing the optimal lens is important. The water is a comfortable 25 degrees Celsius and also reflects the air temperature, so you can be comfortable in the water all day with a 3mm wetsuit, plus it allows for better manoeuvrability. The hardest decision you will have to make is whether you spend more time photographing a frolicking calf or the awesome presence of the adult.

The first encounter I had with a humpback mother and calf was so exhilarating that it literally took my breath away. As

Nikonos V 35mm lens. Natural Light. Provia 100f . f8 1/125

Minolta 7xi. 100 - 300mm lens. Natural Light. Kodak Elite 100 f11. 1/150th

we made our approach towards the whales a sense of awe came over me as we saw a large patch of white materialise from this vibrant blue abyss, into the massive outline of a whale. The sheer magnitude of the situation I was in was indescribable, I had a 25 tonne humpback whale directly below me, and I was inadvertently drifting above this colossal creature. Our first encounter was brief and for me unforgettable, as the mother decided she was going to move she started to ascend and all I could think was, that I was about to be on top of a whale and there was nothing I could do. But what was amazing was how aware they are of your presence and how gracefully she manoeuvred beneath me. As she moved forward and broke the surface of the water, I gently felt the wake of her powerful tail. I managed to shoot a roll of 36 exposures in less than 5 minutes. I was hoping this would be an indication of encounters to come.

During our trip we were lucky enough to stumble across the same mother and calf on several occasions, and we noticed the excessive amount of remoras attached to the mother. So we nicknamed our whales, (Yes we all thought of them as our whales because we had developed an attachment to them) Solomon and Remora a play on the biblical characters Sodom and Gomorrah, however with more positive connotations

of course. After encountering this mother and calf over the period of a week we started to see distinct recognition from the whales whenever we were in the water with them.

We developed a theory, that the whales might respond to a red wetsuit we had on board and we convinced one of the girls, Deb, to give it ago. It wasn't long before Solomon took a liking to the suit, or possibly to Deb. My new philosophy after this was that if I wanted a close encounter with the calf I should stick by Deb's side. As the calf really liked to come close and investigate, close enough that he allowed us to reached out our hands ever so cautiously, and the whale did the most amazing unexpected thing, he turned and slid his stomach and tail along our hands, it was one of the most remarkable things I have ever experienced. By this stage, it was about a week into the trip and because we had been lucky to encounter whales regularly, the experience with the whales was always unique, but starting to feel familiar. But just when you think you had done it all, physically touching a whale's tail was something that kept me wanting more. The adrenalins started pumping and once I was back on the boat I couldn't help but openly express my experience, it was amazing, I was loud and boisterous, and unfortunately caught on video.

Tonga is a photographer's paradise, and in addition to the encounters with whales, you are in a tropical paradise surrounded by coral reefs, a plethora of marine life, the people are so friendly and hospitable, and the food is amazing. There is much more to explore and it is definitely a place I will go back to as often as I can.

Scott Portelli

All international flights to Tonga fly via Auckland, New Zealand; Nadi Fiji; Apia, Samoa, or Sydney Australia. The airlines are Polynesian Airlines and Air Pacific who are members of the One World group and Air New Zealand who is a member of the Star Alliance group. You can also fly Royal Tongan Airlines daily out of Auckland and every Thursday & Monday out of Sydney, Australia. After arriving in Tonga (Tongatapu) you will need to get a 1.5 hour domestic flight to the island of Vava'u to join the WhaleSwim Adventure expeditions.

The operation follows strict guidelines and the whales are never in distress. The tour operator Rae Gill is a conservationist and plays a pivotal role in educating the community about the importance of protecting these valuable resources. WhaleSwim Adventures is committed to whale conservation and fully supports the non-harassment policies of the Whale watching Guidelines in place in Tonga. They also support the implementation of the South Pacific Whale Sanctuary and of course, a World Whale Sanctuary.

Email: **tours@whaleswim.com**
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Modesty Blaze

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The Inon T Flash. From Ocean Optics.

See UWP 11 for Mark Webster's in depth review www.uwpmag.com

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Schooling Fish

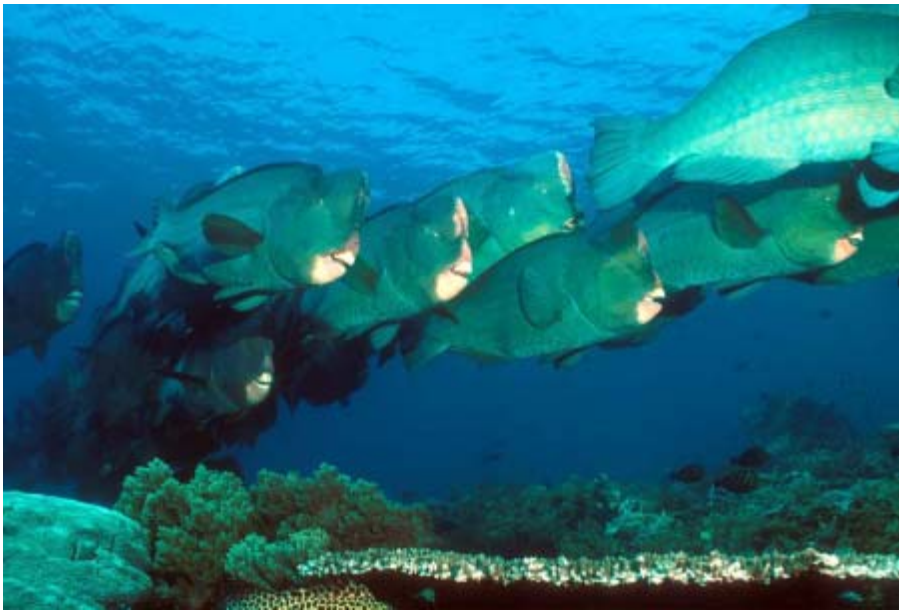
with Martin Edge

There is no bigger thrill than photographing schools of fish. I have been to many destinations with other keen, passionate underwater photographer. Their enthusiasm jumps into overdrive when they have such an opportunity. They enjoy the chase, the challenges and the spectacle. However, there satisfaction with the images they obtained rarely lives up to ones aspirations. Why is that?

I often feel the same. Always believing I should have done better!

I have closely analysed my own techniques in this area of underwater photography. I have looked at successful images of other photographers. National Geographic and Doubilet. Chris Newbert and his images in 'Within a Rainbowed Sea' and 'Sea of Dreams' I looked at my own achievements and those of my peers and as a result I have developed strong opinions on which images tend to work and those, which do not. Let's discuss some of my own priorities but let us also not lose sight of the fact that they are just my opinions and nothing more than that.

My boss at work used to say. " Don't bring me problems, bring me solutions". In discussing the problems with shooting successful pictures of schooling fish I have some ideas, 'solutions' which some of you may helpful.



Schooling bumphead parrot fish

These have been a frequent challenge to me over the years. The Sipadan Bumpheads feast on coral wherever they travel. The visibility is substantially reduced. Their dark green bodies soak up the light and result in underexposure. They travel close to the reef, so achieving separation is difficult. Behaviour shots of them crushing the coral are quite straight forward but they are at their most supreme when cruising the drop off like a heard of buffalo. I used the wide aperture technique to allow the flash to reach the subjects in this example. A low angle of view, shooting up onto the edge of the reef has separated them against a blue water background and depicts their herding behaviour. A diagonal composition leading the eye through the frame balances their shape with other features of the reef.

Subal Housing, Nikon F801, 20mm lens, Twin flashguns on TTL, F8 @ 60th sec, Ektachrome 100iso

T-shirts and posters

Cast your mind back to a dive show, which you may have recently attended. Consider all the T- shirts on display to the general diving public or perhaps to holiday guests at a tropical dive resort. Visualise the images on these items of clothing, which relate to fish. We have probably purchased such a t-shirt as a holiday memento at some time.

An artist has had to consider the design and composition of the group of fish. How many to include in the sketch. One, three, five or more! How to place one subject so that it balances with the others. Are the eyes visible or hidden? Do tails overlap? Are

School of Jacks in Sipadan (Right)

I often have this internal battle with myself, on this occasion the effects of showing parts of the school swimming out of the frame. Fish bodies are plainly visible but the heads are missing. I try to capture a leading fish and in a perfect world give it a little space to swim into. Often this is just not possible. Neither is it possible to leave the sunburst completely out of shot. I would have preferred to exclude it in this example but with the width of my 16mm fisheye lens, the location of the school and position of the afternoon sun, this was just not possible. Is the sun too bright? Does it detract from the main content of the picture? I will let you decide.

When shooting large schools even with a fisheye lens the camera to subject distances can be anything from 1.5 meters away and more. On these occasions I recommend the following lighting techniques. Select wider apertures than the norm. I often shoot at F5.6 and F8 when in reality F11 or F16 would suffice. The reason for this is twofold:

** F5.6 allows the flash to travel further through the water than F16 and paints the fish with fill-in flash, which creates detail and increases impact.*

** Wider apertures will in turn provide a faster shutter speed, particularly when shooting into the sun as in this example. The shutter speed will stop the action and prevent blur, which is also preferable.*

I see many schooling fish pictures, which to the frustration of the maker are unlit. This is often because their distance is too far for the flash to travel. Try this tip, It works a treat.

Subal Housing, Nikon F90x, 16mm fisheye lens, dual YS 120 flashguns on manual full power. F5.6 @ 125th sec, Ektachrome VS 100

Poster example

I had been explaining my philosophy on schooling fish to a number of photographers when I spotted this poster in a greasy spoon cafe in La Paz, Baja. The owner allowed me to take a shot. It happened to be my best shot of the trip in the Sea of Cortez, 2001. We were hit by Hurricane Juliet, landlocked for 6 days and we never saw a thing!

Joking aside, the freedom of the artist to design the fish in whatever formation is a huge advantage. Take note of these designs in all manner of art. . We should learn from their talent and the choices they make when we come to consider our own way of photographing marine life.

This particular opportunity arose when I was shooting with a 105mm macro lens beneath Town Pier Bonaire. These three snappers were separated from a larger group. They were hanging about two meters off a sandy bottom in about 5 meters of water. I spent time with these as I found they would allow me to approach within arms length and they were hanging in formation. The ideal lens would have been a 60mm macro as I could have included them entirely within my composition however I backed off with my 105mm but considered that the distance and visibility would produce an inferior result. I took about 6 shots in all and cropped them quite tightly. This shot was marginally the best. I like the formation and negative space. Similar shots with all of the fish in the frame are a more pleasing composition but they lack the sharpness and clarity of this example. As I took these shots, I remember asking myself where the best place along their bodies would be for me to compositionally 'amputate' them. Near the tail? Behind the head? In-between? I'm not sure I chose the best place on this occasion but the concept of the most suitable crop is now much more uppermost in my mind whenever I shoot fish pictures which do not include all of the fish. Although they are composed on this page in a vertical formal, in the sea they were actually shot in a horizontal format. A quarter turn to the right was their actual orientation.

Subal Housing, Nikon F90x, 105 macro lens, single YS 120 flash on TTL, F8 @ 90th sec, Ektachrome VS 100.

they swimming in every direction? The artist/ designer is not confined to the reality of a camera. They can sketch all colours, shapes and sizes of fish but one thing that all have in common is a sense of harmony, order and balance in the visual design. Who would buy them if they were not pleasing to the eye? There is no better exercise to sharpen your photo-perception than to study the design of fish on posters and clothing.

Organised Chaos

I have used this term before on numerous occasions to describe the art of shooting schooling fish. Lets face it; for the most part fish swim in a disordered, chaotic and jumbled mass. In my experience this is the main reason why we become dissatisfied with our results. Whilst observing them over a period of time we perceive an orderly and tidy gathering. However, our camera freezes them in a fraction of a second and the thought of "chaos" springs to mind. What we have to do is to

Goat fish Salt Pier

Salt Pier is an excellent location for shooting fish. The circular pillars, which make up the legs of the pier, are encrusted with sponges. The pier sits on the very edge of a sloping reef and visibility appears endless. Small schools of snappers, grunts and goatfish hug the seabed amongst the pillars. If you shoot towards the seabed or into the reef the negative space is messy and unattractive. My advice is to shoot out to sea with the shoreline behind you. In this direction you can target the numerous small schools against a vivid blue water background. The graphic shapes of the pillars have to be considered as an essential part of your composition. It is not the school which will ruin your view but the negative space behind. In this example the school are shaped in a triangle which I noticed as I composed the shot. I took about 4 shots, one after the other as soon as my flash would re cycle. This example was cleaner and less busy than the others were.

Subal housing a Nikon F90x, Nikon 17mm - 35mm zoom. 2 x YS 120 flash guns set to TTL on bendy arms (15 sections each arm) F5.6 @ 90th sec, Ecktachrome VS 100

Mabul Pier

One fabulous day beneath Mabul Water Village Pier. The sea was glass calm, visibility was good with a cloudless sky. Guy Middleton and myself opted out of the boat dive and took advantage of the conditions and a thick school of juveniles beneath the structure of the jetty. I was particularly excited by the opportunity that afternoon that I shot 4 films one after another. My maximum depth was just 2 meters! Although the school maintained a spherical formation the speed of movement of the formation was rapid. I used a fast shutter speed and available light three out of four films. My primary consideration was how to handle the composition between the school and the formation of the jetty. As the fish moved so did my camera. I choose shutter priority to keep up with the action and let the aperture take care of itself.

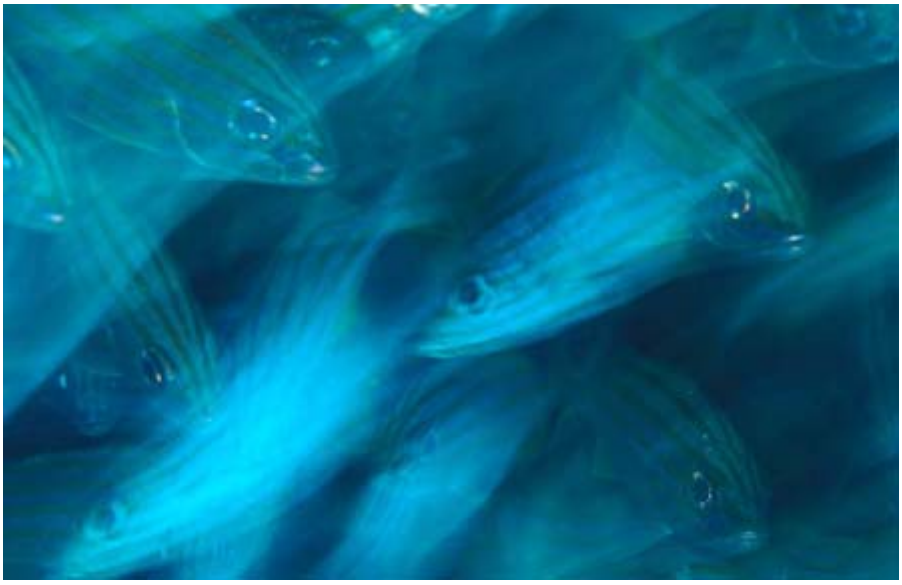
Subal F90x 16mm fisheye lens, 250th sec, aperture in the region of F8 - F22. Ecktachrome VS 100

search for an element of organization within the chaos.

My first solution when photographing schooling fish is to have in mind the notion of balance, order and harmony. Just like the T-shirts. For me this way of thinking works really well.

Practice Sometimes Makes Perfect

I have tried this exercise on numerous photo courses and it really can help. Find some footage of schooling fish on a video. Concentrate on it and watch it through several times if it helps. (BBC Blue Planet series is excellent for this). Using the VCR remote control handset, watch the footage and by using the 'pause' button, freeze the action when the school has achieved a sense of balance and order. You will be amazed at the results and degree of difficulty to capture a frozen moment in time.



Grunts rear Curtain Sync

Like many of you, I have also tried 'Rear Curtain Sync' techniques and I have to admit that I do like the effects of the rhythm and action that RCS produces. However, you never know what the results will be like until you have your film developed (unless you have digital of course). I shot several rolls of film on schooling grunts in Bonaire and achieved between 6 and 10, which I was pleased with. I have recently reviewed them for this article and realise that the ones, which worked (in my opinion), have an element of compositional balance to them. This shot is no exception

Subal F90x 20mm lens, half second @ F8. Sea & Sea YS120ys flash on TTL Elite 100

Equipment

I use whichever lens and camera I feel is correct to do the job. Shooting seals in Mexico I used a Nikonos 111 and 15 mm lens. Schooling jacks in Sipadan I favour a 16mm fisheye lens in a housing. I have encountered schooling Batfish with a 60mm lens and just done the best I could in the circumstances. Some of my best images have been planned and well thought out whilst others have been entirely opportune and lucky.

The accompanying images have extended captions, which discuss the pros and cons of flash angles, lenses and shutter aperture combinations. I have tried to include as much detail as I could remember about the shot.

Martin Edge
Martin.Edge@btinternet.com

New dates for Martin Edge's weekend UK photo courses

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Using an indoor heated swimming pool in a Bournemouth Hotel, the weekends are structured to the needs of each individual participant. Your own camera equipment is preferable, however hire facilities may be available. E6 film processing is included in the course price of £165.

For more details Phone Martin or Sylvia on 01202 887611 or e mail Martin.Edge@btinternet.com

Photographing the shark of Darwin Island

by Jonathan Bird

The first time I went to the Galapagos, I had pretty high expectations. Every diver has seen the ads and the photographs in magazines, read the stories and talked to people who have been there. The images of hundreds of hammerheads swimming overhead, whale sharks the size of school buses, colonies of playful seal lions and pods of dolphins all paint a picture of the Galapagos as a diver's dream. Could the experience possibly live up to my expectations? No. In fact, it surpassed them by a mile.

My first trip to the Galapagos was as a photographer documenting an expedition to put satellite tags on whale sharks and we spent the entire week on the Galapagos Aggressor up in the pristine underwater wilderness of Darwin Island, separated from the rest of the Galapagos by 150 miles. Darwin and its nearby sister island Wolf look a lot like the rest of the Galapagos but underwater, they have their own personality. The main group of islands in the south have cool, somewhat green, water—hardly tropical. In fact, the diving there reminds me of diving at home in the north Atlantic (except of course for the huge colonies of sea lions, sea horses, sea turtles, penguins…) But up in the north, Darwin and Wolf enjoy warm currents and clear blue water that looks a lot more like the tropical destinations most of us yearn for. Unlike the typical Caribbean getaway, however, Darwin and Wolf are the stomping grounds of untold numbers of sharks, dolphins, sea turtles and fish.

Silhouette of a huge school of hammerheads swimming overhead. Sometimes the hammerheads are in the distance and sometimes they are close. When they are too far away to light with a strobe, but slightly above, silhouettes make a striking composition. Few animals have as distinctive a silhouette as a hammerhead! (Nikonos V, 15 mm, ambient light, f/5.6, 1/250, Ektachrome 100)

As a World Heritage site, the Galapagos are mostly completely off-limits for fishing. A few locals fish the waters, as do a small industry of illegal rogue fishing vessels from other countries. The local law enforcement does all they can to keep the rogue fishermen at bay. In general, the ecosystem of the Galapagos comes about as close to unspoiled as you are likely to find anywhere in the world.

As a seasoned professional

underwater photographer, I have been to many of the world's best dive sites and I've seen a lot of very good diving. I'm not bragging, but putting into perspective that I'm not all that easy to impress. My very first dive at Darwin overwhelmed my senses in a way that I cannot completely describe. We jumped into the Zodiac from the "mother ship" and sped over towards Darwin's Arch (the only dive site at Darwin). On cue, we rolled off the Zodiac together, feeling a little bit like the Cousteau dive team. Because of the moderate to strong currents at Darwin, everyone rolls off the boat together and heads to the bottom as fast as possible. Due to a sparsity of coral, the bottom consists mostly of boulders covered in barnacles. You sink down and find something to grab hold of quickly.

Our entire group had brought rebreathers so we could get really close to the hammerheads. Hammerhead sharks can be sensitive to bubbles, so the rebreathers would allow us to hide in the rocks quietly. I hoped this would allow me to get some good close-up hammerhead shots. As soon as we hit the bottom at about 60 feet, I settled into a spot behind a large boulder where I could tuck out of the strong current. I could already see a huge group of Scalloped hammerheads in the distance through the hazy blue water. The current at Darwin can be both a blessing and a curse. It's annoying at times, but then again, the current allows the sharks to "hold still" by swimming at just the right speed into the current. This allows them to maintain a position in the water hovering over a

Due to the strong currents diving at Darwin, I elected to use a small camera system. Rather than the usual housed SLR and dual strobes, I found the Nikonos with a single fill-flash to work very well for hammerheads. The reflective underside will fool TTL however, and best results are obtained the old fashioned way! (Nikonos V, 15 mm, SB-105, f/8, 1/90, full power, Ektachrome 100).

cleaning station. Keep in mind that sharks have no swim bladder and sink if they stop swimming. Therefore a shark cannot hover to be cleaned without a current. When the current picks up, the hammerheads make their way over to the wall for cleaning by the King Angelfish that patiently wait for them. Hiding in the rocks, I remained still and watched the shadows of the sharks coming closer. They looked just like the pictures I had seen! There were hundreds of them! The only problem was that my view of the sharks was obscured by the thousands of fish swarming in the water near the wall.

Soon the fish parted and the hammerheads cruised right over my head. I started shooting pictures and found that the strobe

This 35 foot-long whale shark has a mouth that is six feet wide. When I plucked a remora out of its mouth, it opened wide for a cleaning! (Nikonos V, 15 mm, ambient light, f/4, 1/60, Ektachrome 100)

frightened them a little, but not as much as trying to swim out into the current to get closer. The sharks would tolerate me quite well as long as I stayed in my little hiding spot and waited for them to come to me. I went through an entire roll in five minutes. I really tried to make the film last, but there were just too many sharks. Now the advantages of the Zodiac were obvious. I let go of the rock and drifted away from the wall as I ascended. As I popped my head above the surface, our boatman Rufino saw me and came over. The boatman's job is to watch all the bubbles and pick up divers when they surface. Unfortunately, with everyone wearing rebreathers, there were no bubbles to watch, so he had to use his experience to predict where we would be. He pulled his boat up to me and asked if I was okay, surprised to see me so soon. I just confessed that I was already out of film and asked for the next camera. He passed it to me and I dropped right back down to the wall. Just as I emptied my BC and started down, a whale shark passed right under me! I howled with delight—on the first dive I had already seen a whale shark, and a hundred or so hammerheads!

When I landed on the bottom again (not very gracefully I might add) I found myself quite a distance downstream from the rest of the group as my trip to the surface had allowed me to drift backwards in the current significantly. Being alone on the wall only made my encounters with the hammerheads even closer. My second roll was even better than the first. Can you believe it? I ran out of film—*again*! (Yes, I know what you're thinking. I really do need a digital camera.) So, up I went to the surface for a second time. This time I had drifted too far to get back to the wall, so Rufino helped me into the Zodiac and motored me back up to the spot where we dropped in the first time. I grabbed my last camera (a video camera this time) and dropped back into the water. With 60 minutes of tape, I wouldn't run out of film again. I hadn't been on the wall for more than five minutes before a pod of bottlenosed dolphins swam by and checked us out. I thought at the time that if that didn't rack up to the best single dive in my life, I'm not sure what would. (Keep reading…)

Since we were using rebreathers, we were able to dive much longer than people normally do on open circuit.

Swimming as close as possible to a whale shark's dorsal side, you can get a little lift from the slipstream. Looking out over the front of the shark reminds me of driving a big '70's Cadillac! Holding on for a free ride is irritating to the shark and often drives it away. The slipstream technique is much better. (Nikonos V, 15 mm, ambient

Rather than doing 4 dives a day at 45 minutes to an hour each, our group had decided to do 3 dives a day of about 90 minutes each. Even with a 5mm suit in the 77 degree water, I was a little chilled by the time I got out from such a long dive. Nonetheless, there was a lot of hooting, hollering and tale-telling at the end of the first dive. I honestly couldn't believe how much stuff we saw. I never thought I would be so excited to dive the same dive site for an entire week.

After we warmed up and filled our tanks again, we headed out for the second dive. How do you follow up a dive like the first one? As we rolled into the water, I realized that the current had slowed down. We went to the wall and found that the hammerheads weren't coming that close, so we headed out into the blue to look for whale sharks.

I know what you're thinking. How does one find a whale shark by swimming around out in the blue? It wouldn't work anyplace else, I assure you. But at Darwin Island during the whale shark season, they seem to just circle the island. If you just hang around right out off the wall in the blue, the whale sharks find you. It took us ten minutes to find our first whale shark. It appeared out of the hazy distance above us, unmistakable for its unique silhouette. We all raced skyward to meet the shark, breaking every rule on ascent rate ever published. The cacophony from the beeping dive computers was deafening, but unheard by any of us as we swam alongside the world's largest fish in complete awe. There is nothing that compares to swimming with a whale shark. To say it's a big fish is to grossly understate the experience. It's one of those things that you can only appreciate by doing it.

Normally, whale sharks just keep going when divers show up. They don't seem to be particularly bothered by the divers (as long as the divers don't try to ride them) but they just keep going in the direction they were headed. The slow and graceful swishes of that tremendous caudal fin move the whale shark at an amazing clip. Most people can only keep up for a few minutes, even though the shark looks like it's barely moving at all. We soon lost sight of the shark, hanging motionlessly in the open water trying to catch our breath. But soon another shark showed up. In fact, nobody saw it coming. We all were swimming along looking ahead, while a massive whale shark, at least 35 feet long, swam up behind us. We heard one member of the group yell into his rebreather. We all turned around to see the whale shark that had literally swam up behind him and bumped into him. It's hard to imagine that a group of divers could all miss a 35 foot long fish in 80 feet of visibility, but we did.

Unlike the first whale shark, this one seemed bored and looking for something to do. It slowed to a snail's pace as we swam alongside. We weren't supposed to touch the whale sharks, but this one seemed to want to be touched. We all started petting the shark, and it slowed to a stop. Once it stopped, it started sinking. We sank with it. Fortunately, the lower lobe of the shark's tail touched bottom at about 90 feet and the shark started to swim upwards, almost completely vertically, towards the surface. We followed. As if the shark

A large school of Scalloped Hammerheads passes directly overhead. Because I'm using a rebreather, they don't notice me hiding in the rocks! (Nikonos V, 15 mm lens, SB-105 strobe, 1/90, f/8, full power, Ektachrome 100)

understood that we couldn't race to the surface, it kept the pace slow.

I had a 35 mm camera and blasted all 36 frames within the first 5 minutes, expecting the interaction to last only as long as I could swim at top speed. Now, I was playing with a docile whale shark that had no plans to go anywhere. Then the strangest thing happened. I looked up and another whale shark was bearing down on us. Five of the seven of us decided to go and play with the other shark. I figured I would just stay put, so for another 25 minutes, two of us played with the world's friendliest whale shark. I plucked remoras from around her eyes and mouth, massaged her lips (she liked that) and swore to myself over and over that I had no film.

At last, my dive computer told me to get up and do a safety stop. We were way out in the blue. Who knows how far we had drifted from land? I suddenly realized that we really needed to surface. Reluctantly, the two of us left the shark and headed up for a stop at 15 feet. Incredibly, the shark followed like a puppy dog. We did our stop with the shark and then surfaced. We were a long way from where we started the dive, but Rufino was not far away. I popped up my safety flag and he saw me right away.

After we were all safely on the Zodiac and about to head back, the whale shark came up and rubbed right along the Zodiac. We actually felt guilty about leaving her, so we threw on our masks and snorkelled with her for another 20 minutes. At last, the sun went down and we needed to get back. After nearly an hour with a playful whale shark, we set off towards the liveaboard.

I have now been back to Darwin several times on special itineraries that I have put together for divers interested in whale sharks. The place never ceases to amaze me. On my most recent trip, we had nine whale shark encounters on a single dive! There is no doubt in my mind that Darwin Island is the whale shark capital of the world.

Jonathan Bird

Jonathan Bird is a professional underwater cinematographer and photographer. He has shot and produced over 20 films for broadcast and education. His films have appeared all over the world, on networks such as PBS, ABC, USA Network, Discovery and even the SciFi Channel. He has won two Emmy Awards and two Cine Golden Eagles for his work. Jonathan is the author of three books and has published articles and images in hundreds of magazines, calendars and books. He leads dive expeditions around the world and teaches underwater photography courses. More information is available at www.jonathanbird.net

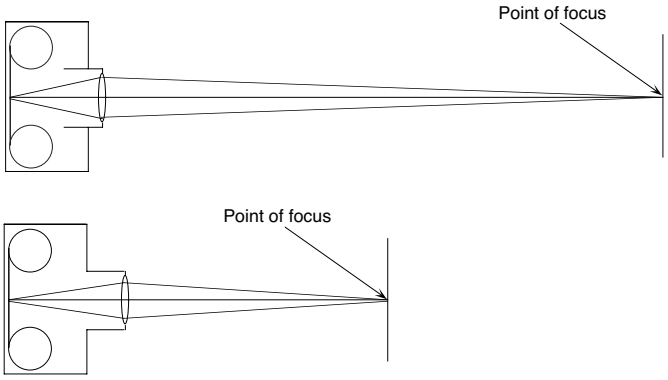
Back to basics

Focus and exposure

by Peter Rowlands

FOCUS

Most lenses can be adjusted to alter the point of focus. This is usually done by rotating the barrel of the lens to move the internal elements in relation to the film. The further away the lens is from the film, the closer the point of focus will be.



A good example of this is with extension tubes on a Nikonos where the 35mm lens is placed further away from the film by putting an extension tube between the camera body and 35mm lens.

With reflex cameras you can see the changing effect in the view-finder but with non-reflex cameras you have to estimate how far away you want the point of focus to be and set the lens accordingly.

As we will see later, there are additional criteria which make the exactness of the point of focus much less critical.

EXPOSURE

There is little point in having a sharp subject if the film is incorrectly exposed. The correct exposure is achieved by choosing the right combination of shutter speed and aperture.

Shutter speed

The camera body has a shutter which can be controlled to give varying amounts of time which it is open.

A basic shutter like the one in a Nikonos 111 camera (see diagram below) consists of two blinds A & B. In Position 1, the film is covered by Blind A. When the shutter release button is pressed, Blind A moves up and exposes the film to light (Position 2). The second blind (B) follows after a set time depending on the shutter speed selected and covers up the film again (Position 3).

When the shutter is cocked, both blinds move down without exposing the film and are held in position ready for the next exposure.

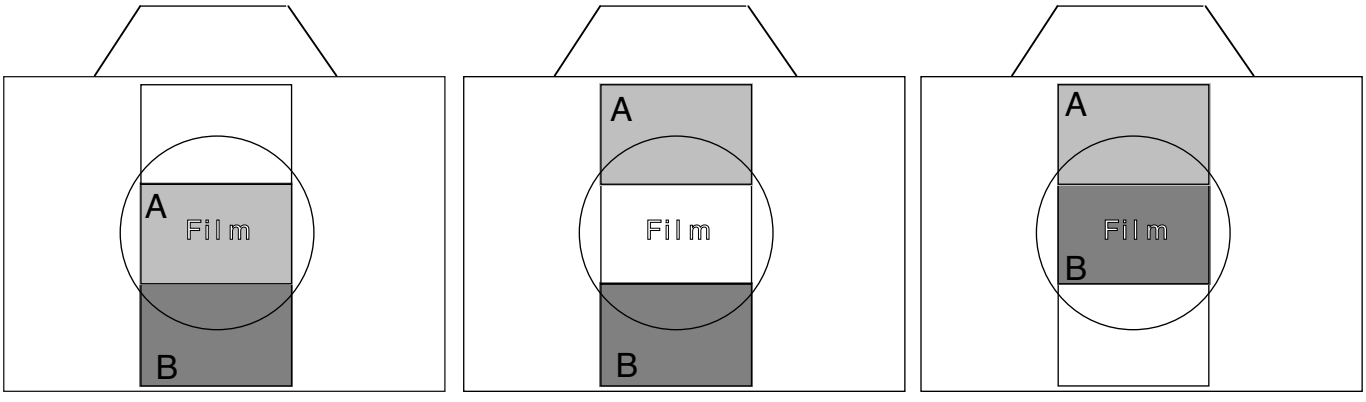
For simplistic purposes it is assumed that the time taken for each blind to move is insignificant.

The amount of the delay between Blind B following Blind A determines the “SHUTTER SPEED”.

The faster the shutter speed, the less light arrives on the film and vice versa.

Common shutter speeds are expressed in fractions of a second and range as follows:

1/30th of a second
1/60th of a second
1/125th of a second
1/250th of a second
1/500th of a second



1 2 3

There is an important relationship between each shutter speed in that, for example, 1/125th is twice as fast as 1/60th so half as much light falls onto the film and vice versa.

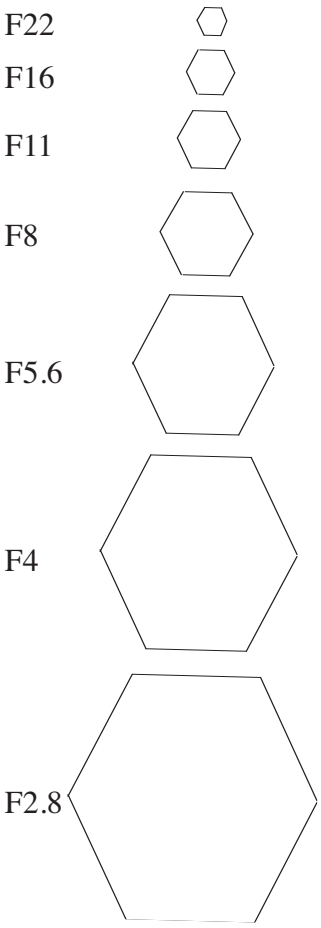
Aperture

The aperture is a mechanical device built into the lens and is basically a hole, the size of which can be controlled. The larger the hole, the more light gets onto the film during the exposure.

For the sake of simplicity, the aperture sizes are designated in **"F STOPS"** - the numbers actually relate to the diameter of the aperture divided into the focal length of the lens and normally range as follows:

F2.8, 4, 5.6, 8, 11, 16 and 22.

The smaller the number, the larger the aperture and vice versa.



The relationship between each aperture is known as "STOPS". Changing the aperture from F5.6 to F4 opens it up 1 stop, doubles the size of the aperture and so doubles the amount of light getting onto the film. This is referred to as **"OPENING UP A STOP".** Going the other way from F4 to F5.6 halves the size and also the amount of light and is referred to a **"STOPPING DOWN A STOP".**

Some lenses have intermediate settings to allow control of the aperture in half stops for greater exposure accuracy and most recent cameras offer more intermediate settings for even greater accuracy.

COMBINING SHUTTER SPEED AND APERTURE

As said before, the correct exposure is achieved by choosing the right combination of shutter speed and aperture.

This is done by establishing the light level with either a hand held light meter or one built into the camera. These devices measure the amount of available light and give a reading which is a combination of shutter speed and aperture. On a hand held meter a dial shows what aperture to use if you want to use a different shutter speed than that indicated.

Let's assume the given combination of shutter speed and aperture to achieve correct exposure is:

1/125th shutter speed and Aperture F8

The same amount of light will fall on the film if the shutter speed were halved to 1/60th and the aperture were stopped down one stop to F11 to compensate for the extra amount of light falling on the film. The following list will all give exactly the same amount of light on the film:

1/30th	F16
1/60th	F11
1/125th	F8
1/250th	F5.6
1/500th	F4

Mixing any of these combinations will result in incorrect exposure.

The effect of changing shutter speed

The faster the shutter speed, the more you will be able to "FREEZE" the action and get sharp results of fast moving subjects. With slower shutter speeds you will have to hold the camera steadier to get sharp results.

As a rough guide to the slowest speed you can use when hand holding a camera, the speed will be the reciprocal of the focal length of the lens. For example with a 35mm lens the slowest sensible speed would be 1/35th sec i.e. 1/30th and for a 135mm telephoto it would be 1/135th sec i.e. 1/125th.

The effect of changing aperture

Changing aperture produces a much more important effect and is often fundamental to achieving sharper results overall.

For simplicity's sake we'll assume that, at Aperture F2.8, only the subject focused on will be sharp. Stopping the aperture "DOWN" will bring more into sharp focus either side of the

main point of focus and will give the advantage of not having to be too critical about the exact point of focus. This increased focus area is known as **"DEPTH OF FIELD"**.

Here is a typical depth of field chart for a 35mm lens focused at 2 metres:

APERTURE	MIN	MAIN	MAX
F2.8	2	2	2
F4	1.6	2	2.8
F5.6	1.5	2	3
F8	1.4	2	3.5
F11	1.3	2	5
F16	1.2	2	10
F22	1	2	Infinity (∞)

Note how the focus range increases as the aperture is stopped down.

The range of the depth of field varies with the focal length of lens being used - the wider the angle of the lens, the more the depth of field so focusing is much less critical.

The effect of using different film

In order to achieve correct exposure you have to take the speed of the film into account. The faster the film, the quicker it reacts to light and vice versa. Common film speeds are:

50 asa
100 asa
200 asa
400 asa

Just as with aperture and shutter speed, there is a relationship between the film speeds in that 100asa is twice a fast as 50asa so 100asa is ONE STOP faster than 50asa and vice versa. For example, if the correct exposure for 100asa is 1/125th @ F8, it must be altered to 1/125th @F5.6 for 50asa (or any combination which achieves the same amount of light).

EVERY ALTERATION MUST BE COUNTERACTED

If you want to change any of the exposure settings, you must counteract the change in order to retain correct exposure.

If you want increased depth of field you "STOP DOWN" the aperture but must compensate by slowing down the shutter speed to let more light in but this might result in subject blur.

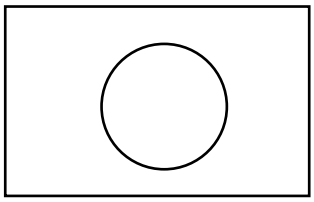
If you want to freeze the movement of a fish you will need to use a fast shutter speed but will have to "OPEN UP" the aperture to compensate. This in turn will limit the depth of field so you will have to be extra careful with the focus.

Exposure meters and light readings

The precise level of available light is best measured by using a light meter. This can be either a hand held meter or one built into the camera.

Fortunately, light levels underwater are fairly consistent in that the light is diffused but care should be taken when taking a light reading to make sure the correct exposure is achieved.

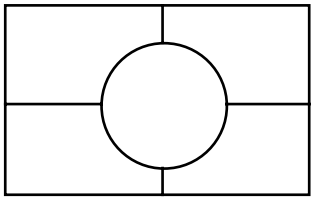
There are three main types of light metering systems:



Centre weighted

This is the most common and is similar to that in the Nikonos 1Va and V cameras. As the name implies, the meter takes more into account from the centre of the frame than from elsewhere and this does suit the majority of subjects underwater. The usual weighting is 75% from the centre circle of the frame and 25% from the rest of the area.

With this sort of system, care should be taken when the sun or any brighter area is in the frame as it may fool the system into thinking there is more light available than there actually is and this will result in under exposure. In this case tilt the camera slightly down or away from the bright area but still include some of it and this should achieve a correct exposure. With an automatic camera this is not practical as you will be pointing incorrectly so you will have to take a reading with the camera pointed down, note the reading and set the camera controls manually.



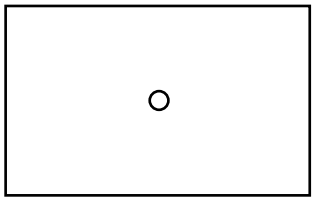
Matrix metering

This form of metering, and derivations of it, works by splitting the frame into sections and takes each of these into account. This tends to be more accurate than centre weighted.

In the case of Nikon SLRs and Nikonos RS, matrix metering the frame is divided into 5 sections

and each section is taken into account. The meter then averages out all of the 5 separate readings to arrive at a correct exposure.

With this form of metering, bright areas will be taken into account and should not fool the system as much as with centre weighting.



Spot metering

As the name implies, the meter cell reads only the light from a very small part of the frame.

This is ideal for critical exposures of certain areas but is not really practical to use with automatic cameras as the readings could well be inaccurate for the rest of the frame.

This system is best used with the camera on manual.

Well, that should give you enough to ponder on and absorb. In the next issue, we'll look at close up photography and see how easy it is.

Peter Rowlands
peter@uwpmag.com

Ever Wondered How Much Your Underwater Camera Retailer Really knows?

Ever considered that the closest your dealer ever came to product training was to read a brochure? It's a sad fact that many people selling underwater camera equipment don't understand it - or even take underwater pictures themselves.

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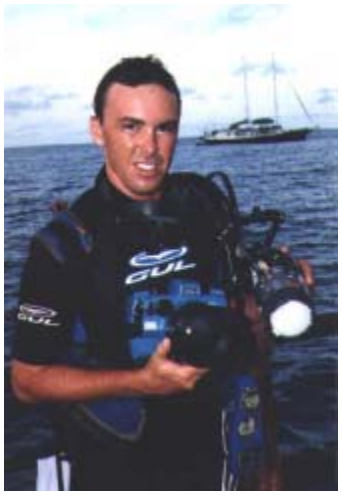
Meet Andrew Bell.



Andrew's been taking underwater pictures for fifteen years. In his home waters of British Columbia he has produced his own four part television series for cable TV. And he's one of the very few cameramen in the World to have filmed the mysterious and elusive six gill shark.

So when we were considering the revolutionary Quad Flash, it was Andrew who got to evaluate it. And where better than on an Ocean Optics sponsored workshop with the legendary Kurt Amsler? Because without Andrew's approval, the Quad wouldn't have made Ocean Optics' product line up.

And if you didn't see much of Andrew last April, it's because he was in Redang, Malaysia, trying out the Olympus digital cameras with the new Inon flashguns and lenses. With Ocean Optics paying his way.

Sid Thakers seen his work published in Dive International, The Financial Times and The Independent. Sid's a prolific photographer and a founding member of Young Underwater Photographer's. His work experience - Subal housings in tow - was on board the Liveaboard Coral Queen observing early filming of "Blue Planet". At Optics expense.

AJ Pugsley is the guy you'll meet most Saturdays or when Andrew or Steve's away shooting. AJ was first in the water with the superb Nikon F100 Subal housing and Subtronic Alpha Pro flashgun. He was photographing Raggie Tooth sharks on Aliwal shoal, South Africa. And again, Optics was paying. AJ's first shots were published and he's since gone on to win the first European Our World Underwater Photography Scholarship at Antibes. With a portrait of a Great White shot on nothing more than a Bonica point and shoot camera.

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Underwater Photography
a web magazine

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, wreck photography 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 with leading underwater photographers

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

How to submit articles

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

1. The text for the article 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:
Resolution - 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.

Peter Rowlands

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For sale

Nikon SB104 Underwater Flashgun complete with Nikon mounting arm, two batteries, two synch leads and charger. This one was a spare in a set of three so has seen little use. (The other two are completely worn out!) £600 Buyer collects. Twickenham. e-mail bantin@blueyonder.co.uk

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Wanted

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