Underwater Photography

Nov/Dec 2017
Issue 99

The magazine that doesn't say anything here

"After years of travelling to the best dive sites in the world and often experiencing poor conditions, we found Wakatobi Dive Resort. They have a perfect balance of luxury with outstanding diving."

~ Kate Pagdget-Koh

An experience without equal

At Wakatobi, you don't compromise on comfort to get away from it all. Our private air charter brings you directly to this luxuriously remote island, where all the indulgences of a five-star resort and luxury liveaboard await. Our dive team and private guides ensure your in-water experiences are perfectly matched to your abilities and interests. Your underwater encounters will create lasting memories that will remain vivid and rewarding long after the visit to Wakatobi is concluded. While at the resort, or on board the dive yacht Pelagian, you need only ask and we will gladly provide any service or facility within our power. This unmatched combination of world-renowned reefs and first-class luxuries put Wakatobi in a category all its own.

wakatobi

www.wakatobi.com

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© Tony Wu
Category winner Mammals: Behaviour,
53rd Wildlife Photographer of the Year

Underwater Photography *2001 - 2017*
© PR Productions
Publisher/Editor Peter Rowlands
www.pr-productions.co.uk
peter@uwpmag.com

Blue Planet II

We have only just been privy to the first episode of this major new BBC, four years in the making, Blue Planet II and I have to say it's 'looking good'.

From the first jawdropping trailer (how many trailers do you remember that kept you riveted for 5 minutes?!) to the much anticipated first episode, they have flown our flag high. A world class team of a dozen principal photographers and ten additional/assistant photographers backed up by a dedicated team of researchers and producers.

The series is a BBC Open University Partnership with credited co-productions with what look like a select body of likeminded companies. The result, admitedly only based on the trailer and first episode, just gets better the more I think about it.

The original Blue Planet was produced when, believe it or not, it was a world away in terms of digital camera technology. High speed and low light performance to name just two were the stuff of cinematic dreams back then but now, just 16 years later the technology is totally available. But what has impressed me so far is how that imaging capability has been harnessed so positively and artisticly rather than gratuitously.

Soaking in sublime slow motion footage to the beautifully understated score of Hans and his team enveloped by the word perfect script delivered, as only Sir David can, produces a tremendous sense of pride of such a representation of the world we are so immersed in.

Thank you to all of those involved.

Editorial

99 not out

That's the score that puts pressure on a cricketing batsman especially but, in fact, any sportsman or woman as they battle to control their nerves and steer their career to a fist pumping 100; be it runs, tries, goals or caps.

Back in August 2001 we had UwP 1, a pumped up newsletter riding on the capability of the world wide web. History has proved that UwP was, in fact, the very first downloadable pdf magazine on any subject, anywhere and that was just pure luck. Right place, right time, right people.

That luck seems to be still on top of the wave as Issue 99 turns out to be 'another bumper issue' and my thanks, as always, goes to our contributors and all that is interesting happening in our world of underwater photography.

As has always been the case, the UwP article cupboard is now empty and we'll see what happens in the next six weeks before work starts on UwP 100. That's what keeps me interested and motivated to produce something that is a product of its time and in its time.

I look forward to working with you on UwP 100.

OpenROV Trident and the Gladius Submersible Drone

Way back in November 2015 I pledged a not insignificant amount of money into a Kickstarter project in the hope of getting an OpenROV Trident but it turns out that the product still does not exist. I covered the story behind its demise in UwP94 Jan/Feb 2017.

At about the same time that I got my refund earlier this year I became aware of another project; this time through Indiegogo. You would have thought "Once bitten etc etc" would come to mind but the refund burnt a hole in my pocket and I pledged a similar amount but this time to a new Chinese company, Chasing Innovation, with no track record that I knew of.

It turns out, as you can read in my review of the Gladius Submersible Drone later in this issue, that I backed a winner and in September I was rewarded by a knock on the door from FedEx.

You can read my review to take up the rest of this story but I cannot end this without a word of caution if you are seriously interested in an ROV and are looking to make a purchase soon.

If you are tempted to "pre-order" the Open ROV Trident at https://www.openrov.com/products/ this website states at the time of writing: UPDATE SEPTEMBER 2017: Due to high demand, new orders are expected to ship end of 2017 / early 2018.

In November 2015 I was reassured that I would get delivery of the same product in Nov 2016.

I'll leave you to do the maths.

Peter Rowlands
peter@uwpmag.com

News, Travel & Events

New from Master Liveaboards: Solomon Islands and Papua New Guinea

Following the recent merger with blue o two, Master Liveaboards is pleased to announce yet another vessel to its ever growing network of worldwide liveaboards; the Solomons PNG Master.

Explore the Solomon Islands with its exquisite diving, truly one of the last diving frontiers, with pristine coral reefs and an unparalleled variety of marine life. Dive into history and explore the many WWII wrecks in the Iron Bottom Sound.

Sojourn comfortably on board the Solomons PNG Master that many will already know as Taka, the much respected vessel operating liveaboard cruises in the Solomon Islands since 2013 with Solomon Islands Dive Expeditions.

As the name suggests Master Liveaboards is not offering just one, but TWO new destinations; Papua New Guinea (PNG) is now on the menu as well!

From April 2018, Master Liveaboards will be offering the best liveaboard diving in PNG for several months of the year, including amazing transition trips, aboard Solomons PNG Master.

The diving in PNG is virgin territory: so remote and unexplored to the extent that new marine species are still being discovered there. Schedules for Solomons PNG Master will be available and open for sale from the 21st of September with cruises in the Solomon Islands available immediately, with the first cruises to PNG starting in April 2018.

www.masterliveaboards.com

Beneath the Sea 2018

Each year, Beneath the Sea is pleased to give underwater photographers and videographers a chance to compete with their peers from across the world.

Best-In-Show Prize (Video): The Stan Waterman Award for Excellence in Underwater Videography.

Best-In-Show Prize (Photo): The David Doubilet Award for Excellence in Underwater Photography.

Best In Show Prize (Creative): The Jim Church Award for Excellence in Underwater Creative Photography.

And many other prizes, including gift certifications and equipment from premier manufacturers. So start looking through your videos and images and find your best work to enter. But don't wait too long the deadline of December 31, 2017 is closer than you think!

www.beneaththesea.org

Arctic Whale Expeditions Winter 2017 - 2018

We currently have two small expeditions planned this winter as follows.

1) November Recce of the North

The herring migration (which the whales follow) is showing some interesting patterns and there may be some very good additional opportunities in early winter. We have a small group looking to come with us in mid November on an expedition to a new location which has reported good whale action. There may be a couple of spaces available for this, however they would be on application only. People interested in joining would require to join on the understanding it's a new location and exploratory basis, along with being prepared for the conditions. If interested then please contact Shane to discuss.

2) January Peak Season

We will be running two weeks in our normal location where we have been based for the last four years. We only have 12 places left over the two weeks, so it's a first come first served basis.

http://baskingsharkscotland.co.uk/our-tours/overseas-tours/swim-with-killer-whales-orcas-in-norway

Anilao Photo & Video Workshop 2018

April 21- 28, 2018

This is a chance to learn and develop with professional instruction, unlimited support and a chance to be guided to striking imaging opportunities – every day.

Anilao is home to some of the finest Muck and Reef Macro diving in the world. The variety of species and environments that can be found within a 15 minute boat ride from the resort is simply staggering. There are also world class wide angle opportunities for those who can pull themselves away from the small stuff.

It is not uncommon to hear first time visitors to the area exclaim they have photographed more unusual critters around Anilao in a week, than years of international travel elsewhere. The exotic night diving options are second to none.

We have lined up the industry's leading experts in underwater imaging and equipment with Reef Photo and Video's own Kevin Palmer, Nauticam's Christopher Parsons and Tanya Burnett, Field Editor for Sport Diver magazine.

We have scheduled this trip for the absolute best time of year to dive Anilao, promising the best diving conditions and clearest visibility this destination has to offer.

http://reefphoto.com/shop/index.php?main_page=events&event_id=103

Truk Lagoon 2018 with Brook Peterson

Feb 25 - Mar 4, 2018

Find out why everyone loves Truk and join Bluewater Photo & Travel on the Truk Odyssey for a Photo Trip led by Brook Peterson. Brook will give presentations on wide-angle photography, and running image reviews for guests, along with offering one-on-one help as needed. Non photographers are welcome as well!

Truk Lagoon is the best wreck diving destination in the world, with over 60 World War II wrecks. The wrecks have a good amount of marine life on them, but some are quite deep, with the bottoms in the 100 - 150+ ft. range. The name "Truk" is actually a corruption of the native name for this area, Chuuk, which is part of the Federated States of Micronesia.

Brook is an avid scuba diver and underwater photographer who enjoys capturing the beauty of the underwater environment throughout the world. She is an original member of the SEA&SEA Alpha program. Her work has been featured in both print and online magazines. She is the owner of Waterdog Photography and authors a blog on underwater photography and techniques.

https://www.bluewaterphotostore.com/trip-truk-february-2018

50% discount on all domestic flights

Dive Explore Indonesia would like to offer UwP readers a 50% discount on all domestic flights on any Indonesian destination booking.

Please put this promo code in your email subject : PROMO UPM99

This applies to all bookings made before 31st January 2018 and for travelling anytime in 2018.

We are a team of passionate divers with over a decade of experience in the diving industry in Indonesia.

We carefully select the liveaboards and resorts we offer to our guests, making sure that they comply with our main guidelines :

Safety Standards – Service – Quality of Equipment & Eco-Friendly Approach.

www.diveexploreindonesia.com

info@diveexploreindonesia.com

Palau Liveaboard

April 8-15, 2018

Join Optical Ocean Sales' owner Jack Connick for an amazing photo safari to Palau on the luxurious liveaboard Rock Islands Aggressor, based out of Koror, Palau.

We will explore the reefs and waters in and around the limestone rock islands of Palau. Dive sites will include WWII wrecks, German Channel, Ulong Channel, Blue Holes and the famous Blue Corner – Micronesia's most famous shark dive. The vessel is a spacious, comfortable catamaran. Stretching 106 feet, 31 feet wide and accommodates 18 guests who are pampered by a crew of 8! Deluxe cabins are en-suite with a/c. The Aggressor has large camera table and excellent photo facilities. Diving is conducted from a 30' hard boat that launches with a power lift system, divers, gear and all! Optical Ocean Sales is working closely with the Aggressor for a special dive trip that will emphasize photo opportunities.

Mantas in German Channel, Giant Napoleon wrasse, turtles, large schools of barracuda, huge tridacna clams and schools of small fish like trevally, triangle butterflyfish, and countless sharks are also on the agenda of critters to view. And the reefs abound with macro subjects, small gobies, nudibranchs, shrimp and crabs are all on view against the soft and hard coral backdrops.

You also have an opportunity to step back in time and visit the island of Peleliu, site of one of the fiercest battles in the Pacific during WWII, as well as dive the more southern sites there.

https://www.opticaloceansales.com/dive-picture-perfect-palau.html

UPY 2018

Closing date is January 2nd 2018

The Underwater Photographer of the Year competition is now open for entries and the closing date is January 2nd 2018.

UPY has become a very prestigious competition and has attracted a world class standard of entries but there are categories for all levels to encourage all underwater photographers to enter and have the chance to be voted Underwater Photographer of the Year 2018.

One new category has been added; Black & White (International).

The judging team remains the same with Peter Rowlands as Chairman, Alex Mustard and Martin Edge. Peter, Alex and Martin will spend two days together in early January 2018 to give your entries the time and respect they deserve.

The results of UPY 2018 will be announced in mid February and then featured in most major newspapers, magazines and websites worldwide giving winners unprecedented coverage of their work and who knows what opportunities might occur as a result of such coverage!

This is the prize that money cannot buy. The whole UPY team take great care (and pride) in fostering this relationship with all our media partners on your behalf, and is a large part of the behind-the-scenes work undertaken to deliver the world's very best underwater photography competition.

www.underwaterphotographeroftheyear.com

Underwater Photographer of the Year 2017

'Dancing Octopus'

Gabriel Barathieu (France)

In the lagoon of Mayotte, during spring low tides, there is very little water on the flats. Only 30 cm in fact. That's when I took this picture. I had to get as close as possible to the dome to create this effect. The 14 mm is an ultra wide angle lens with very good close focus which gives this effect of great size. The octopus appears larger, and the height of water also. Also, I didn't need flash because I had lots of natural light.

Judge's comments:

Alex Mustard: Both balletic and malevolent, this image shows that the octopus means business as it hunts in a shallow lagoon. The way it moves is so different from any predator on land, this truly could be an alien from another world. A truly memorable creature, beautifully photographed.

Peter Rowlands: Vibrant contrasting colours, detailed delicate textures and a perfect pose. Add the right choice of lens for the situation and they all combine to produce a Champion.

Martin Edge: I cannot praise this photograph enough. As soon as I first set eyes on it as we worked our way through the Wide Angle Cat, I knew it was destined for a huge success. One amazing Image!

ikelite

NIKON D850

A full featured and durable waterproof housing for Nikon D850 DSLR cameras. Suitable for scuba, snorkel, surf, pool, and any application in or around the water. Built-in TTL circuitry provides lightning fast strobe recycle time and extended camera battery life. A redesigned control set, ultra-durable new ABS-PC blend construction, and the versatile Dry Lock (DL) port system make this system ready for anything you want to throw at it.

Order now through any Authorized Ikelite Dealer. Find one at ikelite.com.

New Products

Ikelite housing for Nikon D850

A full featured and durable waterproof housing for Nikon D850 DSLR cameras. Suitable for scuba, snorkel, surf, pool, and any application in or around the water.

This popular model has been designed from the ground up to include all of our latest improvements.

The single most important feature is our long awaited new Dry Lock (DL) port system. This exciting new system is even more robust and even easier to assemble than our time-tested Four Lock (FL) system. The new ports are lighter and more adaptable, and can accommodate extremely large diameter lenses with ease. If you're considering shooting professional quality lenses like the Nikon 14-24mm or Sigma 10-20mm HSM, then the DL system is essential.

Most popular zoom lenses and select lens focus rings can be engaged using a simple yet effective gearing system that puts adjustment right at your fingertips. A large, soft-touch knob on the side of the housing makes fine tuned adjustments a breeze. Zoom and focus gears differ depending on which lens you are using. All are lightweight and affordable. Refer to the DL System Port Chart to choose the correct gear. Zoom gears sold separately.

There are significant advantages to upgrading your lens ports for example if you're shooting an 8" diameter dome, you'll also save almost 2 pounds by using the DL version instead.

Our signature open-groove design suspends the rear o-ring in a natural position that is easier to maintain and more reliable than forcing the o-ring into a channel. Use of the vacuum valve requires a compatible Vacuum Pump with Gauge # 47011, sold separately.

Our push buttons have been redesigned to reduce weight and salt build-up. The back of the housing features laser engraved control symbols which will never fade or fall off.

The included Supereye Viewfinder provides an enhanced view of the camera's optical viewfinder when viewed through a dive mask. The viewfinder removes quickly and easily for the attachment of an optional Straight Magnified Viewfinder # 6890 or 45° Magnified Viewfinder (Type 1) # 6891.1.

www.ikelite.com

Nauticam NA-D7500 housing for the Nikon D7500

Nauticam housings are evolutionary marvels, with advancements from previous Nauticam for Nikon systems providing the foundation that this new model was built on. Customer feedback is integrated at every possible opportunity. The cumulative experience of the Nauticam user base provides constant inspiration for innovation, and is a key strength of the brand.

The right grip is mission control for the D7500 camera, accessing many of the frequently used camera functions. Oversized levers are identifiable by feel, allowing tactile operation while framing with the optical viewfinder. The most frequently accessed fingertip controls (Shutter Release, Main Command Dial, and Sub Command Dial, Video Record, and AE-L/AF-L) are located here. ISO, the primary exposure control used by DSLR video shooters, is accessed by a convenient thumb lever under the right grip. INFO, useful for calling up the camera settings on the 3.2" rear color LCD, is placed at the left thumb.

A "pinky lever", placed just under the front sub-command dial, accesses the Fn1 button. This can be linked to a number of assignable functions.

The new NA-D7500 housing further enhances the market leading Nauticam ergonomic experience with improved control placement in a compact, light weight housing produced with cutting edge manufacturing processes.

www.nauticamusa.com

ACQUAPAZZA
PRODUCTS

Underwater Camera Housing for
Panasonic LUMIX GH5

APPA-GH5

Release in October 2017

P10220392

http://www.acquapazza.jp/en/

TRT-Electronics mobie

We would like to announce the new group in TURTLE ..... The mobie! The mobie is a new family without built in hotshoe which is available in Nikon and Canon versions at this time. We are working on the s-TURTLE Sony version and the 4th new o-TURTLE also. The TURTLE connects to the camera with a 15 cm cable to the hotshoe.

Numerous photographers use small housings with not enough space to fix the full size TURTLE in the hotshoe, but want the TTL function for the correct exposures. That is why we developed a new family in TURTLE.

Technical information:
The main parameters are same at the first version TURTLE-s.
TTL /Manual functions.
Chargeable Li-ion cell gives the power.
Sync cord connection with D1, D2, YS250 , Inon Z240, and IKELITE
Optical connection with 3mm (12cd)

and 5mm LED (64cd) for D1, D2, Inon Z240
Robust stainless steel hotshoe connection.
The size:
Nikon version (38x25x11 mm) works with 120 mAh battery.
Canon version is (48x27x11 mm) works with 240mAh battery.

The TURTLE improvements were not just outside. The first version TURTLE works with only 3 mm LEDs with 12 candelpower. We have pushed more energy in this small box to work with larger 5 mm 64 candel LEDs. Before ordering please specify which one you would like to use. The hotshoe cables minimum 15 cm and the user can fit the mobie anywhere in the housing with velcro.

www.trt-electronics.com

TRT-Electronics o-TURTLE

TRT-Electronics has launched the new o-TURTLE for Olympus MILC systems. The o-TURTLE was tested with OMD E PL3, E-M5 , E-M5II, E-M10II, E-M1, E-M1II.

This adapter works with all Olympus MILC systems. It has been tested in electrical triggering mode with Sea&Sea YS-D1, YS-250, IKELITE DS series, Inon Z240 typeS 3 and 4 .We have also tested it to trigger optically (with the included LEDBOARD) with YS-D1, YS-D2 and Inon Z240.

You can easily set Turtle to communicate with your underwater strobes: just use the DIP switch on the bottom of the device. The user manual is dowloadable from the TRT-Electronics website FAQ page.

Specifications

Compatible cameras: Olympus MILC systems.

Compatible underwater strobes with LEDBOARD 5 mm (64 candela) or 3 mm (12 candela) LED (Optical sync): Inon Z-240 , Sea&Sea YS-D1, YS-D2 with multicore cables. 4 types LED board available.

Compatible underwater strobes with wired connection: Inon Z-240 , Sea&Sea YS-D1, YS250 , IKELITE series.

TTL outputs: 1 optical LEDs and 1 electric wire connectors (X-trigger. Quench, GND)

Features:

1. Switch between 1st or 2nd curtain mode for perfect rendering of motion. And the flash correction is working fine.
2. No more overheating problem with built in flash.
3. No more included battery capacity problem with the body.
4. Continous shooting is available in non silent mode!
5. Full scale power with optical sync in TTL (Not possible with built in flash).

www.trt-electronics.com

Sealux HXA25 housing for Canon XA25, XA20, HF-G30, HF-G40

The housing is made of seawater-resistant aluminium. It is CNC milled out of a monoblock, then anodized and covered with a special powder coating. The camcorder is precision-guided along a special slide and fitted inside the front part of the housing, thereby excluding any fitting errors.

The extra wide 4.3” high-resolution colour TFT-LCD monitor produces a sharp and crisp 16:9 format image. As a novelty, the monitor is now operated using only 2 x 3 standard AAA rechargeable batteries, resulting in a greatly improved housing balance. The viewing angle of 30º relative to the swimming plane and the effective sunshade allow comfortable viewing of shots even in shallow waters.

www.sealux.de

Fantasea FA6000 housing for the Sony a6000

The FA6000 housing features an ergonomic design with access to all essential camera functions. It offers the highest professional standards of functionality, style and durability.

An FML interchangeable lens port system allows using a wide range of lenses underwater. A standard M16 port allows for optional connectors and accessories to be installed on the housing, including HDMI, vacuum valve or electronic strobe triggering bulkheads. For a maximum sense of security, the housing comes with a leak detector installed inside.

Depth rated to 60m/200 feet, the Fantasea FA6000 is the best dollar for value waterproof housing for the Sony a6000 camera.

www.fantasea.com

New Ultralight AC-H1/4 handles

These are newly designed handles (AC-H1/4) to which a ball can be added and a lanyard holder (AC-LH) can then be installed under the ball and a lanyard will attach to each handle. (Total retail is $173.65)

The lanyard holder will work under the ball of the TR-DHB handle also. (Total retail is $127.75)

If the customer already has the TR-DHB handles then the Lanyard holders and the Lanyard are $27.85

www.ulcs.com

Gates AX700/Z90 housing for Sony 4K Camcorders

The Gates AX700/Z90 housing will be available from first quarter 2018. Pricing is to be confirmed.

www.gateshousings.com

Canon, Olympus, Inon, Sea & Sea, Hugyfot, Nauticam, Light & Motion, FIX, i-Divesite, GoPro, etc...

Acquapazza APSO-A9 housing for the Sony α9

Japanese housing manufacturer Acquapazza are finalising the design of their APSO-A9 housing for the Sony α9 and it will host six major features which set it apart from the competition.

Firstly TTL exposures are available using the Sony stroboscope. This will allow high precision TTL photography.

Secondly the housing can be fitted with a 10,000 mAh battery so if you shoot movies this will give 5 times more capacity.

Thirdly the camera can be directly installed with lenses up to 108mm diameter with the LB port. The housing appears compact but can accept large diameter lenses.

The fourth feature is the Vari-angle grips which can be adjusted to suit individual preferences and different size hands can be accommodated with 5mm or 8mm spacers.

The fifth feature is unique to Acquapazza and is the Slant Cover which allows the LCD screen to be tilted up to 45° underwater which is especially useful for subjects on the seabed and then tilted back to 0° for vertical shots.

The final feature is the Vertical double O ring design which provides more protection from flooding even if the housing has not been closed properly by up to 2mm. In addition all sliding controls are double O ring sealed.

www.acquapazza.jp/en/

Nauticam NA-D850 housing for the Nikon D850

Innovation, ergonomics, and reliability are the hallmarks of the Nauticam brand. Every new housing design is carefully crafted based on feedback from Nauticam users around the globe. Feedback gained from the knowledge and experience of Nauticam owners results in every new housing design being better than the last.

Key camera controls are placed within an easy reach from the ergonomic, rubberized handles. An incredible amount of design resources go into crafting this layout, but that effort pays off with unmatched ease of use. Controls on the housing are placed exactly where they should be for easiest access in water, regardless of the camera layout.

The NA-D850 uses the same integrated LED flash triggering system found in NA-D5 and NA-D500. This low profile housing mounted circuit board is convenient, easy to use, and reliable.

This optical flash trigger can fire at the full 7 fps of the camera, making it the ideal solution for the rapid fire fast action shooting that the D850 is so well suited for.

Users of legacy flashes without optical triggering are able to add accessory Nikonos (26074) or Ikelite (26075) style bulkheads for electrical flash sync. These bulkheads plug into the LED trigger board for clean cable routing, and reliable connection.

www.nauticamusa.com

INON LF1300-EWf

Underwater coverage is 100 degree thanks to the optically designed dome lens which effectively widens the LED beam without sacrificing native brightness.

The On-board "Sutter-linked AUTO OFF" function is of benefit as a focus light for still images. Flashing is detected by a sensor located on the light emitting surface which will instantly cease illuminating then back on automatically.

Black out period is only 0.2 seconds. Another flash detection during black out time will extend it about 0.2 seconds.

This "Sutter-linked AUTO OFF" function can be controlled by the "Selector Ring LF" (red circular switch) on the light head to activate/ deactivate the function to use as a video light not to have intermittent illumination by neighbors' flashing.

www.inon.jp

Subal ND850 for Nikon D850

Coming soon, pre-order now!

With the SUBAL ND850 for the Nikon D850, SUBAL offers Nikon cameras an aluminum housing for the latest development of the compact full frame.

Maximum depth: 80 m (120 m on request)

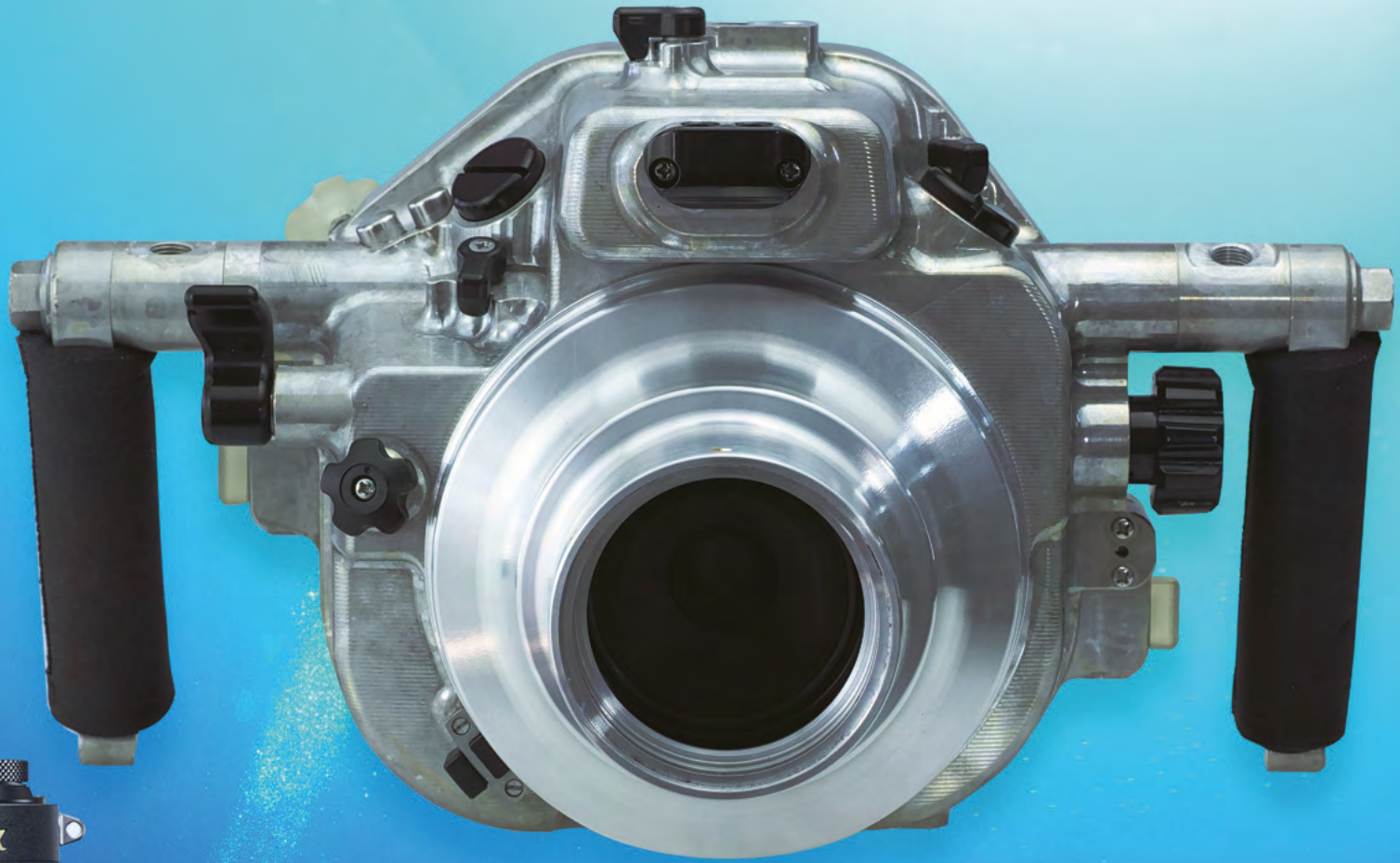
Weight: Approx. 2 kg (without port and accessories)

Weight in water: nearly neutral (depending on the port and accessories)

Dome port and accessories shown on picture not included

www.subal.com

ACQUAPAZZA
PRODUCTS



Underwater Camera Housing for

Sony ILCE-α9

COMING SOON

APSO-A9

http://www.acquapazza.jp/en/

Acquapazza 200 metre domes

Japanese housing manufacturer Acquapazza is developing a dome port designed to be used down to 200 metres and they will be exhibiting it at the DEMA Show in Orlando.

They have been working on this since July 2016 and in order to photograph a fish which lives at 130 metres, they began working on a prototype. Initially they assumed that an existing 100 metre rated glass dome mounted onto a strong supporting flange would solve the problem. Unfortunately a commercially available dome caved in at 85 metres and when the test was repeated another dome went at the same depth.

Acquapazza then bought a different glass domes and mounted it on their own design of flange. These gave in between 120 and 180 metres so they were not consistent.

In order to establish a safe working depth of 180 metres the pressure test was increased to 190 metres.

Following this they changed the specification of the dome, ordered a new batch and, because this was an expensive investment, expectation was growing.

Unfortunately, contrary to expectation, these domes did not pass below 120 metres before failing so the new specification was not an improvement.

Five months later, Acquapazza changed both the specification of the dome and the support flange and pressurised them to 2.1MPa in a pressure chamber.

The first withstood the pressure for one hour. The second failed within 10 minutes. The third and fourth ones leaked at the flange/dome interface and the fifth failed within 34 minutes. The sixth withstood the pressure for an hour so it passed the test.

Further developments are taking place and only those domes which pass the physical test will be passed

for sale. The resulting stock of domes will be available as OEM for other housing manufacturers and enquiries are invited.

www.acquapazza.jp/en/

Sea & Sea Optical Dome Port II 100

100mm in diameter, the Sea & Sea Optical Dome Port II 100 comes in three versions. It is the most compact and lightweight optical dome port that SEA&SEA offers. Designed exclusively for fisheye lenses.

(#30133) (made-to-order item) for Nikon AF DX Fisheye Nikkor ED 10.5mm F2.8G

(#30134) for Tokina AT-X 107 DX Fisheye 10-17mm F3.5-4.5, for Nikon and Canon cameras.

(#30135) Designed exclusively for Canon EF 8-15mm and Nikon AF-S Fisheye Nikkor 8-15mm.

Two different anti-reflective coatings are employed to optimize image quality, one for the exterior and the other for the interior.

www.sea-sea.net

SECA DS100 Telescopic Pole Camera

The new SECA DS100 Telescopic Pole Camera System is a portable rugged inspection system designed for the Border Agencies, Security Industry, Utilities and Emergency Services.

The DS100 can be a Pole mounted or free-standing system allowing the operator complete flexibility of movement whilst carrying out searches or surveillance. The Battery pack provides up to 8 hours of constant use and multiple packs can be carried for continual shift work.

The Infra Red Camera provides clear high resolution colour images in daylight and switches to infra red in low light to provide clear black and white images at distances up to 50ft. The camera is mounted on a telescopic pole with a collapsed length of 1.2 mtrs and extends up to 4 Mtrs allowing surveillance without having to worry about working at heights regulations or moving obstacles. (Telescopic Pole extendable to 18' is available on request)

The camera head is fitted with a unique friction joint allowing the head to be articulated between 0° and 110°. Articulation can be achieved manually by adjusting the camera head against

the friction joint to the desired angle. Articulation can also be achieved by placing the camera head against a fixed object and pushing or pulling the head to the desired angle. This is a real benefit when carrying out room/container searches as the camera doesn't need to be collapsed to carry out a full search.

The monitor has an SD Card slot for capturing Video and Still Images for evidentiary use. The system comes complete with an SD Card and will take a maximum of 32GB card.

Camera Field of View - 90°

Price: £2,100.00 Inc VAT

www.dartsystems.co.uk

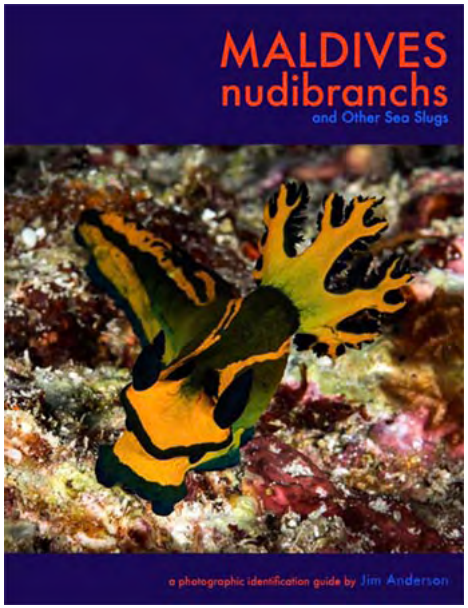
Nimar housing NIGH5 for Panasonic GH5

The Nimar housing NIGH5 for Panasonic GH5, is compact, lightweight and made of durable injection molded polycarbonate. This compact digital housing is molded of corrosion free ABS-polycarbonate, it is virtually indestructible with heavy duty walls that allow it to operate safely to 60m (200 feet).

A compact, full-featured waterproof housing for scuba diving, surf, pool, and creative photo opportunities anywhere there's water. This housing requires the addition of a compatible lens port for waterproof operation. Lens port not included.

www.aditech-uw.com

Maldives nudibranchs by Jim Anderson



This is a photographic identification guide to the nudibranchs and other sea slugs of the Maldives. 100 species are described and illustrated, many with multiple images. This is the first dedicated guide to these beautiful animals in this area of the Indian Ocean.

This book is available for download with iBooks on your Mac or iOS device. Multi-touch books can be read with iBooks on your Mac or iOS device. Books with interactive features may work best on an iOS device. iBooks on your Mac requires OS X 10.9 or later.

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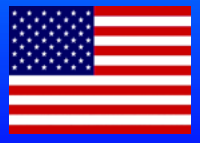

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"Often copied, never equaled"

Olympus OM-D E-M1 Mark II and PT-EP14 housing

by Phil Rudin

My first product review for Underwater Photography Magazine was a five page article covering the Olympus E-PL1 and the Olympus PT-EP01 housing in the Sept/Oct 2010 issue. Prior to that I had reviewed the Olympus E-520 and Olympus E-620 cameras and Olympus housings for issues of Dive Chronicles Magazine along with a few other publications.

The first Olympus digital camera I owned was the E-20 which I used during my police career for crime scene photography. Olympus is the only major camera manufacturer that has consistently released a line of underwater housings along with its mid-level and flagship cameras.

My first Olympus housing was the PT-E01 housing for the Olympus E-volt E-300 followed by the PT-E02 housing for the E-330. These were great housings that I used extensively during a six week dive excursion in Alaska and Vancouver Island British Columbia. The latest Olympus PT-EP14 housing is just as robust and still accepts all of the ports from those original PT-E0 housings along with two new and exciting port additions for macro and wide angle.

Olympus OM-D E-M1 Mark II

The Olympus E-M1 Mark II has been selected 2016 and 2017 camera of the year by a number of well respected reviewing sites and magazines who put far more time into pixel peeping than I do. I believe the E-M1 Mark II is currently the best Micro 4/3 camera for still photography available. Anyone who is interested in underwater photography should take a close look at this Olympus camera & housing combination.

For the purpose of full disclosure I have reviewed nearly one hundred cameras, housings, ports, strobes and

Schooling Bluestriped Grunts, Cozumel Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye lens, Two-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/250th sec

U/W photo accessories which I have not owned. Those reviews have appeared in Underwater Photography magazine and many other publications over the past twelve years. For this review I am using an Olympus EM1 Mark II and several lenses which I personally own and in fact the Olympus E-M1 Mk II is my go to camera for all my personal work both underwater and top side.

The E-M1 Mark II expends on the hugely successful Olympus OM-D series and is a brilliant successor to the E-M1 platform released in 2013. The E-M1 mark II is at the Pro end of the OM-D line and the newest Olympus flagship camera.

The E-M1 Mark II directly targets Pros and high end enthusiasts who don't mind shelling out around $2000.00 USD for a highly capable and very compact camera body. The E-M1 Mark II would be a compelling choice for DSLR users who may be considering moving to a mirrorless a camera system. Current Olympus users wishing to move up from the Olympus OM-D E-M5/II or E-M10/II series cameras will also find the E-M1 II to be a no-brainer as an upgrade.

Olympus has completely outdone itself with a total redesign of the entire E-M1 camera from top to bottom. This is no incremental upgrade to stimulate new sales, instead the Mark II has exceeded all expectation for both the Olympus faithful and the seasoned reviewing community.

Some of the key upgrades include a new 20MP live MOS sensor, Cinema (DCI) and UHD 4K (237Mbps) video, Micro-HDMI, an insanely weather-sealed and temperature resistant body, a new hybrid 121 point auto focus system, high-res electronic viewfinder, fully articulating 3" LCD screen, 60 FPS burst rate with electronic shutter single frame rate, 18 FPS in continuous AF modes,

Split Image, Cozumel Mexico, Olympus E-M1 MkII, Olympus 7-14mm F/2.8 zoom at 11MM, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-400, F/13, 1/250th sec

mechanical shutter frame rates up to 15 frames per second, a new TruePic VIII processor for blazing speed and excellent buffering, Dual card slots for SD/SDHC/and SDXC (only one slot, top for super high speed cards) the best in-body image stabilization system made hands-down with up to 6.5 stops, USB-3 (type-C), 50MP high-res shot mode, the new BLH-1 Battery which extends life to new levels for a mirrorless camera, built in WiFi, a more refined menu interface and ridiculous number of controls and customizable settings that Olympus users have come to expect with each new O-MD release.

Olympus also has an excellent line of lenses that are well suited to underwater photography. Along with the E-M1 Mark II Olympus also introduced the new M.Zuiko Digital ED 12-100mm F/4 Pro zoom lens which is an incredible travel

lens that goes everywhere with me. The new lens follows in the footsteps of Olympus first M.Zuiko PRO lens the 12-40mm F/2.8 Digital ED PRO which was introduced with the E-M1 camera.

Olympus rounded out the O-MD E-M1 Mark II release with a powerful new FL-900R external flash which has a 58 meter guide number, the new STF-8 macro flash set, new HLD-9 battery grip and the new PT-EP14 underwater housing being used for this review.

While many DSLR users in the underwater photography community are still debating mirrorless cameras they fully grasp the merits of Micro 4/3 and

Coral Cenote at Ponderosa, Yucatan Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye, ISO-400, F/5.0, 1/60th sec, Natural Light

Hawksbill Turtle, Cozumel Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye lens, Two-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/250th sec

APS-C over full frame sensor cameras for many underwater needs. The Micro 4/3 and APS-C cameras allow smaller housing designs, use smaller lenses with smaller ports and smaller extensions. This all adds up to a more cost effective and travel friendly underwater camera system.

Smaller M4/3 sensors also increase depth of field and provide better corner sharpness with many wide angle lenses v. full frame. If you intend to replace your underwater photo system the high quality and speed of the E-M1 Mark II and the total system cost make a compelling case for the Olympus E-M1II/PT-EP14 camera/housing combination. This camera also has excellent video capability which I will addresses in a future review.

The all magnesium alloy body, overall build quality and finish of the E-M1 Mark II exceeds or is comparable to any current $2000.00 plus "Pro" DSLR or mirrorless camera. The E-M1 Mark II is a bit chunkier than the E-M1 at 574g v. 497g making it easier to hold and operate both in and out of the Olympus housing. Olympus E-M1 Mark II's only downside over the E-M1 is a reduced flash sync speed of 1/250 sec down from the 1/320 sec of the E-M1.

Olympus PT-EP14 Housing

The Olympus PT-EP14 is a clam-shell style housing with the front section and rear door held together by a hinge on the left side of the housing viewed from the rear.

The housing is made from high-grade polycarbonate and the rear door has a single O-ring which seals the housing door. The rear door is locked in place by a rotary cam system on

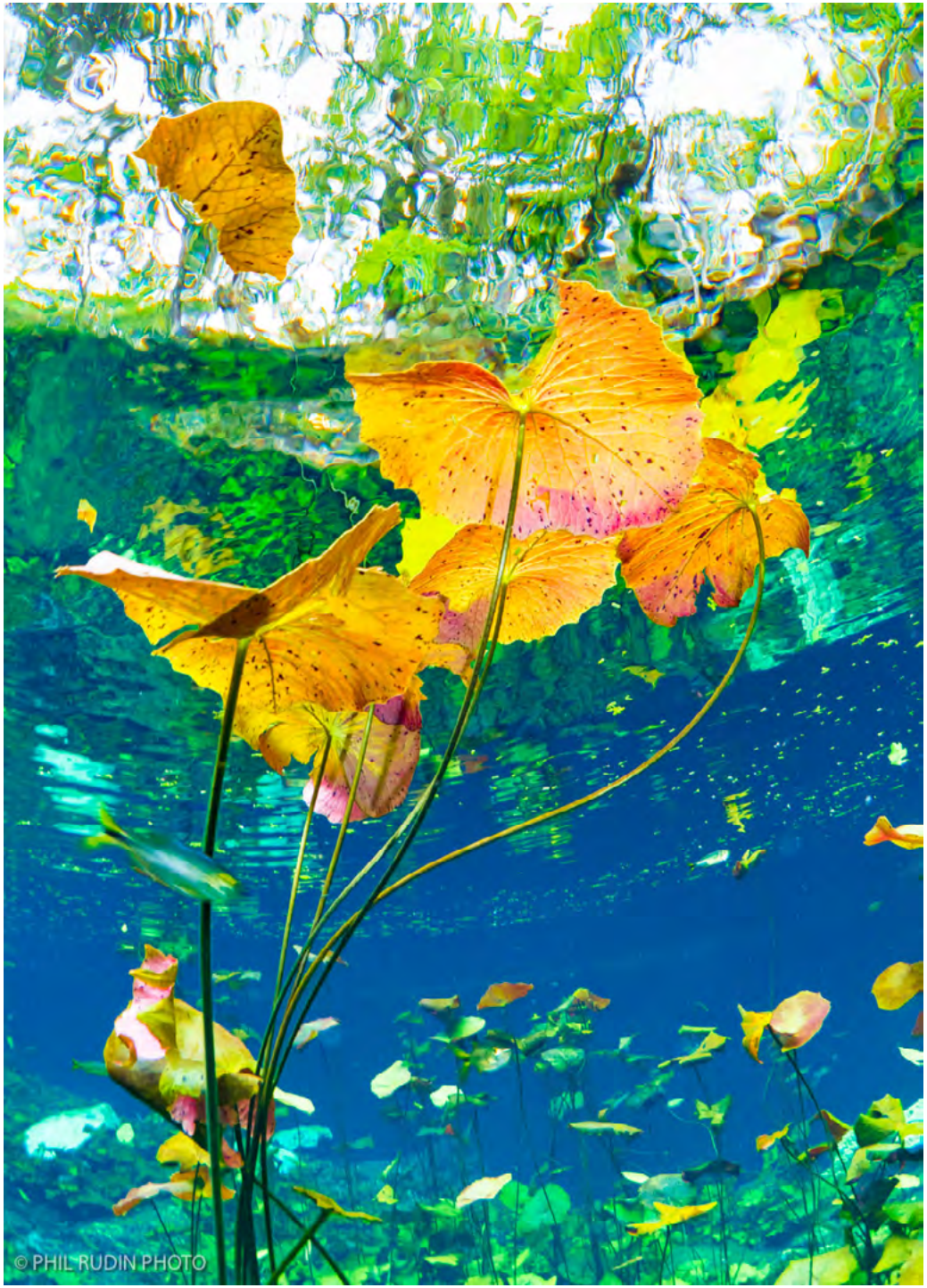
the right side of the housing. The rotary cam has two locking devices - a red switch which pushes in and out to lock and a second lock which has to be pushed up while the cam is being rotated to open the housing. Rotate clockwise to open and counter-clockwise to lock the cam into place then the red switch is pushed to the double locked position and the housing is ready for the water.

As always the main door O-ring and port O-rings should be serviced before the housing goes into the water. When using a new housing or when traveling I always test the housing without the camera before I prepare the system for a dive. The front half of the housing is black Polycarbonate and the rear door is transparent allowing a view into the housing.

Unlike the PT-EP11 housing for the E-M1 which is rated to 45 meters, the new PT-EP14 housing is rated to a depth of 60 meters (196 feet) well beyond the recommended limit for recreational sport divers.

The housings rear door has twelve well labeled push buttons for all twelve push controls on the rear of the E-M1 Mark II camera body. A 30 mm wheel angled at about 35 degrees is also located on the right side of the rear door and is easy to move with your thumb. This wheel controls the rear command dial on the camera body which I have programmed for shutter speed.

Aquatic Plants, Nicte Ha Cenote, Yucatan Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye, ISO-400, F/5.0, 1/60th sec, Natural Light



Below and to the left of that command dial is a smaller dial that controls the program mode wheel on the top of the camera. A clearly marked push button is located on the right top of the housing to lock and unlock mode dial. This allows you to set the mode you want to shoot with and then lock it in.

The Fn2 button is in front and to the right of the lock button and to its right is the video start/stop button. Since I shoot mostly stills I like the fact that the video button is located were I won't accidentally activate the video but is still within reach of my index finger in the event I need to start shooting video in a hurry.

In front of these push button controls is the large red shutter release which pushes down for half press and release. On the top left side of the housing is the on/off switch and push buttons for HRD/Frame rate and AF/focus array. I tend to reset AF selections, Frame rates and Focus array from the super menu along with a verity of other functions. Having a button for each control is great and many operate the camera that way but when I change AF settings I tend to also make changes to other functions and find using the super menu faster.

Because the E-M1 Mark II is one of the most programmable cameras on the planet you can set any of the twenty-one wheels and push buttons on the camera body to suit just about any personal needs you may have.

On the left front of the housing is the focus/zoom dial which is about 20 mm in diameter. This dial is used to zoom lenses and as a manual focus dial for fixed focal length lenses like the 8mm Fisheye, 30mm macro and 60mm macro lenses.

Using a tray with a grip on the left side of the housing my index finger was alignment with the zoom dial and rotating it with light weight dive

Tube Sponges, C-53 Wreck, Cozumel Mexico, Olympus E-M1 MkII, Olympus 7-14mm F/2.8 zoom at 7MM, Olympus PT-EP14, HousingTwo-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/50th sec

Dive Master Jean, C-53 wreck, Cozumel Mexico, Olympus E-M1 MkII, Olympus 7-14mm F/2.8 zoom at 7MM, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/160th sec

gloves was no problem. With my dry suit gloves the zoom control will be more awkward to turn. The housing also has a dry mounting shoe on top for adding a focus light, video accessories, flash and more.

Over the port mounting device on the front of the housing are two fiber optic cord connections. They work in conjunction with the FL-LM3 external flash provided with the camera. Because the FL-LM3 is an external flash it has an on/off switch which needs to be turned ON before you close the housing for your dive. No on/off switch is included on the housing so be aware that the external strobes will not fire through the fiber optic cords without the cameras strobe being turned on.

The camera also needs to be set with the strobe

R/C turned on before the external strobes can be triggered. The FL-LM3 can be set to TTL, manual, rear-sync and more.

To mount the current line of Olympus dome ports to the PT-EP14 housing service the port O-ring and then push the port into the port mount while the red locking ring on the front of the housing is in the unlocked position. Once the port is pushed in properly the red locking ring rotates clockwise and the locking device snaps into place. If you don't hear a distinct snap repeat the process until the port is properly locked into place.

To unlock depress the red locking device and rotate the red locking ring counterclockwise. Older ports (from the PT-E0 housings) and port extensions are threaded and require the Olympus PAD-EP08 adapter to be mounted on the PT-EP14 housing. Simply thread the port or port extension into the PAD-EP08 adapter then use the same process to mount the adapter to the housing. With ports like the PPO-EP04 port for the Olympus 7-14mm F/2.8 Pro the PTLH-E01 dome port shade may need to be loosened and realigned so that the hood will not cause vignetting. Once this has been done the port shade should always lineup when using the same port/extension configuration.

Schooling Snapper, Cozumel Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye lens, Two-Olympus UFL-3 strobes TTL, ISO-400, F/20, 1/250th sec

On the left side of the housing rear door is a button to shift from the electronic viewfinder to the LCD screen. The housing includes an optical pickup finder that allows you to see all the way into the corners of the EVF while wearing a face mask. The large LCD also works quite well for composition and focus accuracy. The housing ships with a rubber shade for the LCD screen.

Field Testing the Olympus PT-EP14 system

For this review I used the Olympus E-M1 Mark II and PT-EP14 housing with two Olympus UFL-3 underwater strobes, PPO-EP02 Fisheye port for the 8mm F/1.8 Fisheye & 12mm F/2, PPO-EP03 macro port for the 60mm F/2.8 & 30mm F/3.5 macro lenses, the PPO-EP04 dome port with port extension PER-E02 and Port adapter PAD-EP08 along with the PPZR-E06 zoom gear for the 7-14mm F/2.8 lens.

Be aware that the older port and extension for the 7-14 F/2.8 lens can be difficult to find. Also be aware that the PPO-EP02 8mm F/1.8 Fisheye port supports the excellent 25mm F/1.8, the ED 9-18mm F/4.0-5.6, 12mm F/2 as well as the 30 & 60mm macro lenses. My advice would be to stick with the newer PPO-EP02 Fisheye port and the PPO-EP03 macro port which support a wide range of lenses when beginning to build your system. Adding the excellent 7-14mm F/2.8 many require after market or used equipment providers.

All of the Olympus lenses that I used underwater including the excellent 7-14mm F/2.8 zoom mount directly to the camera and are installed from the rear of the housing. Some other housings that I have reviewed for the E-M1 Mark II require you to mount the camera in the housing and then install the lens from the front of the housing followed by the dome port. This requires an extra button on the front of the housing to release the lens and leaves the camera sensor exposed when the lens is removed. This housing does not require a tray to be attached to the bottom of the camera.

When installing the camera with the lens mounted the housing should be facing port down.

Make sure that the on/off switch on the housing is pushed up then slide the camera into the housing making sure that any gear is meshing with the control wheel. The camera slides easily into place and the on/off control can then be lowered onto the camera on/off switch. If you are using external strobes turn the on-camera flash switch to the on position then close and lock the housing door.

I left the on-camera strobe in the ON position all of the time because it is not powered up until the camera is turned on. If you angle the housing so that the open rear door is facing down the camera may fall out of the housing. This is easy to prevent if you just keep the port facing down on the dome shade.

Dive Master Jean, C-53 wreck, Cozumel Mexico, Olympus E-M1 MkII, Olympus 7-14mm F/2.8 zoom at 7MM, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/50th sec. At about 300% showing accuracy of the auto focus and excellent detail from the Micro 4/3 sensor

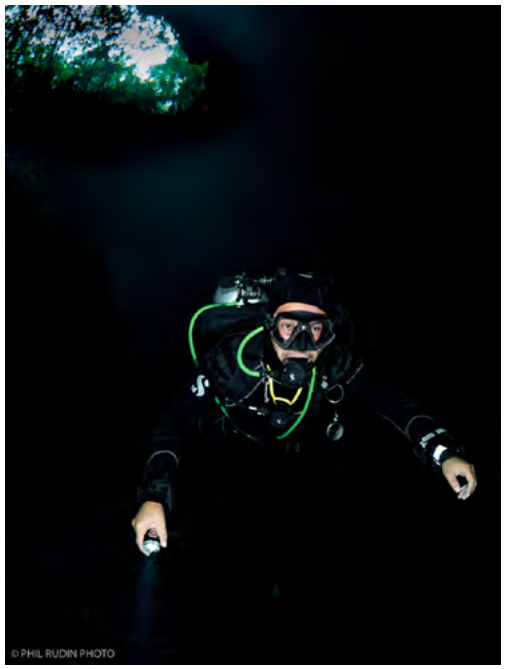
As always my first dip with the housing was in a swimming pool with the camera removed to check for any leaks. With none being discovered I was ready for my first dive using the Olympus 60mm F/2.8 macro lens and macro port.

The 60mm is my most frequently used lens underwater and my go to lens for super macro using accessory closeup lenses. The new PPO-EP03 macro port is small, light weight and has the 67mm threads most commonly used with closeup lenses and other accessories. This port ships with a 67mm lens cap to protect the port glass and a rear cap to keep dust out of the port when it is stored.

The port can be used with or without most of the common flip adapters for closeup lenses. With a +5 closeup lens images are about 12 mm on the long side at minimum focus with a working distance of about 12 cm. Since the E-M1 Mark II sensor is 17.4mm on the long side, at 1:1 (life size) you can fill the frame with some very small critters without adding any extra magnification. I tend to use rear auto focus when shooting macro so that once I have reached 1:1 I can keep it there without having to refocus.

Normally I have the rear focus set to the AEL/AFL push button or control lever but I reassigned this function to the Fn1 button on this housing to make it easer to reach with my thumb when hand holding the housing or when using an accessory tray to mount strobes.

The same macro port is recommended for the Olympus 30mm F/3.5 macro lens. This is a lens which has sold for as little as $199.00 in the US. Please don't be fooled by the price of this lens it has excellent image quality and covers twice as wide a range as the 60mm at the same working distance. This is my go to lens for small to mid-range portraits. Because the lens is about 25 mm shorter than the 60mm macro it sits further back from the macro port glass. As a result at the 1.25:1 minimum focus distance you would be focusing inside the port.



Guide Polo, Cenote Taj Mahal, Yucatan Mexico, Olympus E-M1 MkII, PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, Olympus 8mm F/1.8 Fisheye, ISO-640, F/6.3, 1/20th sec

At around 10 mm from the port glass you can fill the frame with a subject that is about 32 mm on the long side still smaller than the full frame life size of 36mm. If you are interested in more information on this bargain macro lens check out my full review in the last issue (#98) of Underwater Photography Magazine.

I shoot most of my macro using ISO-low or ISO-200 at 1/125th to 1/250th sec, F/4.5 to F/9 and I use a bit higher F/stops with accessory closeup lenses to increase DOF. The UFL-3 strobes were more than adequate for all of my macro work providing well controlled lighting both in TTL and manual settings.

Bridled Goby, Casa Del Mar House Reef, Cozumel Mexico, Olympus E-M1 MkII, Olympus 60MM F/2.8 Macro glens, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-200, F/5.6, 1/160th sec

For wide angle I primarily used the Olympus 8mm F/1.8 Fisheye and the Olympus 7-14mm F/2.8 with their respective ports. These are both lenses I have been using extensively since they were released.

I particularly enjoyed using the 8mm Fisheye with this system. The lens and port are light, compact, very close focusing and with two UFL-3 underwater strobes excellent coverage and ample power was provided with the diffusers attached. Since most images were taken within about eighteen inches or closer TTL worked quite well with balanced ambient lighting.

I most often shoot with my strobes set to manual but found the UFL-3 TTL worked quite well with both W/A lenses within about two feet or less of the subject.

Guide Polo, Cenote Taj Mahal, Yucatan Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, Olympus 8mm F/1.8 Fisheye, ISO-640, F/8, 1/30th sec

Coral Detail, Casa Del Mar House Reef, Cozumel Mexico, Olympus E-M1 MkII, Olympus 60MM F/2.8 Macro glens, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-400, F/6.3, 1/250th sec

With the 7-14mm zoom I experimented with the HDR feature which can be easily set underwater. I shot several sequences of a wreck with the five frames setting using ambient light, (strobe is not useful because it will not recycle fast enough). The increase in dynamic range was evident in the composite Jpeg's and the speed of the E-M1 Mark II negated any movement in the image.

The debate still rages over corner sharpness with the lens zoomed to 7mm using the 170mm port. I generally shoot wide angle over sixty feet at ISO-400 and sometimes greater. This puts me at around 1/125th to 1/250th at F/5.6 to F/9/11. In this range I find corner sharpness to be excerptible for my needs. With full frame at the same shutter speeds I would be a F/13 or above for like corner sharpness in a larger (200/230mm) port. I also highly recommend the 12mm F/2 in the Fisheye port if you already own this excellent lens. It is great for mid-range subjects and models in the pool or in open water.

Using the back focus or half press on the shutter release for auto focus is excellent in all but the very lowest of light. I had no issues with focusing in the dim lighting of the Mexican Cenotes. The shutter release is a bit spongy lacking that tactile feeling of some other housings. Using the back focus I half pressed the shutter to get a better feel for exactly when the shutter would release.

This camera and housing system was quite easy to assemble and maintain. The optical glass ports are of excellent quality and the system build quality feels solid and robust. I would not hesitate to use this system on any photo assignment.

I would like to thank my friends Jean at Yucatek Divers in Playa Del Carmen and Jorge and Alex at Cozumel Marine World at Casa Del Mar for providing excellent support organizing the diving for this review.

Phil Rudin

Small ads

SOLD! – Ikelite housing for a Canon 5D MKII

~~Ikelite housing for a Canon 5D MKII, Ikelite 8" dome port (no scratches) for a Canon fish eye lens, Ikelite ports Canon 17-40mm and a macro 100mm IS lens. I am based in Scarborough, U.K. £1100 ovnoroaminrobin@hotmail.com~~

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Email: martin.abela@hotmail.co.uk [Ref:c145]

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Nauticam's WACP

Wide Angle Corrector Port

By Alex Mustard

As I settle down to write this, Nikon have released the new D850 with 46MP and according to my Facebook feed, scores of my friends have found their new camera and are busy emailing manufacturers telling them they need the housing now, or ideally yesterday.

Nikon, Canon and Sony all now offer full frame still cameras that exceed 40 megapixels and for our video shooting brethren, the message from their manufacturers is that you are wasting your time pressing record if it is only 4K, even more resolution is clearly the future! And while those with older cameras might chuckle at this pixel chasing, I think we'd all like our best shots to be captured at the optimum quality, in the highest possible resolution.

A consequence of ever increasing resolutions is photographers can look deeper into the detail of their images than ever before. And we don't always like what we see. As a result, we've all become a pickier about image quality, not only compared to when we squinted through a loupe on a Lightbox, but also compared with digital cameras of just a few years ago. It's understandable that when we've invested in the latest and greatest camera we want to extract its full performance underwater.

There's an old saying in underwater photography that if you want better pictures, don't buy a better camera, but spend your money on diving in better water! But jokes aside, as long as we are close to the subject, as good photographers invariably are, the problem is rarely the water, but the optical problems of shooting underwater. Therefore, the biggest bottleneck to image quality is not the water itself, but the barrier between the air inside the housing and the water beyond (and what shooting through this does to the image quality.)

Nauticam's new WACP will be released soon. Its arrival makes us question where the real bottleneck in achieving the best quality images underwater lies. Red Sea scenery, June 2017. Nikon D5 and Nikon 28-70mm @ 28mm. Subal ND5 housing. Nauticam WACP. Seacam 150 strobes. 1/160th @ f/18, ISO 640.

A dome port is the typical solution in wide angle photography. Domes have many pluses, but by making the air-water interface curved they introduce some serious degradation to our image quality. The most common manifestation, that we are all familiar with, is the blurring of detail in the corners of wide angle photos. This problem is most prevalent on full frame cameras, with small dome ports, incorrectly positioned dome ports, at more open apertures and with rectilinear, rather than fisheye, lenses.

It is this problem that Nauticam is addressing with their new Wide Angle Corrector Port, which uses fully corrected water contact optics to tackle the limitations of a dome port. The aim is to create a wide angle zoom, with a maximum field of view (FOV) of 130˚, which is wider than either the Canon 11-24mm (126˚ FOV) or Nikon 14-24mm (114˚ FOV), that also produces excellent underwater image quality across the frame, even at more open apertures.

What is the WACP?

The WACP is a lens and a port all in one. It is designed to be used in front of a standard land lens (up to 28mm on full frame, which provides the autofocus, exposure control etc.), while the WACP corrects the lens to see perfectly underwater and expands it into a wide angle with a field of view to 130˚, introducing some mild barrel (fisheye) distortion. To perform this transformation the WACP contains multiple elements of high quality optical glass – about 3 kg worth or well over 6 lb, all there to deliver excellent image quality underwater.

If you are familiar with Nauticam's WWL-1 lens, you can think of the WACP as the pro version, intended expressly for full frame stills and high-end cinematography. Like the WWL-1, the WACP is designed to work with lenses with a field of view up to 75˚ (14mm on M43 or 28mm on FF). This gives plenty of options for full frame photographers, including 28mm prime lenses and zooms, such as the 28-70mm. However, lenses with really large front elements don't work well with the WACP, and physically smaller lenses actually give the better results. Nauticam initially favored Nikon 28mm primes (f/1.8 and f/2.8) in their tests, while in the field, I favored the versatility of a 28-70mm (f/3.5-f/4.5), which becomes a 130˚ to 57˚ FOV lens (for comparison the Canon 11-24mm is 126˚ to 84˚ FOV and Nikon & Canon 16-35mm are 107˚ to 63˚ FOV).

So far the testing has been Nikon biased, but the WACP is not restricted to any brand of camera or specific lenses. Also, like the popular SMC, there is no reason that the WACP can't be used with any housing brand (with an appropriate adaptor).

Nauticam's WACP is port and a lens, that is designed specifically to work underwater, greatly improving image quality compared with dome ports. Used with the 28-70mm zoom it also offers unrivaled versatility in FOV, from 130˚ to 57˚. Nassau grouper in Cuba, August 2017. Nikon D5 and Nikon 28-70mm @ 60mm. Subal ND5 housing. Nauticam WACP. Seacam 150 strobes. 1/100th @ f/12, ISO 640.

At 130˚ FOV the WACP is wide enough for most subjects. Top, Kittiwake in Grand Cayman. Bottom, Chrisoula K in Egypt. Both Nikon D5 and Nikon 28-70mm @ 28mm. Subal ND5 housing. Nauticam WACP.

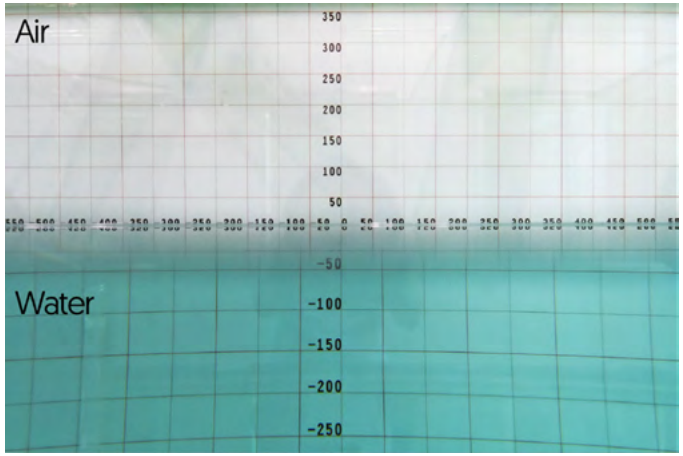
Why use water contact optics?

The short answer is that these are lenses designed to work in water, rather than in air. All the big optical problems of ports (that main bottleneck in underwater wide angle image quality) occur because of the air to water interface. Water contact optics properly correct for this interface and therefore image quality rockets up.

For us to understand it fully, and to appreciate why Nauticam have put so much hard work into designing this lens we need to examine why we use domes ports, their strengths and their weaknesses, because the reason for using water contact optics is to overcome these weaknesses.

Before the 1960s, all underwater photos were taken through flat windows, the port hole in the housing (this is where the word "ports" comes from). We still use them with longer focal length macro lenses where their optical shortcomings are not a big problem. All flat ports suffer from strong refraction when light passes through the flat water/air interface at an angle. The greater this angle (i.e. the wider the lens sees) the worse the problems become. The main optical problems of a flat port in water are a FOV reduction by about 33%, pincushion distortion, blurring of detail and color fringing — all of which get worse and worse towards the corners.

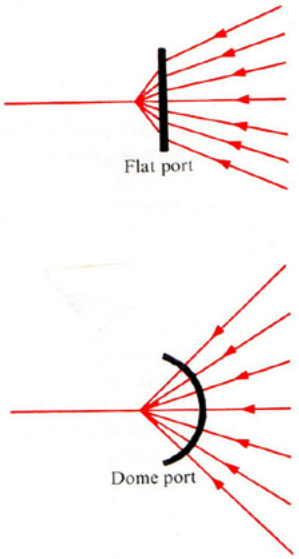
It is worth noting that when light passes straight through a flat port (i.e. at 90° to the water/air interface) there is no refraction and no problems. This is actually how dome ports solve all the problems of flat ports. The spherical shape of the port means that as the lens sees wider and wider, it still encounters a port that is at 90°, so the light passes through un-refracted. This is why dome port positioning (i.e. your port extension length) is critically important.



A photo (half in the water, half out) taken through a flat port with a 24 mm lens on full frame (by Edward Lai). The flat port in air has no impact on image quality. But once submerged, the water/air interface reduces FOV by about 33% (magnifying the squares by the same amount), creates pincushion distortion (lines bend) and other optical problems not really visible until you zoom in (lines are more blurred). Note that all the problems get worse towards the corners, where the refraction is greatest.

The first record of a dome port being used underwater was by the French Navy in 1931. The first underwater photographers to publicize the use of dome ports were Flip Schulke and Walter Starck in around 1963/4 (both of them also shooting the first split level shots to show the angle of coverage of the lens remained the same.)

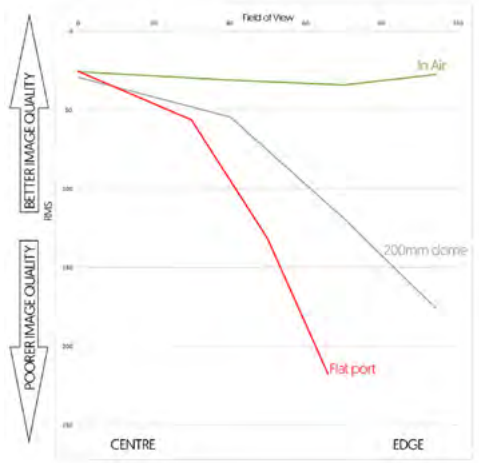
As most underwater photographers know, dome ports are great, but not perfect. The most noticeable downside of the curved water/air interface is that it acts as a simple negative lens and creates a virtual image of the subject. The virtual image is much closer to the port than the real subject (not that big of a deal) and curved in parallel with the port (a significant problem). We must focus on this virtual image to have the subject in focus, but lenses are designed to focus on flat images and because the virtual image curves more towards the edges of the frame, detail becomes increasingly out of focus, or blurred. This is the primary cause of soft corners when shooting with a dome.



Refraction With Flat And Dome Ports – Reproduced from De Couet & Green (1989) "With a flat port, light rays entering the housing are increasingly refracted away from the perpendicular, the larger the angle they form with the optical axis. This leads not only to a reduction of the angle of view but also to severe pincushion distortion of the image. With a dome port, all light rays entering the lens pass through the port at right angles and are therefore not refracted."

As an important aside, the key to overcoming blurred corners with a dome is to close the aperture hence increasing the depth of field and getting more of the curved virtual image in focus. A correctly positioned dome port is also important. If the lens is too close to the dome (a common problem) then the port acts more like a flat port and problems of refraction degrade image quality. Bigger domes also help. A large dome creates a virtual image that is further from the lens and less curved than a small dome, which reduces the blurriness of corners.

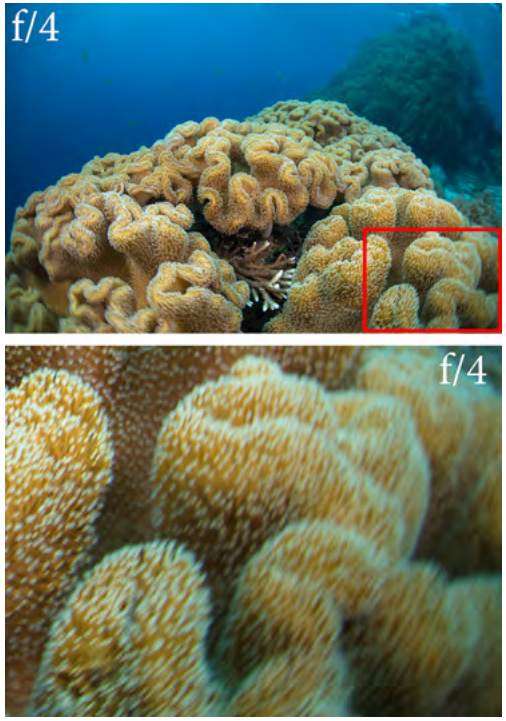
The graph shows image quality data from optical spot diagram simulations (using Zeemax software) at four points across the frame with a wide angle lens. The three lines represent the lens in air (green), in water behind a 200 mm dome (8”) (grey), and in water behind a flat port (red). In air the horizontal line shows that the lens maintains good image quality from the center to the edge of the frame. With the flat port, the image quality falls rapidly as the FOV increases, caused by the increasing refraction and the problems it brings. The dome port improves on the flat port, but image quality also drops away towards the edge of the frame because of the field curvature and other image aberrations. Before you sling your ports, remember that these



The impact on image quality of a dome port and a flat port compared with a lens in air (this graph plots RMS GEO radius against the FOV of a lens, data source: Zemax spot diagram analysis, Edward Lai, 2017). Results are discussed in the text.

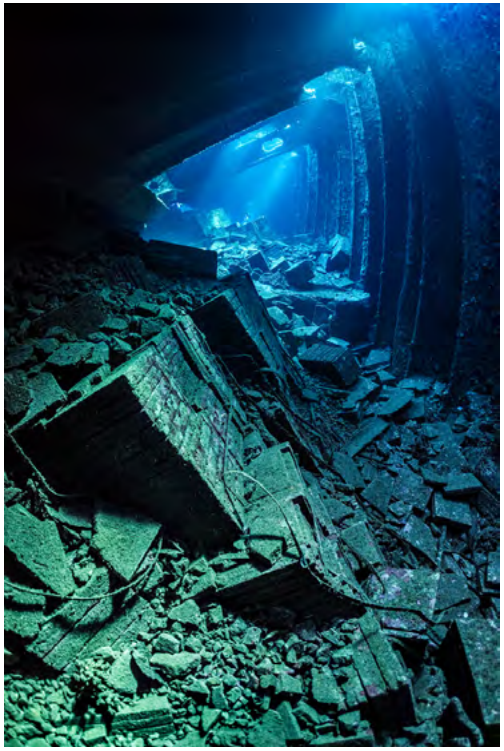
tests are done with open apertures, so are a worse case scenario, especially for the dome.

The take home messages are that ports are not perfect and the wider the lens sees, the harder it is to get good image quality into the corners of the frame. When using wider angle lenses, flat ports degrade image quality more than domes. Lenses with a FOV of more than 35˚ will show significant loss in quality towards the edge of the frame with a flat port. The popular 60 mm macro has a FOV of 40˚ on full frame and even this relatively long focal length lens shows issues in the



A wide angle photo taken with an aperture of f/4 to show classic corner blurring with a dome port. The area in the red box on the upper image, is enlarged in the lower image, showing the loss of detail.

corners of the frame (when detail is present), with loss of resolution and enhanced chromatic aberration. Be aware of this limitation when using lenses wider than a 60 mm with a flat port. While dome ports are better than flat ports, they still drop a lot of image quality towards the edge of the frame compared with the lens in air because of field curvature and other optical problems.



A water corrected lens does not suffer the problems of field curvature of a dome port, that we usually use a closed aperture to overcome. As a result we can shoot at much wider apertures when we need to in low light conditions and still achieve acceptable corner detail. Available light inside a wreck, Egypt, July 2017. Nikon D5 and Nikon 28-70mm @ 28mm. Subal ND5 housing. Nauticam WACP. No strobes. 1/15th @ f/5.6, ISO 2000.

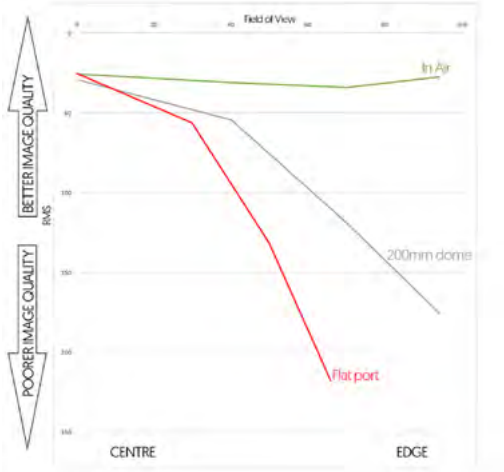
Fully corrected water contact optics overcome field curvature and the other optical problems of domes at all apertures, lifting the image quality much closer to how lenses perform on land.

Dome size and position

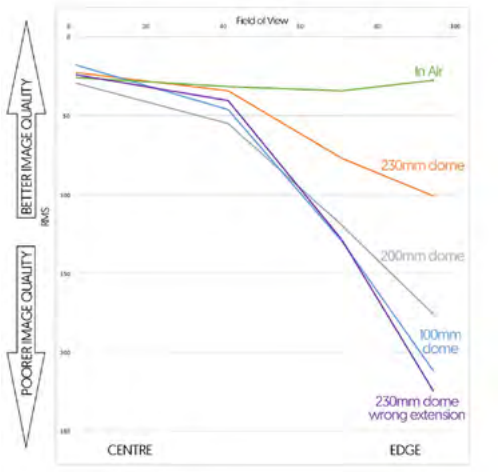
Before moving on, I want to add more data to the graph from the previous section, which is very valuable for improving our understanding of using dome ports. As far as I know, this is the first time anyone has probably collected and certainly presented test data of this kind for different domes.

The 100mm (4") dome port performs slightly worse than the 200mm (8"), while the 230 mm (9") performs considerably better. However, do note the data for a 230 mm dome that was not placed correctly, using a port extension just 3.8cm or 1.5" too short — something I see lots of people doing. Like this, the expensive 230 mm dome now drops as much image quality at the 100 mm. The graph shows that big, expensive domes deliver on image quality, however, they must be correctly positioned to do so. (Also note that all domes give good sharpness in the center of the picture, the advantage of bigger domes comes towards the edge of the frame.)

At this stage, perhaps the most important message is don't panic. Just because your dome doesn't achieve the theoretically perfect image quality, it won't stop it or you taking nice pictures. It still works just as domes always have, which after all have been used to take almost every amazing underwater wide angle you've ever seen! And I should stress again that these tests use an open aperture and closing it reduces the problems of field curvature increases the image quality a dome produces considerably.



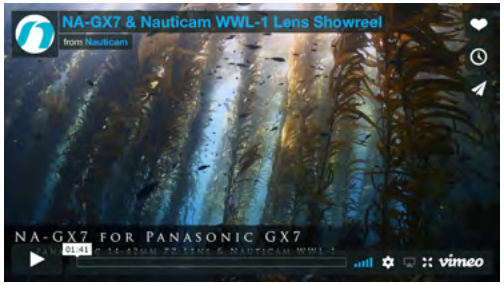
The impact on image quality across the frame when using different sized dome ports compared with a lens in air (this graph plots RMS GEO radius against FOV of a lens, data source: Zeemax spot diagram analysis, Edward Lai, 2017). Results are discussed in the text.



The impact on image quality across the frame when using different sized dome ports compared with a lens in air (this graph plots RMS GEO radius against FOV of a lens, data source: Zeemax spot diagram analysis, Edward Lai, 2017). Results are discussed in the text.

How much difference do water contact optics make?

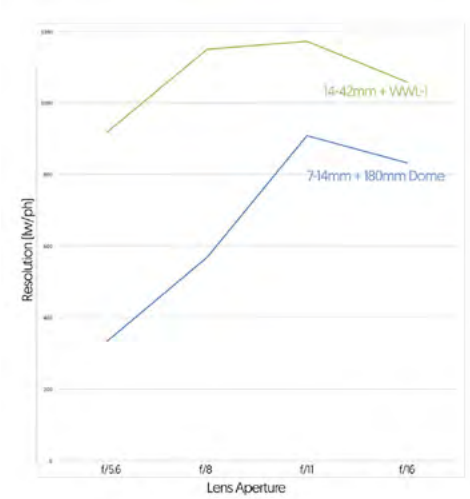
The answer to this is it depends if they are good or not! Water contact optics have the potential to significantly outperform domes as Nikon showed with legendary lenses like the Nikonos 15 mm and Nikonos RS 13 mm. However, lenses are not easy to design and to be honest, the majority of lenses and ports that have been marketed as water contact down the years are not fully corrected and don't outperform a correctly positioned dome. Caveat emptor.



https://vimeo.com/144083763

For me, the Nauticam WWL-1 was a game changer in this regard and it is what started me haranguing Nauticam for an SLR version after my buddy Peter Rowlands took one of the first WWL-1s on our trip to California two years ago. Seeing the image quality of Peter's dailies, first hand, made me want to use this technology on my camera.

The WWL-1 is a wide angle wet lens, intended for Mirrorless and Compact cameras. Think of it as a little brother to the WACP! It is designed to work with a standard zoom behind a flat port and to convert this into a wide angle. In fact, not only is the front element corrected for being in water, so is the rear, and it also corrects for the problems introduced because the camera's lens is looking out through a flat port immersed in water. As I mentioned above, not all wet lenses are created equal!

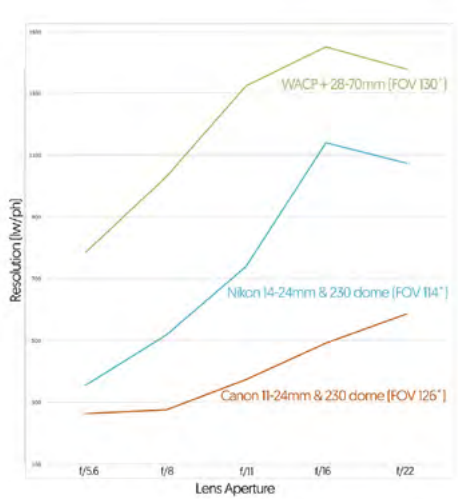


The graph, above, presents real data measured underwater in Nauticam's optical testing facility (note that the axis are totally different to the previous graphs). The graph shows the amount of detail resolved by the camera close to the corner of the frame, across a range of apertures. The data is from a M43 camera with two different lens setups – Nauticam's 180 dome and 7-14mm wide angle (the lens costs $1300, dome $500, seeing 114˚) and a 14-42mm kit lens (which costs just $300) and the Nauticam WWL-1 (which costs $1150, seeing 130˚).

Look at the 7-14mm and dome first, because the line reveals the classic problem of dome ports and the solution. At open apertures the resolution is low because of field curvature causes blurry corners, but closing the aperture helps considerably by bringing more of the virtual image into focus and therefore increasing the amount of detail resolved, peaking here at f/11. There is a small drop off in detail captured at f/16 because of diffraction (this is a 2x crop camera, on a full frame camera we could expect this line to be shifted a stop or so to the right because diffraction will come later).

The most obvious feature of the WWL-1 data is that despite giving a wider view (130˚ vs 114˚) it resolves more corner detail across the entire aperture range than the 7-14mm and dome do when performing at their best. Secondly, the WWL-1 data form a more horizontal line, with a lower loss of corner detail at more open apertures. This occurs because the water contact optics of the WWL-1 don't have the same problems of field curvature as a dome. An important and perhaps surprising message here is that despite using a cheaper "kit" land lens, the superior correction provided by the WWL-1 results in significantly better underwater image quality than the expensive wide angle lens when used behind a dome.

Moving on to the big brother, the WACP has a major advantage over the WWL-1 – that it is not a removable wet lens, so corrections only have to be made at the front surface (not for the rear surface or the troublesome flat port of the camera) so it can be expected to significantly outperform



A graph comparing the resolution achieved in the corner of the frame by the WACP and 28-70mm and Nikon 14-24 and Canon 11-24mm behind 230 mm dome ports. The data are measured resolutions from underwater test shots across different apertures. Data source: Nauticam 2017.

the WWL-1. It also benefits from the knowledge that Nauticam learned developing the WWL-1. The downside is that now we are dealing with full frame, so everything must be much bigger! This is one of the reasons that the WACP is designed to work with relatively small lenses, because to work with big pro-lenses it would have to be huge, even more expensive and for all this the image quality gains would be minor (the bottleneck is the port, not the lens).

The graph presents real data measured underwater in Nauticam's optical testing facility. The comparison is the same as with the WWL-1, further above, but note that the values on the axis are different. The Canon 11-24mm does not perform as well as Nikon 14-24mm, in the corners of the frame, primarily because it has such a wide field of view (126˚ versus 114˚). As a general rule, the wider a rectilinear lens the harder it is to get it to perform well behind a dome. It is also important to note that the WACP and 14-24mm were both tested on the same Nikon camera, while the Canon lens, understandably, was tested on a Canon camera. This might also account for the lower resolution recorded by the image analysis software.

The Nikon 14-24mm shows the classic pattern we would expect to see from a dome port, with increasing detailed resolved in the corners of the frame the more the aperture is closed (which brings the virtual image increasingly into focus). The highest detail was obtained at f/16, with a small drop at f/22, probably caused by diffraction. However, in the real world, a resolution above about 800 lw/ph (it stands for line widths resolved in the picture height, but I wouldn't get too caught up in it) in the corner of the frame would look decent, which the 14-24mm achieves at about f/13.

The WACP gives between 2 and 3 stops advantage over the best wide angle lenses and domes in terms of corner sharpness. Damselfish swim into the sun, Egypt, June 2017. Nikon D5 and Nikon 28-70mm @ 35mm. Subal ND5 housing. Nauticam WACP. Seacam 150 strobes. 1/80th @ f/16, ISO 640.

The WACP gives us the ability to fill the frame with a huge range of subjects. Goliath grouper, Cuba, August 2017. Nikon D5 and Nikon 28-70mm @ 35mm. Subal ND5 housing. Nauticam WACP. Seacam 150 strobes. 1/100th @ f/13, ISO 400.

The WACP and the Nikon 28-70mm outperforms the Nikon 14-24mm significantly at all apertures, despite its much greater FOV (130˚ versus 114˚). Furthermore, the WACP resolves greater than 800 lw/ph at all apertures tested. The graph also shows that the WACP produces approximately the same corner sharpness as the 14-24mm when the aperture is at least 2 stops (that is 6 clicks on most cameras) more open. This is equivalent of being able to shoot at f/5.6, rather than f/11 or f/13. Note that these data represent is best case for the 14-24mm, as it was tested here with a large dome, optimum port extension and with the aperture closed down.

I'll save you from another graph, but the same tests in the center of the frame demonstrate that the WACP setup also resolves more detail relative to the pro-quality wide angle zooms. Although the difference is smaller than in the corners (because there isn't the field curvature effect) and the advantage over the 14-24mm is about 1 stop in the center.

In conclusion, the optical tank tests show that the WACP with the 28-70mm significantly outperforms dome ports across the range of apertures and produces useable corner resolution right across the range of apertures from f/5.6 to f/22.

Conclusion

The WACP is a fascinating new product that delivers exceptional underwater image quality, and when used with a zoom lens, it provides a highly flexible optic in terms of FOV and aperture. Both of which take some adaptation to your technique to fully exploit.

It also takes some mental-recalibration to attach a relatively inexpensive zoom lens to your camera as an upgrade to that expensive wide angle pro-lens! Although the price of the WACP (not yet announced) is likely to reassure those of us used to correlating cost with performance!

Any world leading optic, that contains 3 kg of glass for one specific

The WACP combined with the 28-70mm has the widest zoom range I have used underwater and does so with better image quality at each focal length than I have experienced before. Two images of the same scene, one at 28mm (FOV 130˚) and one at 70mm (FOV 57˚). Scorpionfish with fusiliers, Egypt, November 2016. Nikon D5 and Nikon 28-70mm @ 28mm. Nauticam housing. Nauticam WACP (pre-production prototype). Inon Z240 strobes.

I felt that the lens was more prone to flare than a glass dome port, but it was not a significant problem when shooting into the sun. Silky shark, Cuba, August 2017. Nikon D5 and Nikon 28-70mm @ 28mm. Subal ND5 housing. Nauticam WACP. Seacam 150 strobes. 1/100th @ f/11, ISO 400.

purpose, does not come cheap. The WACP also ideally complements the two other water contact optics that some already use for their superior image quality on full frame. The Nikonos RS-13mm at 175˚ (Nikon only) and the 90˚ 15 mm (manual focus only, Sony Mirrorless only). The WACP covers the range 130˚ to 57˚ as tested here, and is theoretically compatible with any camera and housing. When I started photography, I learned that using a zoom means gaining flexibility, but giving away image quality relative to a prime lens. This is another area that the WACP challenges perceived wisdom - now we can have a huge zoom range and better image quality at the same time. We really can have our cake and eat it.

It is still very early days with the WACP. I don't know whether it will be as valuable on a crop sensor SLR with an 18mm to something zoom. I can't yet tell you what is the best 28mm lens to use it with on a FF Canon. And there may be some other excellent lens options for Nikon and Sony cameras, that haven't been tried yet. Time will tell. From the 1960s underwater photographers started evolving from using flat ports to dome ports for their wide angle photos. Perhaps we are now at the start of a new era, where domes will give way to fully corrected water contact optics. Of course, we will still use flat ports and we'll still use domes when they are the best option, but we're lucky to have a new choice.

The WACP is clearly aimed at the most demanding users - primarily full frame stills photographers and high resolution video shooters. The WACP that I used for this article has just been sent on to the guys at the BBC, who have just finished filming Blue Planet II, to test. However, even for those who find the WACP is out of their price range can be encouraged because

The WACP is designed to deliver a wide field of view, with dome beating image quality from center frame to the corners, even at more open apertures. Kittiwake interior, Grand Cayman. Nikon D5 and Nikon 28-70mm @ 28mm. Subal ND5 housing. Nauticam WACP. Seacam 150 strobes. 1/160th @ f/10, ISO 1000.

the technology is certain to percolate through underwater imaging.

Perhaps the most important message to come from the analysis in this article is the reinforcing of an old photographic adage — that it is better to spend money on glass than cameras. We're all keen to upgrade to the latest cameras, often spending $10,000+ for a new camera and housing to get the best image quality. However, what is clear is that megapixels are not the bottleneck for image quality underwater. Those that want the very best quality in wide angle images should be investing in the right glass. Currently that's 3 kg worth!

In short, the WACP won't make you a better photographer, but will make every picture you take better.

Alex Mustard
www.amustard.com

www.nauticam.com

Gladius Submersible Drone (GSD)

by Peter Rowlands

Ever since I can remember, I have had a fascination with ROVs; magical machines which can go either deeper or for longer than I can, controlled from the surface and sending video images back for viewing or recording.

My fascination stayed just that as the costs of such machines were prohibitive but earlier this year I heard of a crowdfunding project for a Gladius Submersible Drone (GSD). It looked great, promised a lot and, for early investors, cost just over £1100. I was not alone, it seems, for there were hundreds out there like me who flocked to support the project.

Fast forward about nine months when an impressive package arrived and for the first time I was seriously tempted to do one of those sad 'unboxing' videos for YouTube. To be honest I forgot all about once I lifted the lid on the aluminium case and saw my GSD. I was genuinely delighted with what I saw.

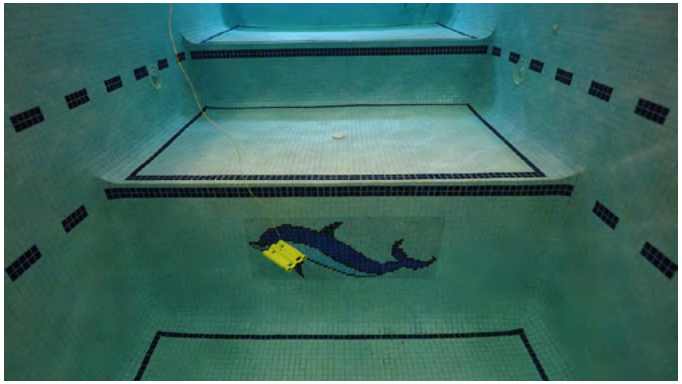
The quality of design and workmanship was very high and I spent some time just looking at the sports car-like lines and curves. There wasn't a bad angle to view it from and the proportions were just right.

There's an old saying that I have always agreed with and that is "If it looks right, it will perform right" and the GSD for me had certainly got off to a flying start. All I had to do now was hire a pool to put the old saying to the test.

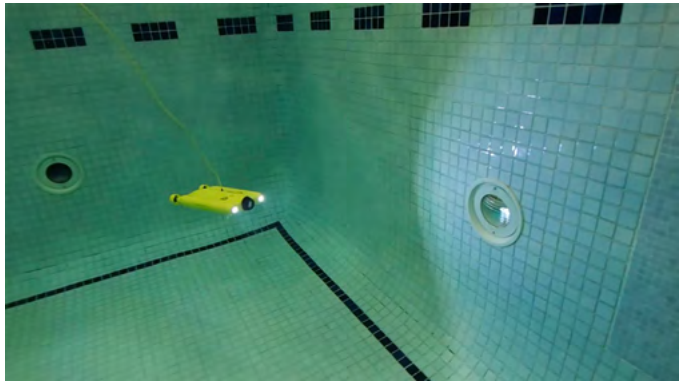
The Gladius Submersible Drone comes in two parts, the Drone and the WiFi buoy reel, joined by a lightweight communication umbilical. Initially this makes handling a bit awkward and the centrally positioned exiting cable from the GSD itself looks prone to damage but, in reality it is more than strong enough to lift it up though, as I will describe later, there are simple ways to avoid this and make launching and recovery a trouble free operation.

It was an exciting day in the Rowlands workshop when the GSD was delivered. I had paid extra for the aluminium case which provides excellent handling protection.

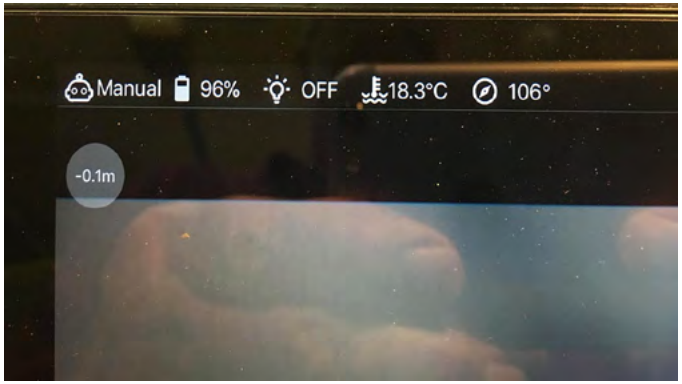
The first pool session went well with the WiFi buoy (on top of the case) and its extended aerials. This module is designed to float and can be operated up to 100 metres away but I haven't got round to using it in that mode yet. (Photo Dan Bolt)



The controlled conditions in a swimming pool allow the luxury of being able to watch the GSD as you control it. This helps the learning curve.



I was surprised how bright and effective the lights are. The output can be finely controlled from 0 - 100%. Photos left & above by Dan Bolt.



The top left display on the iPad shows Mode, Battery level, LED light level, water temp, compass heading and the grey circle is water depth.

The GSD and the WiFi buoy both have built in rechargeable batteries with separate chargers which fully charge in 90 minutes and this, depending on the heaviness of use will provide up to 3.5 hours of submersible time.

Initially the GSD is available in two versions - Standard with 1080p video and 50 metre umbilical or Advanced with 4k and 100 metres respectively. The choice of video quality is up to you but I would highly recommend you consider the 100 metre umbilical version because in practice nothing ever happens in a straight line.

The GSD comes with a joystick controller which communicates with either iOS or Android phones or tablets via Bluetooth while the GSD itself communicates with the WiFi buoy by …..yes, WiFi which the buoy generates . These two signals allow the GSD's thruster motors to be operated and the video signal to be viewed on the mobile phone or tablet screen using the free to download IF Dive App. The images or footage can then be recorded onto the memory wired inside the GSD (16gb Standard and 64gb Advanced). So with batteries fully charged it was off to the pool for the very first session.

Setting up the system is quite simple if you are using a mobile phone with a screen up to about 6" as this can be held by the spring loading controller but any bigger screen than this (which makes viewing much easier, requires several hands or flat calm surfaces because the controller is not designed to hold them and they must be supported and made stable for viewing and operating.

Once set up and talking to each other the GSD can be lowered into the water and this is where you need another pair of hands as there are no handles and the GSD surfaces are smooth and gripless so a hand either side is needed for stability. I am going to leave any suggestions for future design improvements until later in this review.

In a clear freshwater pool situation you, the driver or 'pilot', have the luxury of being able to see the GSD; its directional movements and inclinations and this is fine initially but in the real world you will need to get used to 'flying' just looking at the phone or tablet screen and this is where size really does matter.

In the IF Dive app there is a top row of indicators showing from left to right - Depth, battery level, LED lights output %, water temperature and digital compass heading. The bigger your screen, the easier these will be able to see.

Coming back to the pool session and visual contact with the GSD this is a great opportunity to get used to its handling properties and also to get something out of your system once and for all and that is seeing how fast it will go! Yes, I did it and it was quite thrilling. At 100% power (the default, quite sensibly, is set at 50%) the GSD literally flies through the water and is excitingly impressive but, at the risk of being a killjoy, the secret of success when flying the GSD is to use just enough power to keep control because, sooner or later, you will hopefully want to put the GSD to positive use producing smooth viewable video footage and sharp still images.

In water the GSD is designed to be neutrally buoyant and is supplied with two counter weights - one for fresh and one for saltwater. The latter

In search of Seatrout in the River Tavy. The GSD can operate up to 3.5 hours before a recharge is needed.

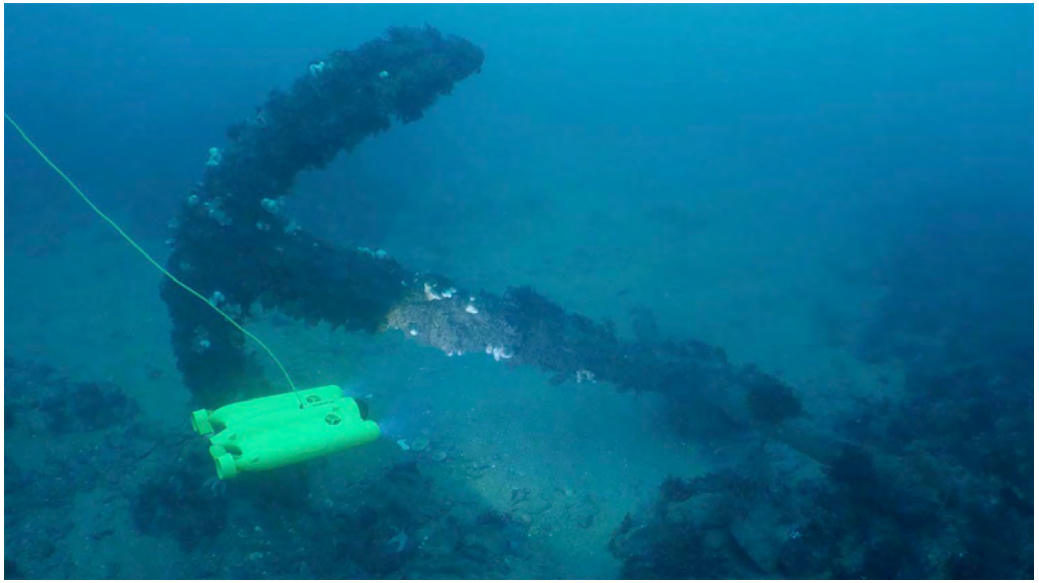
The controller (bottom right) can expand to take a smartphone with up to a 6" screen size. It would be nice if it could expand further to take an iPad.

especially is an estimate as salinity varies throughout the world and small amounts of weight may need to be added depending on the waters in which you are operating. This buoyancy is both the GSD's secret of success but also its achilles heel because something that weighs effectively nothing is at the mercy of any, even slight, force from water movement. Physics will always be physics, unfortunately.

Having got used to the basics of flying with the luxury of being able to see the GSD it was time to head out into open seawater. Those owners who only intend to use their GSD in freshwater lakes and still waters can skip this next section and save themselves a lot of learning for as soon as you venture into open seawater many more forces come into play and provide genuine obstacles which are to be overcome if useful footage or images are to be captured.

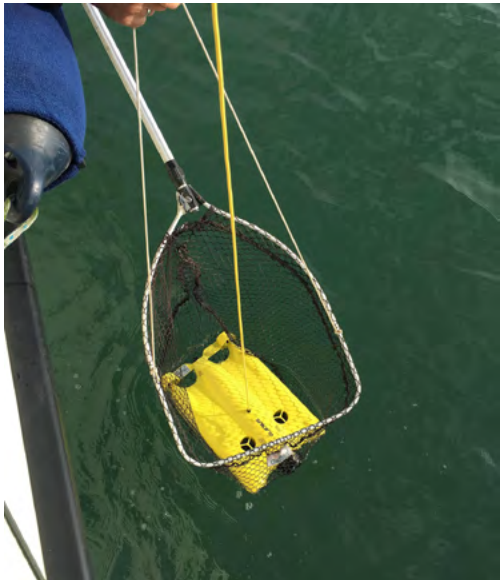
First out of the obstacle blocks is tidal flow or current. This slows the GSD down in one direction or speeds it up in the other but the GSD is more than capable of driving into quite a strong current because it is hydrodynamically very well designed. The problem is that the umbilical, despite it's lightness, produces a significant drag which can sap the power of the GSD. Let's say the umbilical is 5mm in diameter and the GSD is at 15 metres heading into a

Video frame grab of a Seatrout resting in the lee of the current waiting to go upstream to spawn. The ambient light level was very low but the on board lights did a great job.



Operating at slackwater from a boat on a calm day provides the most control to produce steady video and sharp still images.

The saltwater weight module can be adjusted with lead shot



Even though the umbilical is strong, a keep net is ideal for lifting to a boat.

current; that is quite a lot of surface area. If you have ever drift dived with a surface marker buoy you'll know exactly what I mean and the line on a marker buoy is usually much less than 5mm! So given that umbilical drag is a limitation the best solution is to try and dive at slack water if the area you want to explore is affected by tidal current. That may sound limiting but given that most slack tides are at least 30 minutes and on neap tides are more if not even negated, there is still a lot of exploring that can be done in that time. My point is don't get downhearted after your first seatrial (as I did) when the GSD position was all over the place. As time has gone on I have become more and more capable in controlling the position and depth but it is a definite learning curve of frustration mixed with elation.

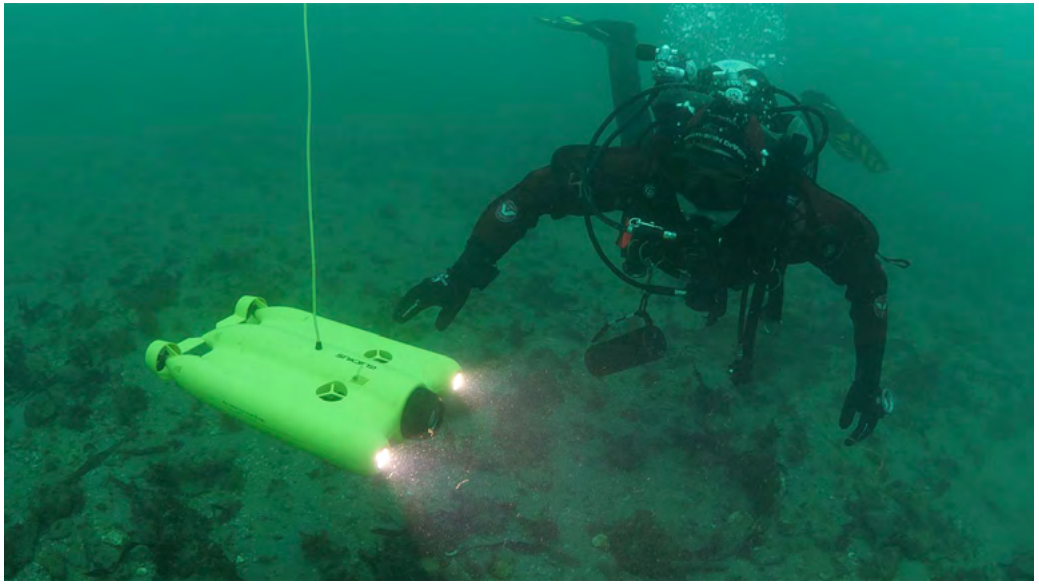
I operate my Gladius from a boat which introduces another set of criteria to take into account as the boat's drift is influenced by both tide and wind. Fortunately the Gladius WiFi buoy is designed to free float which helps to negate this but, in the time available to produce this test, I have not had the time to try this type of deployment so I will leave this capability to be covered in the continuing review in the next issue of UwP.

Recording video footage or stills is as simple as pressing the appropriate Stop/Start button on the controller. This records to the wired-in memory inside the Gladius. After the dive these files can be downloaded via the WiFi buoy and then transferred into (in my case) the Photos app on my iPad. The speed of this transfer was a bit slow especially for 4k video footage but it's a small price to pay for the overall quite simple workflow.

The Gladius is still an evolving project and full production is a little way off. At the time of writing not all of the initial backers have received their units and I would suggest that full production could be about two months from now. The advantage of waiting is that, for example, my Gladius could be described as a pre-production prototype with some small physical design changes still to be made prior to production. Most of these improvements are quite minor, it has to be said.

The manufacturing company Chasing Innovation have been very impressive firstly in the time they took to produce the first working models but more importantly in the way they have communicated about all of the developments and the plans they have. These plans have been finalised by being totally open with customers and being especially open to suggestions from early users. It has been a very refreshing experience and I look forward to a continued collaboration with them.

So I guess the burning question



must be “Does the Gladius replace an underwater photographer?” and the obvious answer is “No!” but it will have uses above and beyond the pure excitement of flying it underwater. With a depth rating of 100 metres it can obviously go deeper and for longer than we sensibly could and it is a very capable machine which could be fitted out to stay on the seabed and provide monitoring feedback with recording capability of over 3 hours which would normally be beyond the comfort or safety zone of a normal diver.

As someone who has always had a fascination with ROVs I feel like the GSD is a dream come true and whilst it could be argued that it is ‘lightweight’ by comparison to other ‘working’ ROVs (at many multiples of the price) I can forsee it will have an increasing number of uses for me in the years to come and I will, of course, keep you updated.

The Gladius Submersible Drone is currently available for $1620 which is usually $1799 for the Advanced version. It is available in a slightly less expensive Standard version which is fine if you only want to use your GSD in a swimming pool but I would strongly recommend you consider the Advanced unit purely for its 100 metre umbilical which should give most users a very useful range.

Peter Rowlands
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www.chasing-innovation.com

Competitions

Wildlife Photographer of the Year 2017
Underwater Winner

The jellyfish jockey
Anthony Berberian, France

Late at night, in the open ocean, Anthony dives in water more than 2,000 metres deep. His aim is to photograph tiny deep sea creatures that migrate to the surface under the cover of darkness to feed. Coming across this pair one night, it took many shots to get the right composition – a rare glimpse of these creatures in their natural surroundings.

This phyllosoma, a lobster larva, is just 1.2 centimetres across. With a flattened body and eyes on stalks, its spindly legs grip the empty bell of a small dead jellyfish, a mauve stinger. When alive, this jellyfish glows in the dark and has a nasty sting. The little hitchhiker probably ate the jellyfish's tentacles and now gets a free ride in the ocean current.

Technical specification
Nikon D810; 60mm f2.8 lens; 1/250 sec at f22 (–0.3 e/v); ISO 64; Nauticam housing and Nauticam SMC-1 super-macro converter; Inon Z-240 strobes.

Anthony is a medical doctor working in Tahiti. He is also a professional diver who specialises in scientific diving. He has taken part in several international biodiversity-focused expeditions, as a doctor and diver, to discover and document new species.

www.anthonyberberian.photoshelter.com

www.nhm.ac.uk/visit/wpy/gallery/2017/adult.html

Wildlife Photographer of the Year 2017
Behaviour: Mammals Winner

Giant gathering
Tony Wu, USA

Dozens of sperm whales mingled noisily off the coast, stacked as far as Tony could see. Immediately, he realised that this was something special – like a gathering of clans, these whales were part of a multi-day congregation. For Tony, the sight filled him with hope that 'the recovery of sperm whale populations may be going well'.

The marble-like appearance of these whales is a sign of skin-sloughing. Large aggregations like this one will rub and roll against each other to exfoliate their neighbour's dead skin, helping them to maintain hydrodynamic performance. The tactile contact also helps to reinforce social bonds.

Technical specification

Canon EOS 5D Mark III; 15mm f2.8 lens; 1/250 sec at f6.3; ISO 800; Zillion housing and Pro-One optical dome port.

Since 1995, Tony has combined his love of visual art with his interest in the marine world through underwater photography. He has recently focused on photographing cetaceans and documenting spawning aggregations of fish. Tony uses his photographs and writing to encourage others to appreciate and protect the beauty of the oceans. He is also a frequent public speaker.

www.tonywublog.com

www.nhm.ac.uk/visit/wpy/gallery/2017/adult.html

2017 SoCal Shootout Winner

Thanks to everyone who participated in the 7th annual SoCal Shootout as well all a big congratulations to all of our winners!

This year gave us a bit of south swell, making some locations more challenging to shoot than others. Wind kept boats from some of the further islands, and low visibility on the rigs created unique challenges, but overall we saw a wide variety of great shots that showcase the unique diving here in Southern California.

The 2017 SoCal Shootout was judged by professional photographers Andy Sallmon and Scott Gietler.

Andy Sallmon is a freelance commercial underwater photographer specializing in images for diving publications, marine wildlife, natural history books, and corporate advertising.

Thousands of his images have been published to date, some gracing the walls of notables such as the Smithsonian Institute and the Monterey Bay Aquarium.

Besides his work as a photographer, Andy stays busy topside as a sales representative for Sea and Sea, Light & Motion and Beneath the Surface Products. He is also the U.S. Navy's underwater photography instructor for their Combat Camera units, Fleet Pacific and Atlantic and for the newly formed U.S. Coast Guard dive team.

Scott Gietler is the founder of Bluewater Photo, Bluewater Travel and the Underwater Photography Guide, and one of the world's leading experts in underwater photography education and camera / lens reviews.

An avid marine naturalist, Scott is the author of the Field Guide to Southern California Marine Life. He was the LAUPS photographer of the year for 2009, and his photos have appeared in magazines, coffee table & marine life books, museums, galleries and aquariums throughout California. Scott teaches underwater photography frequently on international workshops to destinations like Galapagos, Indonesia, Philippines and French Polynesia.

We hope everyone had a good time during the SoCal Shootout and we look forward to next year! The 8th annual SoCal Shootout is September 14-16th 2018.

www.bluewaterphotostore.com

I was diving in the Catalina Dive Park for the SoCal Shootout. There were hundreds of blue-banded gobies, and most don't want you to get close. I was lucky to find one that wasn't shy, he held his ground and did not instantly flee like the others. I had already seen it dart out and eat something, so maybe it thought it had a good feeding spot.

I took 35 shots of this particular goby. At one point it opened its mouth wide for a couple of seconds and I got 2 or 3 shots off before the mouth closed. My strobes were pointed slightly in. Photo was uncropped. I used the "creep in" approach, getting a little closer with every shot. I started without the diopter, and when I realized he wasn't scared at all, I flipped the diopter down. His yawn lasted just long enough for me to get 3 very quick shots off.

Nikon D500, Nauticam D500 Housing, flash trigger, Nikon 105mm VR lens, two YS-D1 strobes and the Subsee +5 diopter. 1/200th, F18, ISO 200. That enabled me to have my flash reasonably low powered to recycle fast and F18 meant I could blur the background as I got in close, though it made the focus a bit more picky of course. Most of what I then altered as I moved in closer was the composition, focus and strobe position.

Helen Brierley

Manta Fest 2017

By Tim Rock

The Tenth Annual Manta Fest Photo Festival in Yap, Micronesia, took place from August 26th until September 10th. Hosted by the dive boutique spa Manta Ray Bay Resort and Yap Divers, more than two dozen people participated for part or all of the two weeks on the event. People travelled from as far as Canada, the USA, Singapore, Germany, Switzerland and the Caribbean to dive and photograph the diverse creatures and habitat underwater.

The contest is more than just a contest. A number of internationally published print and video professionals attend to give afternoon seminars, join the guests daily on the dive boats and give both presentations and critiques every night using the big outdoor screen of the Mnuw pub. Editing with Lightroom and Photoshop, drone photography and self-publishing were among the many topics covered by this year's group of pros.

Subjects from both sea and land were photographed in three divisions and five categories each for DSLR cameras and non-DSLR. There was also a video division. This year those included wild spinner dolphins, manta rays, sunken shipwrecks and WWII planes sitting on land, undersea cleaning stations with tiny shrimp and fish, schooling sharks and sunset shark photography, cultural dancers and banks of Yap's famous stone money.

Over the years the judges noted that the level of entries seems to have greatly improved. Fantastic prizes including full sets of scuba gear, free weeks of diving at resorts and on liveaboards and many other great diving swag and gear was take home by happy winners.

Judy Bennet won the overall grand prize with a photo of reef sharks at sunset with sun rays beaming through a clear wave. Shiela Ott took Best of Class in DSLR with her images of a cleaner wrasse inside the mouth of a sweetlips. And Ann Donahue won the compact camera division with her shots of sharks in a sunburst. Brad Peebles took the video division with clips from above and below Yap.

Divers from around the world are already signing up for the 11th Annual Manta Fest August 25 thru September 9, 2018. For more information see:

www.mantafest.com

https://www.youtube.com/watch?v=6N2hmEpk_rY

2017 BIUPC Shootout Winner

The British and Irish Underwater Photographic Championship (BIUPC) shootout competition was held in August 2017 and is now in its third year in its revised format. The event is an on-the-day shootout with competitors restricted to a 24-hour time slot to both take their images and upload them to the BIUPC organisers. Images may be from anywhere in the British Isles and Ireland but there are rules restricting competitors to a specific time frame and the type of photo editing allowed. With photographers now able to dive in an unlimited range of dive sites compared to previously, the variety and standard of entries had dramatically increased. As a result, the event is steadily increasing in both the number of entries being received and in overall status.

Judging for BIUPC 2017 was chaired by Paul Colley (Chairman of the British Society of Underwater Photographers) together with experienced photographers Joss Woolf and Nick Pfeiffer.

Trevor Rees was crowned Champion of BIUPC 2017 with the judging team deciding that his jewel anemone shot, that also won the Close-Up category, was their favourite image overall.

Trevor describes his winning image:

I was diving in Plymouth in Devon for the BIUPC Shootout. I joined my local club diving from a RIB to enable me to get off shore to some good sites. A loose plan, if circumstances allowed, was to attempt an in-camera double exposure which is accepted within the rules.

My first dive was on the wreck of the HMS Scylla where I knew there to be numerous attractive jewel anemones to go at with a macro lens. Visibility was challenging.

With appropriate camera settings, I achieved a suitably framed anemone with a black background. Olympus EPL7, Olympus PT-EP12 housing, Panasonic 45mm lens, Zen flat port, one Sea& Sea YS-110 strobes with a home- made snoot. 1/250th, F22, ISO 320.

Later, I dived near the Mewstone reef, having switched lenses and ports for a fisheye lens. I stayed in the shallows and took a series of sunburst shots.

I positioned my sunburst diagonally opposite in the frame to the anemone. Olympus EPL7, Olympus PT-EP12 housing, Olympus 8mm lens, Inon EP01dome port, available light. 1/500th, F22, ISO 200.

When diving was completed for the day I then reviewed my shots on my cameras LCD and selected two shots that I wanted to merge. A simple process of using the cameras image overlay feature in the edit menu gave me a new RAW image.

A low-resolution jpeg was uploaded to the competition admin Dropbox server on the same day as the competition.

I had little idea at the time if I had a winner or not. When the original RAW file was requested for verification my hopes were raised. Later I was a thrilled to find I'd won. My prize, a Maldives live-aboard.

Trevor Rees

www.trevorreesphotography.co.uk

www.biupc.org

Don't settle for 2nd best

Film - No Filter No White Balance

Digital - No Filter Manual White Balance

Magic Filter Manual White Balance

Digital cameras have opened up new possibilities to underwater photographers. For available light photography manual white balance is an invaluable tool for restoring colours. But when you use it without a filter you are not making the most of the technique. You're doing all the hard work without reaping the full rewards. These three photos are all taken of the same wreck in the Red Sea. The left hand image was taken on slide film, which rendered the scene completely blue. The middle image is taken with a digital SLR without a filter, using manual white balance. The white balance has brought out some of the colour of the wreck, but it has also sucked all the blue out of the water behind the wreck, making it almost grey. The right hand image is taken with the same digital camera and lens, but this time using an original Magic Filter. The filter attenuates blue light meaning that the colours of the wreck are brought out and it stands out from the background water, which is recorded as an accurate blue.

www.magic-filters.com

Looking for whales

An exhibition
by Wade and Robyn Hughes

At one point, Robyn and I were thinking that the next creative project we would embark on may well be writing a book titled “Really? You’re thinking of mounting a photographic exhibition?” It really is a journey from an idea that flows casually out of a Friday evening bottle of red wine to a gallery wall speckled with a rash of red dots! But, now, at the time of writing half way through our week-long exhibition, would we do it all again? Absolutely.

At this point, we’re enjoying strong sales. But the value of this exhibition, for us, goes far beyond whatever the eventual commercial outcome might be. Right from the outset, we were not setting out on a commercial enterprise: there were other, more compelling reasons for mounting this exhibition. We’ll touch on those below, but nevertheless, we worked as prudently and frugally as we could in order to contain costs as much as possible.

But the value began to flow back to us as soon as we began selecting our images. In this we asked for unvarnished opinions from three people who’s artistic skill and judgment we both admired and respected.

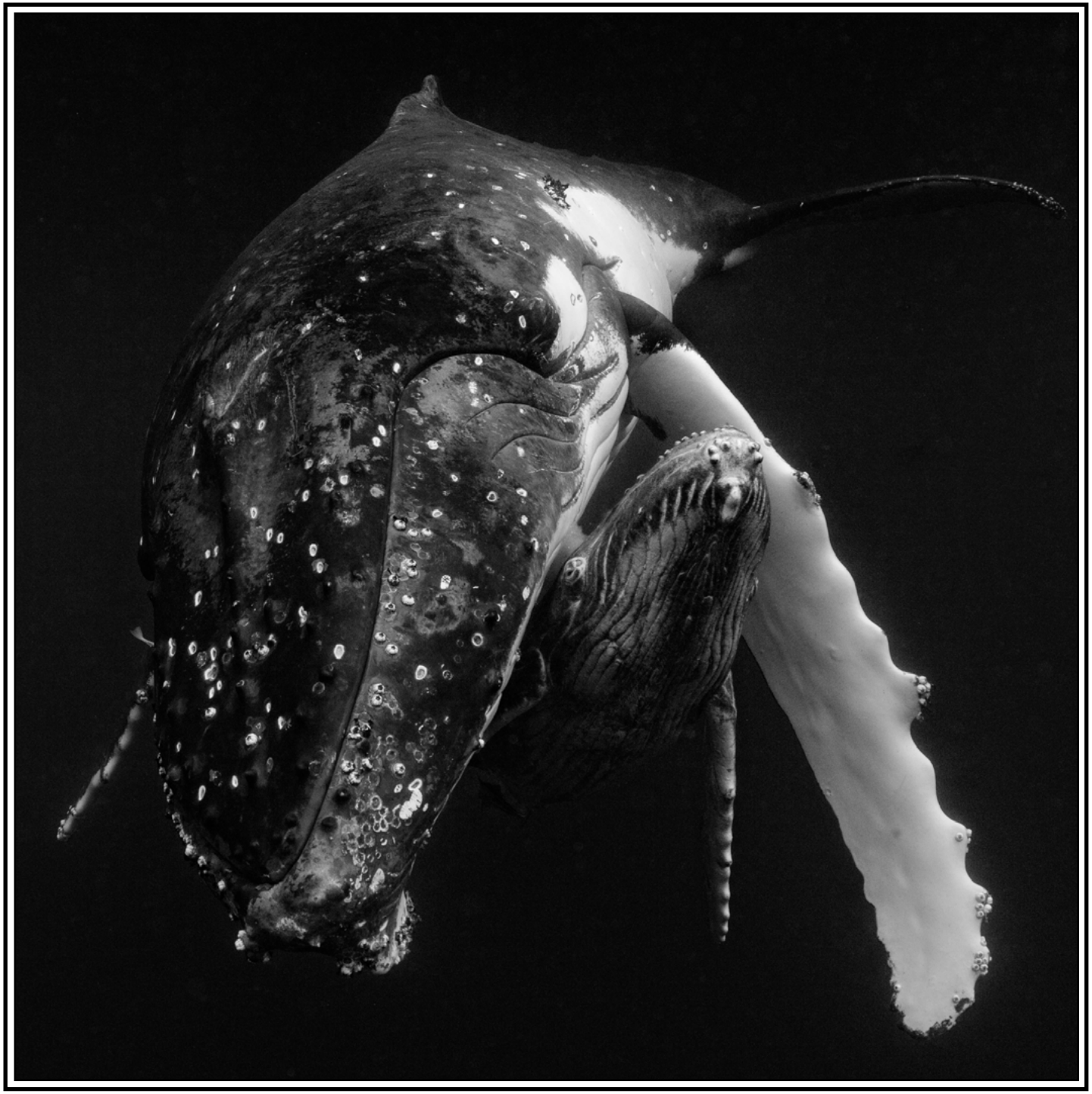
The first was Joanna Robertson, owner of the Kidogo Art House gallery-one of the most diverse and vibrant galleries in Western Australia. And

This humpback whale close up portrait was a Finalist in the Wildlife Photographer of the Year Competition 2017.

then Paul Jarvis, Western Australia's only Ilford-certified Master Printer, and an outstanding photographer in his own right. Tony Cunningham artist, scientist, and author, made up this informal triumvirate. In separate discussions they each offered reactions to each of our candidate images. On some, their preferences overlapped. And in some, they diverged widely.

But, tellingly, their reflections all evolved from a common principle; without saying it to us directly, they were forcing us to ask ourselves "When we look at our images, what are we trying to get them to say, to us?" Not to anyone else, but to us.

Jimmy Buffett was on to this idea way back in the 1970s when



he penned a lyric “I won’t make my music for money, no I’m gonna make my music for me”

That simple but profound advice sent us back into our files with fresh eyes. We were looking for images that recounted for us some of the sense of drama and excitement that we’ve experienced while we’ve been looking for whales, and finding some. We have quite a few images that can do that for us. But then we wanted just those few that can go further and reveal for us the aesthetic that we see and revere within the form and behaviour of these extraordinary animals.

In many ways, this is where the technical

aspects of composition and exposure kick in.

Ilford had generously and unexpectedly stepped in and offered to assist with supplies of one of their premium archival papers- 310 gsm archival Galerie Prestige 100% Cotton fourdriner-made rag paper. This is a superb medium for exhibition prints. But, like any high performance technology, it needs expert handling. There's no artificial optical whiteners in this paper. Those whiteners, present in many photo papers are designed to fluoresce when the ultra-violet end of the spectrum lands on them. They make whites really pop. But, over time, they fade and discolour. That's hardly archival. But without them, how to make the whites pop??

Here's the issue: An image that looks fine on a computer screen, even on properly calibrated 5K screens, won't necessarily look as good on paper. The reason is simple: the screen is back-lit; the paper will be front-lit. For those of us alive long enough to remember the last Century, it's the same difference as a rear-illuminated Cibachrome print, versus a standard Kodacolour print .

That's where Paul Jarvis played another important role. As an Ilford Master Printer, using a true giclée printing process, he manages the transition between screen and paper. Like sheep being run through a dispassionate drafting race, some of our images simply did not survive his critical assessment of their ability to make that transition. We learned a lot from that step in the process.

Did we mention framing? UV resistant, clarity glass, that extends the archival life,

significantly reduces reflections, and enhances light transmission from the print, is quite expensive. So. It makes sense in terms of reducing costs, to consider using much cheaper float glass and putting up with all the reflections and virtually no UV protection. Or framing just a few prints to illustrate what outstanding framing could look like, and then hanging the remainder of the prints mounted, unframed, and let the buyers decide for themselves what kind of framing they want. Yep. That makes a lot of economic sense…

Except, for that fundamental question: "what are we trying to get the images to say to us". As one erudite friend opined: "After wearing the costs of each expedition and putting in all the effort to capture these images, are you trying to get them to tell you that you ran out of time to get them all framed, or is it that you want them to say that you don't care how they look? Just asking. Not my money." He was right.

"Who knows that you're putting this exhibition on?" Another wise question from Joanna that led to our knocking on the door of Perth's leading arts publicist, Tracy Routledge. "Photographs of whales? Why are you doing this? OK"

Within a few days, Australia's major newspaper, the Weekend Australian had asked for an Exclusive that ultimately led to a half page, right hand side of the most-read news section of any paper in the country. And extensive follow up media in print and on radio

Back at the gallery, there's all the cables and hooks that we needed to hang the now consistently framed prints and the accompanying story boards.

He eluded the whalers for years

Solitary and sea-worn, a massive sperm whale bull (above) cruises into the Azores. The distinctive blow of the sperm whale. Low and to the left, erupts from this whales' single blow-hole. Up close, it sounds like a steam-train!

He swims on his back, scanning the surface waters. He's old enough to have been alive when the last major fleets of whalers were still at sea in the 1980s.

After being weaned, he would have moved away, beyond the range of his mother's social unit, probably in company with other young males born about the same time. As they matured, these bachelors would have dispersed to spend their lives roaming the globe alone in search of food and opportunities to mate.

When he finds a receptive herd of females, potentially, more than one of them will be ready to mate, setting the scene for simultaneous births within the herd. He'll then move on, but fifteen months later, the herd will be presented with the newest generation of calves.

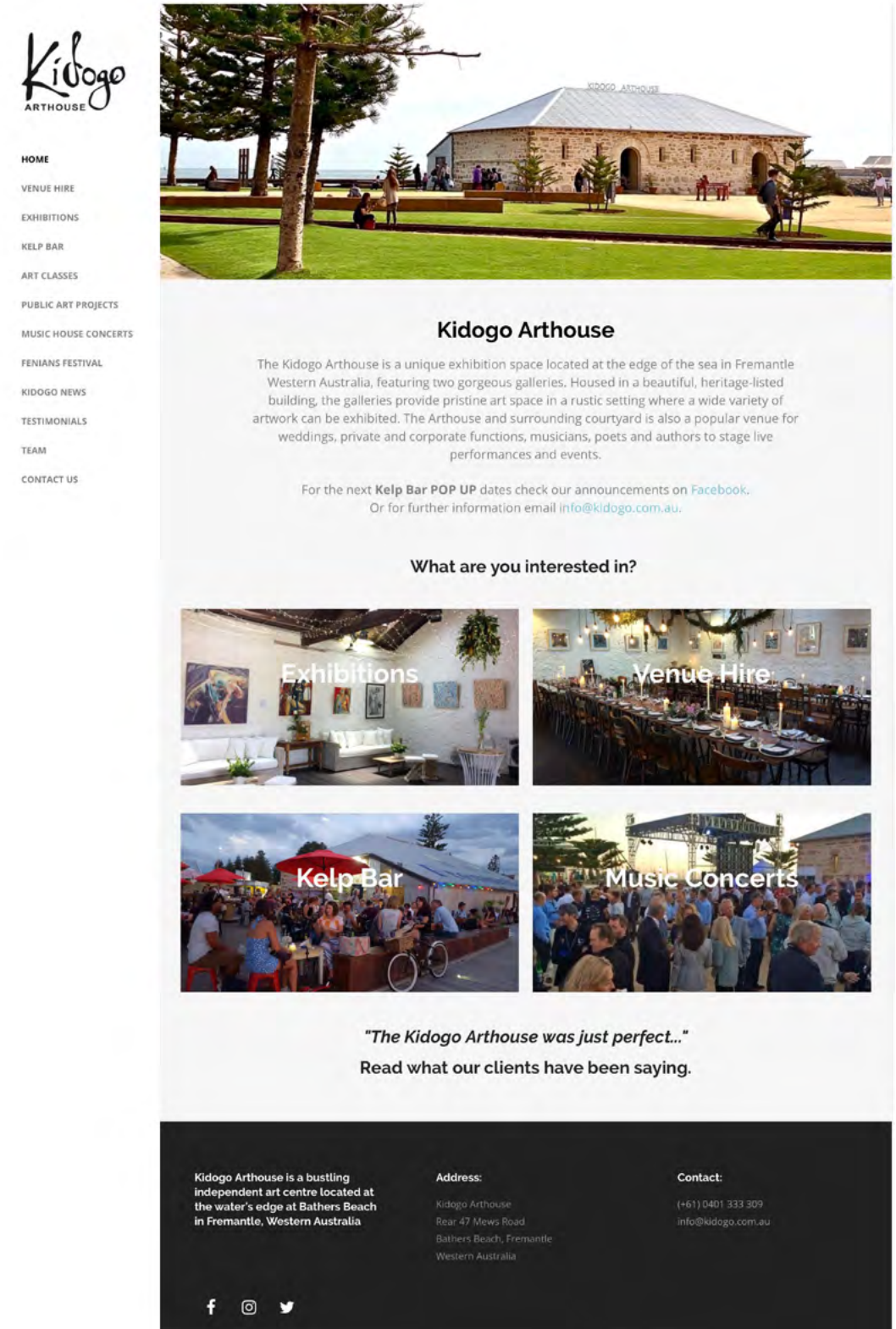
Enter Dave, from Hang Art. Dave, literally, hangs art in major galleries and homes with laser precision. As he set up his portable laser to define levels and optimum viewing height, and dispersed our framed prints around the gallery in accordance with accepted exhibition spacings, it became apparent that the story-boards we'd painstakingly developed to help add context to the exhibition images, just would not fly as we had intended. Dave's unassuming "Well, if it was me…" confirmed that. That's a lesson for next time.

With everything hanging to Dave's satisfaction, the bustle and clatter of the late-night installation disappeared. Just Robyn and I alone with our body of work from nine Azores and one Tongan expeditions. "Do you think people will come? Will they like them??"

"Don't know. But we do."

Wade and Robyn Hughes

www.wadeandrobynhughes.com



Invasion of Lion Fish in the Caribbean

a gift for photographers
but a poison for the biodiversity

by Jean Michel Machefert

Wreck of the Roraima, at 45m the lion fishes living on the former deck. Nikon D2x, housing Aquatica, Tokina 10 - 17mm at 10mm, 1/ 60, f 11 , ISO 400 , 2 strobes nikon Sb 910, Patima housings, ½ and full power

Before 2010 all the pictures of Lion fishes were taken either in the Red Sea or in the Indian Ocean or Pacific Ocean. Now since few years as soon as you dive in the Caribbean Sea in shallow or deep water you will have the opportunity to see Lion fishes.

How can it be?

The Caribbean Sea is known to be a hotspot for biodiversity with more than 12 000 different species and with quite a lot of endemic species (For example, about 45% of the fish species here are considered Caribbean endemics). Since the closure of the Isthmus of Panama recently estimated 10 million years ago the marine organisms are isolated on each side of the land (this is called allopatric speciation by biologists) and then their evolution is different from one side to the other, explaining the specificity of the Caribbean region in comparison with the Pacific ocean region close by but on the other side of the land.

As a consequence if the Lion fish or his ancestor is younger than the closure of the isthmus or was living far from Panama, there is no chance to see any Lion fish in the Caribbean region and even in the tropical Atlantic. This is what happened for the last 10 millions of years without a single intrusion of Pterois in the Caribbean Sea.

But originally imported into the united states for the aquarium trade 2 different species of lion fish Pterois Volitans (originally living from Western Australia and Malaysia on the Eastern side, to the French Polynesia and the United Kingdom's Pitcairn Islands on the western side, and up to southern Japan and southern Korea in the north and off the east coast of Australia to the south) and Pterois miles (living in the Indian Ocean the Red sea and the gulf of Aden) should be released into the marine environment and so in 1985 a first Lion fish was found off Fort Lauderdale in Florida by a fisherman. Then nothing until 1992 and the hurricane Andrew destroying some aquarium in Florida with the release of several fishes. (red dot on the map)

The invasion of lion fishes in the caribean sea.
Pink: 2000; orange:2002; 2004-2006:green; 2007: blue; 2008: purple; 2009: grey; 2010: dark grey; 2011: red- brown; 2012 – today: yellow

It was the beginning of a continuous process as we can see on the map and with some more details here under:

2000: some Pterois are observed by divers in the Bermuda archipelago. Some other are seen in South and North Carolina (pink dots and line on the map)

2002: young lion fishes are observed in New Jersey and off New York city during the summer but they cannot survive at temperatures lower than 13°C, what is common in winter. (orange line on the map)

The invasion continues then to the south:

2004 to 2006 : Providence islands in the Bahamas and Turk and Caicos (green dots)

2007: Cuba (blue line)

2008: Haiti, Dominican republic, Puerto Rico, and also in Colombia (purple lines)

2009: Mexico, Panama, Costa Rica, Bonaire, Venezuela (grey lines)

2010: US virgin islands, Guadeloupe (dark greyline)

2011 : Dominica and Martinique (red - brown dots)

Since 2012 the invasion of Pterois continues to the south east coast of South America towards the Brazilian coast and it is expected that all the coast line of Brazil with temperatures over 13°C will be invaded in a short future. (yellow line on the map).

What is the reason for such rapid invasion?

Every 4 days a female lays 2 clusters of 30000 eggs held together by a jellylike material (the fertility of a single female is estimated at 2 millions of eggs each year). The male fertilizes the eggs and the masses float at the water's surface. After 2 days, the jelly breaks down and the eggs drift apart with the streams on

Lion fish in a barrel sponge during the day. Lava flow, Saint Pierre Martinique FWI at a depth of 20m. Nikon D2x, housing Aquatica, , Sigma 17-70mm at 17mm, 1/ 100, f 10 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, ½ and full power

long distances for the next 25 days. The baby lionfish with a length of 10 to 12mm go near the reefs or on the sea grass where they grow at a rate of 0.5mm per day to reach around 200mm after 1 year. The young lion fishes eat small invertebrates (shrimps, crabs…) and as soon as they grow more and more fishes. When they become adults more than 80% of their preys are fishes. It is estimated that a single Pterois eats around 6 kg of fish each year and with the present density of lion fishes in the Bahamas more or less 800 kg of preys are eaten by the population of Pterois for each hectare of the maritime area. In an area where Pterois is living all the fishes with a length smaller than 15 cm can be considered as potential food for lion fishes.

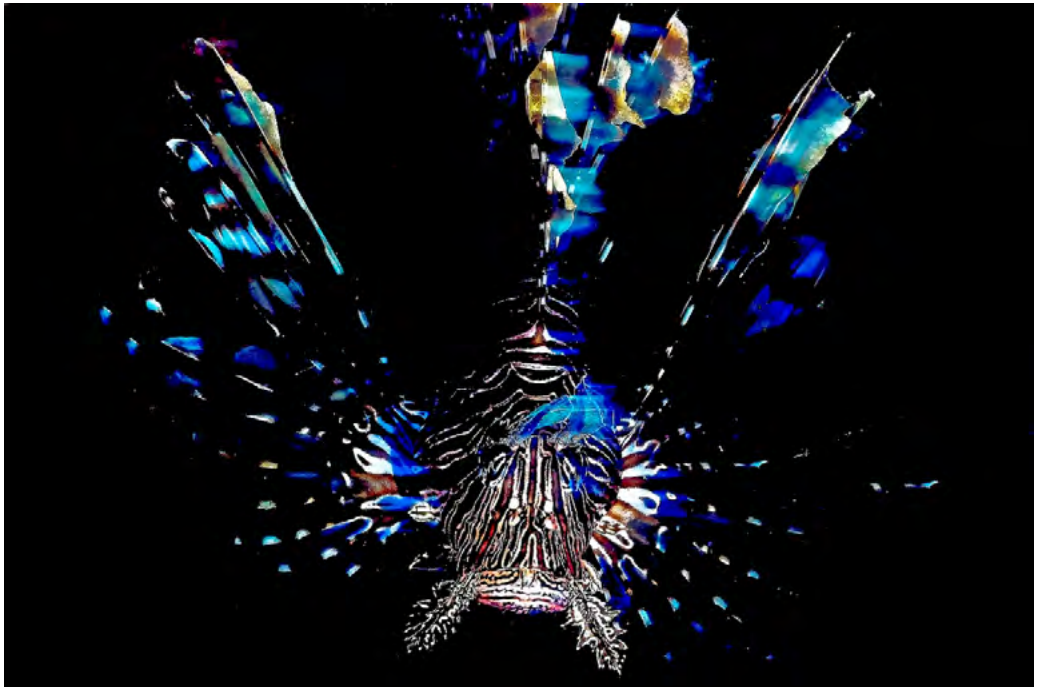
The other reason for such rapid invasion is that the lion fish seems to have almost no enemies. Some big groupers and some sharks are known to eat them but some experiences in aquarium show that even if they can eat Pterois they do not really like it too much and prefer eating something else as soon as they have the

possibility to choose. Of course in the Caribbean Sea there is a lot of choice and it is considered that the lion fishes have no predator.

During the day the lion fish stays quietly most of the time in a shadowy place (crevice in a reef, wrecks, barrel sponges…) with its head pointed down. Some times he shares protective places with bigger fishes as porcupine fishes without any risk for him and also no risk for the porcupine fish since it is too big for the Pterois. At this time the lion fish seems to be motionless but by looking carefully the fins and antennas are always in movement for stabilisation and may be also for prey attraction. For the photographer this is easy to see pictures taken at a low speed: the fish is sharp and the fins and antennas are blurred.

The Lion fish hunts in the late afternoon and the night. It can ambush its preys and as soon as it sees a small prey fish it spreads its pectoral fins to force the fish to move away. The Pterois follows it until it is cornered. Then in less than 1 second the lion fish swallows the prey whole. The lion fish has a stomach that can stretch up to 30 times its size and so it can eat a huge quantity of food in a short period. It also allows the lion fish to go as long as 3 months without a single meal.

Indeed for photographer the



Low speed portrait of a lion fish on the wreck of the Amelie (8m). Only the supra occular antenae are moving. Nikon D2x, housing Aquatica, Sigma 17-70mm at 60mm, 1/ 4, f 11 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, ½ and full power. Postprocessing for darkening the background and increase of the saturation by DxO software.

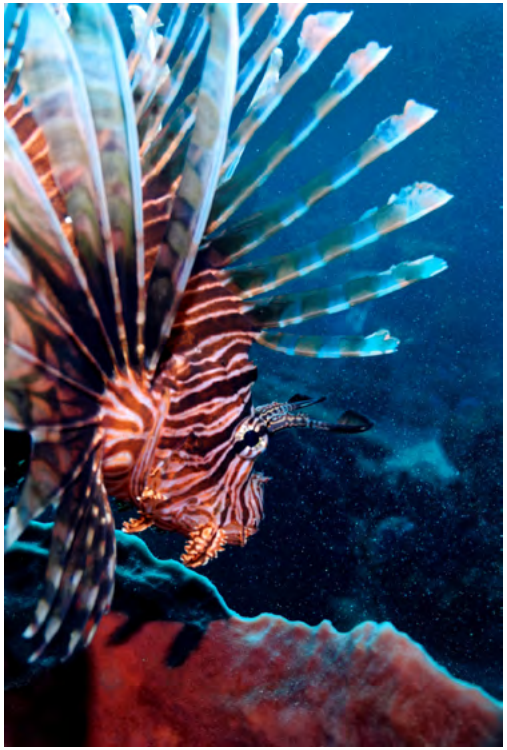
Lion fish because of its almost static behaviour and its striped body with widely opened fins is very attractive and easy to shot with all the kind of lenses from macro to wide angle. A lot of creative effects are also easily possible playing with in camera or with easy post treatment.

From head to tail and even on the eye, the animal is covered in vertical red-brown stripes with a white background. All the fins and flexible rays are stripped. The 13 dorsal fins 3 anal fins and the 2 pelvic spines are venomous and the pectoral fins are not. The venom of the lion fish is extremely toxic and it can kill fishes larger than the lion fish itself and being very painful for the diver.

There is no reason for the lion fish to attack divers but as all the animals if the Pterois feels threated (for example if the photographer is going to close for a macro shot and corner it) it can jump very rapidly on its enemy and sting it with venomous

A typical residence for lion fishes during the day inshallow water at a depth of 3m. On the right side of the anchor a small lion fish stay vertically head down and almost impossibleto be seen by the other fishes Nikon D2x, housing Aquatica, Tokina 10 - 17mm at 10mm, 1/ 100, f 9 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, ½ and full power

spins. The pain is immediate and violent and can sometimes leads to a nervous shock. The diver have to go out of the water as soon as possible, and the only way to destroy the venom is to heat the area near the bite



Al lion fish at the top of a barrel sponge near Saint Pierre Martinique FWI at a depth of 25m . Nikon D2x, Aquatica, Sigma 17-70mm at 60mm, 1/ 60, f 8 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, ½ and full power.

Typical residence for lion fishes with food (small fishes on the left) and plenty of hidden places near the sponges Nikon D2x, Aquatica, Tokina 10 - 17mm at 15mm, 1/ 125, f 11 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, ½ and full power

at the higher bearable temperature (usually 45°C in hot water) for at least 1 hour. Of course a medical consultation as soon as possible is highly recommended.

One more interesting detail. By looking carefully to the head of the Pterois on some specimens supra ocular tentacles. These tentacles are sometimes straight and sometimes peacock feather like. When existing the tentacles are interesting for photographers since they are always in motion even when the fish has absolutely no movement and low speed pictures of such behaviour make still images a little bit more "living". Until know the role of the tentacles is unknown, it could be an organ for prey attraction or for sexual selection.

A study from Morris and Freshwater published in 2007 demonstrates that these tentacles are closely linked to the age of the lion fish. The youngest fishes exhibit straight tentacles, the juvenile- young adults the peacock feather like tentacle and no tentacles for the oldest.

To conclude, the invasion of the lion fish in the Caribbean Sea and along the entire western tropical Atlantic coast is a perfect example of a huge and probably irreversible trouble in the environment caused by human irresponsibility, and how few specimens of fishes can invade in almost 10 years a highly specific and protected area for the last 10 million of years.

Nobody knows the future but for sure the invasion of Lion fishes is going to an alarming reduction of local native reef fish populations and also as a consequence the modification of the complete eco system.

The invasion represents also a major socio-economic threat to the region on several topics. The lion fish is considered as a safety risk to divers and fishermen and this can adversely impact important commercial activities such as tourism. Tourism might also be affected by the reduction in the biodiversity and as a direct consequence, the natural attraction of some dive sites.

The invasion contributes also to the decline of commercially important species of fishes fished for local consumption which are an important source of food for the local communities.

Jean Michel Machefert
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Killer Tooth Ache

by Dr Ingrid N. Visser

One of the holy grails for divers is to meet animals underwater and perhaps whales and dolphins are at the pinnacle of the wish list of 'charismatic mega-fauna'. As a scientist I've been fortunate to spend time underwater with different species of cetaceans, the collective term for whales, dolphins and porpoises. My research specialty is orca (also known as killer whales) and as such I've had the chance to spend a lot of time with them in their ocean habitat. My studies focus on the foraging behaviour of orca, particularly around the New Zealand coastline where their main food is rays and sharks. I've documented hundreds of hunting events and recorded a range of prey species, some for as world-firsts for orca.

Watching any animal hunt is always fascinating but watching orca hunt adds a whole other level of impressive to the experience. One of the things that always strikes me is their impressive teeth – with between 48 to 52 massive and interlocking ivories, the mouth of an orca is something to behold. Despite these strong and pointed teeth the orca handle their prey with delicate aplomb, at times almost dissecting their dinner with surgical precision. And their meal can consist of a wide range of cold and warm blooded creatures, from squid to fishes, from birds such as penguins to those that can fly (who are often caught unawares and dragged underwater), from seals to dolphins and occasionally includes the large whales, which is where their common name is thought to come from in a transposition of whale killer to killer whale.

The author and a pod of Killer Whales. Still frame from footage shot by Steve Hathaway.

Based on the type of food they consume but also factoring in the way they catch that prey, each population of orca has a distinct culture. For instance, a 'fish eating' population might use a 'round-them-up-and-hit-them-with-your-tail' method or a 'grab-them-from-the-edge-of-the-school' method to take fish – each of these based around a unique cultre. A shark hunting population might use a 'karate-chopping' or a 'stealth-and-ram' method to debilitate a shark before consuming it. In combination with these foraging techniques, if you then add in the different types of social structures and the various vocal dialects that have been documented, the result is a species that, just like us,

Wild Orca in New Zealand with pristine teeth © Dr Ingrid N. Visser, Orca Research Trust

Dr John Jett, an ex-orca trainer, now professor and author says, "We investigated 29 orca owned by one company and held in the USA and Spain. Every whale had some form of damage to its teeth. We found that more than 65% possessed moderate to extreme tooth wear in their lower jaws, mostly as a result of chewing concrete and steel tank surfaces."

has localised and distinctive cultures. By observing orca around the world I've come to respect and understand just how complex these cultures are and how exceptional each and every orca is within its own culture and on a global scale.

Therefore, it came as a horrific blow to me when I saw orca in captivity for the first time. I had nearly completed my PhD studying the New Zealand orca and was attending the largest marine mammal conference in the world to present my results. The conference was held in Monaco and not too far away was Marineland Antibes, in France. I had heard that these places were horrible, I had seen dolphins in captivity and was far from impressed, but I had no idea of the extent of the tragic circumstances that orca were exposed to. With that first glimpse I became a staunch advocate to halt this barbaric exploitation of what I had always seen as a majestic and awe-inspiring animal. Fast forward nearly two decades and more than 20 scientific papers later and I'm now authoring reports and scientific studies exposing the degree to which the orca have been damaged by captivity.

My first comprehensive report focused on an orca called Morgan who was held in solitary confinement. Born in the wild, she had somehow suffered a bad turn of events and ended up emaciated and alone off the coast of the Netherlands. Under a 'rescue, rehabilitation and release' permit a Dutch dolphinarium captured her and restored her health. The story should have had a happy ending, but alas, Morgan was not sent home to her family, which had been identfiied, but rather she was transferred to Loro Parque, in Tenerife Island, Spain, so that she could be bred and used in circus-like shows. From the moment that she arrived she was attacked by the other orca, to the point where I documented over 350 bite marks on her skin. She began gnawing on the concrete as a way to project her stress and the boredom that comes from living in a barren blue cage. This self-harming resulted in her badly damaging her teeth. In

Wild Orca in New Zealand with pristine teeth © Dr Ingrid N. Visser, Orca Research Trust

Damaged orca teeth, chipped, broken, drilled and worn to the gums, USA

just four months they went from nearly pristine to permanently and irreparably damaged. After just a year they were chipped and broken. After a couple of years at least one tooth was completely fractured in half and a number were ground down to the gums. Yet during all of this time and amid repeated exposés, the facility continued to claim, despite the photographic evidence, that I was falsifying data and that there was nothing wrong with her teeth.

After a number of reports and with such data in hand for more than one orca, I reached out to ex-SeaWorld orca trainers Jeff Ventre and John Jett who had stared in the acclaimed documentary "Blackfish" and I proposed that we work together to compile a scientific paper which would use all the photographic evidence myself and my colleagues had collected over the years. We shook on it and that was the start of a research project which has now been published. Along the way we had added two more colleagues as co-authors; an expert on cetacean dentistry, Dr Carolina Loch and an investigative researcher, Jordan Waltz and we called in a suite of helpers who assisted with sorting the 1,000's of photographs I had on file.

Two years in the making, the research has been published as a 'peer-reviewed' scientific paper, meaning that other scientists have critiqued the work, and along with the editorial staff at the scientific journal 'Archives of Oral Biology', have found our work to be of high standard and worthy of publishing in this prestigious bulletin.

A far cry from the spectacular teeth of wild orca, the paper has found

Wild Orca hunting. © Dr Ingrid N. Visser, Orca Research Trust

Close-up, damaged orca teeth, showing chips, cracks, bore holes and wear, Spain.

a series of wounds and traumas to the teeth of the captive orca that is nothing short of disturbing and of grave concern.

All of the orca investigated for the study (29 animals) are owned by one company. They keep 23 of the animals in the USA (in three commercial entertainment theme parks – one each in Florida, Texas and California) and another six orca in an 'offshore breeding facility' (another commercial theme park) the same one in Spain where Morgan was being held.

Our results reflected what all the co-authors knew, and clearly what the captive orca industry knew, but were either ashamed or embarrassed to report on; All the orca in the study had some form of tooth damage, with 79% having "moderate" "major" or "extreme" wear to the teeth on the mandibles. That damage was so debilitating to the teeth that more than 61% of teeth #2 and #3, and 47% of tooth #4, exhibited evidence of having undergone the 'modified pulpotomy' (a drilling procedure).

All in all the study is just further proof that orca (and their kin) shouldn't be kept in captivity – and yet it is clear that the captivity industry has known about issues like this for decades. Now, armed with this growing body of evidence it is up to us, as members of society who care about how animals of the ocean are treated, voice our opinions and call for these animals to be retired with the dignity and respect they deserve. As we are privileged to meet these animals in the wild, I hope you would agree that it is our moral and ethical obligation to speak out for those held in tanks.

Dr Ingrid N. Visser
www.orcaresearch.org

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https://doi.org/10.1016/j.archoralbio.2017.09.031

Blue Heron Bridge

by Phil Rudin

Every November the annual DEMA (The Dive Equipment & Marketing Association) draws about 10,000 industry professionals from around the world. The 2017 show is being held in Orlando Florida from Wednesday, November, First to Saturday, November, Fourth. Many of the exhibitors tear down on Sunday and leave Orlando on Monday.

The Blue Heron Bridge is a hidden gem that is a mere two and a half hour drive from Orlando. This year the stars have aligned and the tides at the bridge could not be more perfect for a few days of diving after the show.

Starting with a high tide at 8:41 AM on 11/5 the tides through 1/14 are ideal. I would encourage anyone making plans for the DEMA show to include a few days after the show for some of South Floridas best diving.

Pure Vida Divers and Force-E dive operations are both less than a mile from the bridge. Both operations are full service with rental equipment, fills, retail and boat operations. Both are quite knowledgeable about bridge diving, night dives at the bridge and more.

When most seasoned divers talk about muck diving, exotic places like Milne Bay, Lembeh, Anilao and Mabul come to mind not Riviera Beach Florida.

In the last ten years or so the intracoastal waterway between Riviera Beach and Singer Island has become a mecca for muck divers and photographers from around the world. With unusual creatures like the Striated Frogfish, Northern Stargazer, Pipe-horse, Mantis Shrimps, Miniature Melo, Flying Gurnard along with yearly migrations of thousands of bait fish, Tarpon, Snook, Manatee and many more the BHB has become the US. muck diving capital.

Until about ten years ago the Blue Heron Boulevard Bridge, referred to by local divers as “The Bridge” remained below the radar. During the past five decades tens of

Blue Heron Bridge is a hidden gem that is a mere two and a half hour drive from Orlando

Miniature Melo, Olympus E-3, Olympus 50mm F/2 Macro, Nexus Housing, Two Inon Z-240 strobes, ISO-100, F/22, 1/250th sec

Bluethroat Pikeblenny, Olympus E-3, Olympus 50mm F/2 Macro, Nexus Housing, Two Inon Z-240 strobes, ISO-100, F/22, 1/250th sec

Upside-down Jellyfish, Sony NEX-5, E 18-55mm F/3.5-5.6 at 18mm, Nauticam Housing, Two Inon Z-240 strobes, ISO-200, F/16, 1/125th sec

Seahorse, Olympus E-M5, 60mm F2.8 Macro, Nauticam Housing, Two Inon Z-240 strobes, ISO-200, F/14, 1/250th sec

thousands of marine life images from usual suspects to mysterious have been captured at the bridge. Many of these images have been published world wide including images from Paul Humann and Suzan Meldonian's excellent Fish Identification and Reef Creature Identification books. Many of the images were tagged as photographed in the Lake Worth Lagoon named for the intracoastal waterway area surrounding the bridge. Now if you tag BHB many in the diving community will need no further geographical locater.

The steel and concrete bridge connecting Riviera Beach and Singer Island was built in 1949 with a drawbridge in the center to accommodate boat traffic. By the mid 1970s the boat traffic and vehicular traffic on the two lane bridge had increased to the point that the bridge had to be replaced by a much higher structure.

The four lane bridge was finished in 1976 and spans about 400 yards of intracoastal waterway. The main "high" bridge from the Riviera Beach side ends at Phil Foster Park in the center of the intracoastal waterway and a second "low" bridge about 100 yards long reaches east from the park to Singer Island. About 100 yards of the old bridge remain as a fishing pier to the north of the current bridge.

Concrete and steel ruble from the old bridge was dumped south east of the Palm Beach Inlet in

Polka-Dot Batfish, Sony A7 II, Sony FE 90 mm F/2.8 macro, Nauticam Housing, Two Inon Z-240 strobes, ISO-200, F/11, 1/125th sec

Stareye Hermit Crab, Olympus E-620, Olympus Housing, Olympus 35mm macro, Two Inon Z-240 strobes, ISO-200, F/22, 1/180th sec

an area known to local divers as " The Rock Piles" a great lobster area during the season.

Both bridges have become a mecca for underwater photographers, snorkeling, research divers, creature observation, student diver training and more. A snorkeling trail was opened in 2012 along the southern edge of the swimming area.

The Palm Beach Inlet is about a mile from the bridge and is one of the largest inlets along Florida's east cost. Billions of gallons of saltwater move in and out with the changing of each tide making the current stronger the further you get from high tide.

The best way to dive the bridge is to arrive by car and park in the southern most parking lot at Phil Foster Park. From Interstate 95 you would go east on Blue Heron Boulevard until you cross the high bridge, Phil Foster Park is at the base of the bridge on the North side.

Suit-up in the southern park area near the shower and then walk east along the beach to enter near the low bridge. To dive the high bridge go to the south-west corner of the park and enter near the concrete bridge foundations.

As always a dive flag is required and divers need to be aware of the heavy boat traffic along the South channel near the park. Entering the water an hour before high tide should reduce the chance of heavy currents at both bridges.

A public beach lies between the two bridges and the marked swimming area is off limits to submerged divers. The area around the low bridge dips to about twenty-two feet in the center and a public boat ramp lies to the north of the low bridge and should be avoided.

Entering near the high bridge you work your way west and the bottom drops to about twenty-four feet in the center. Once you reach the wooden retaining wall you should turn back. This wall marks the east side of the channel boaters use to pass under the bridge and should not be crossed by divers.

I started diving at the bridge in 1972 and attached are a few of the wonderful creatures which can be found there.

Phil Rudin

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As you know, the current issue of Underwater Photography is free to download but all of the previous issues, going right back to Issue 1, are still available to download for just 99p per issue. It's a fantastic reference library chronicling all that has happened in underwater photography over the past 15 years.

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A Wonderful Journey

Making the 2017 50 Best Dives Guide Book for The Philippines

by Tim Rock

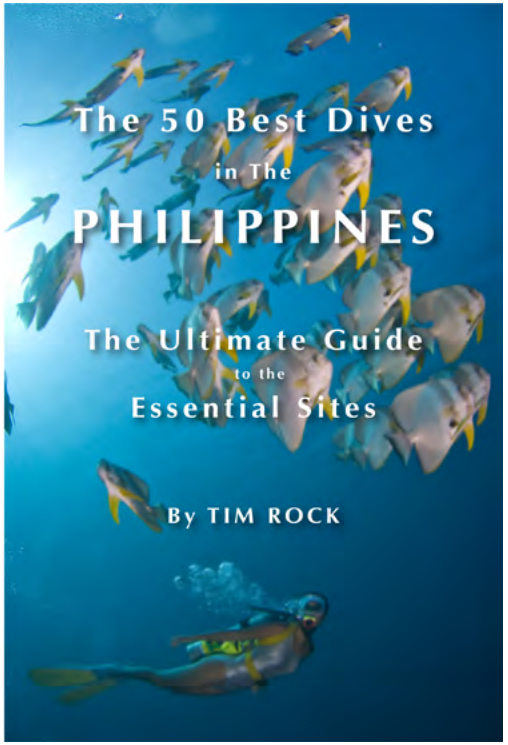
Beneath the waves, I was greeted by an immense school of bigeye jacks in shallow water and a sea floor of white, powdery sand. I looked ahead as they surrounded my diving buddy and she disappeared. What great fun as we swam in and out of this amazing schoal shooting both still photos and videos.

Then the sea floor below provided yet another surprise. A beautiful green sea turtle. It was so intent on munching sea grass it paid us no attention. I was diving on Dimakya Island off northern Palawan in The Philippines. As the sun started to go down we exited and walked up the beach just in time to see the golden sky fill with thousands of fruit bats. Like a Dracula movie it was. On this day we played with and admired nature above and below the sea. It certainly is, as they say, more fun in the Philippines.

I am a lucky guy. I live in Guam. This means I am only a short flight from Manila, the gateway to The Philippines and some of the greatest diving in the world. I found this out decades ago and have made repeated trips to dive venues old and new in this amazingly diverse island nation. I also work as a photojournalist and I have written and photographed many magazine articles about the venues here as well as written a number of diving and snorkeling guides for Lonely Planet as well as other publishers. A natural studio, the beauty of The Philippines has always produced wonderful images and experiences for me.

Lonely Planet has gone through some restructuring in recent years and a couple of new owners and it is out of the diving guide book business. Nonetheless, I have continued making books on my own and have a publishing business of coffee table books and dive guides. The subjects included places like Belize, Bonaire, Fiji, Tonga, Palau, Bali, Raja Ampat, Guam and many others.

Earlier this year I started what I hope will be a great concept in identifying the 50 Best Dive Sites to hot diving regions. The 50 Best Dives of Micronesia, my home for 30 years, was released on Amazon and Apple in April. Diving the best of The



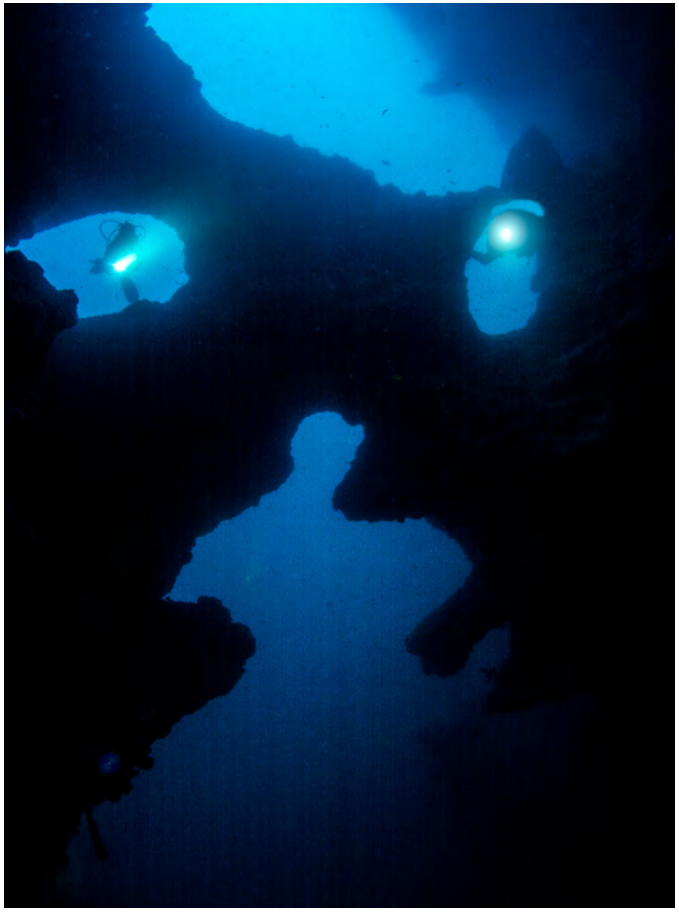
Philippines was a natural second book in the series. The idea is simple. Take a look at a country or region that is a hot diving destination. Figure out great sites that most people can see (advanced level divers and above). Make a book about it.

The Philippines has seen rapid growth and improvement with people from many walks of life enjoying dive sport. More Filipinos are getting certified and enjoying the wonders of their own country. And Manila and Cebu are worldwide hubs for flights full of enthusiastic visitors from the USA, Asia and Europe.

Thus, I figured The RPI is a natural candidate. This book describes the very best of dive sites across the vast expanse of the 7,000+ islands of The Philippines.

It includes both popular and off-the-beaten-path sites, outer reefs, historic shipwrecks and remote atolls. It is fun to page through, log the sites the reader has visited and add new sites to every diver's bucket list. As an armchair reader, one can imagine the adventure of witnessing firsthand the amazing marine life and fabulous coral reefs. As an active diver, one can do it live and in person.

For instance, the Bohol coast is becoming a new dive area. In places



like Anda, limestone cliffs open up to sandy beaches and then give way to rock islands.

Under the sea the terrain is also special and the trained eyes of divemasters at dedicated resorts like Amun Ini showed me an array of wonderful macro critters, coral-covered walls and shoals of fish.

I took a sea safari to places like Apo Island, Balicasag and Cabilao. And just prior to the publication of the book, I was hosted by Atlantis resorts in Puerto Galera and Dauin/Dumaguete. Dauin is really the place to see rare frogfish and other muck denizens. And I got up at zero-dark-thirty to start the day with Sea Explorers to see the rare thresher sharks off Malapascua Island. And I visited Magic Island Resort in Moalboal to see the Skull Cave at Pescador Island and the huge sardine school along the Moalboal area coast.

In the course, in creating the book, I also talked to many Philippine dive pioneers, shop managers, divemasters, tourism gurus and visiting divers to hear the latest and greatest about what is going on currently and what the future may bring. With conservation and safety in the forefront, it appears diving and exploration will continue to produce some amazing results in this country.

And so, in July of 2017, we had a finished product. This book was not easy to do as The Philippines has many truly great dives. But it is my opinion that if you get to these areas and do these dives, you will have experienced an amazing marine world found nowhere else on the planet.

Sold on Amazon.com and Blurb.com as print books (and PDF format on Blurb) and on Amazon Kindle and Apple iBooks as ebooks, this look at the best Philippine sites has 225 color photos and maps plus tons of useful information in the inside of the 188-page volume.

Coming in November of 2017, I will team up with writer Simon Pridmore for The 50 Best Dives of Indonesia, The Ultimate Guide to the Essential Sites, which is sure to be an amazing journey. And in March of 2018, David Fleetham and I will combine talents for the Aloha State to release The 50 Best Dives of Hawaii, The Ultimate Guide to the Essential Sites.

Tim Rock
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Book Review

Dive weekends in south west England

by Anita Sherwood

Dive weekends in south west England is a continuation of the same excellent formula as the newly republished Top 100 British Shore dives.

The difference is that Anita has spread her fins to include offshore sites rather than shore dives so the two combined make a useful, informative and very well illustrated combination.

The presentation formula works very well with succinct information about each dive preceeded by local contact information for dive facilities, safety contacts and accommodation.

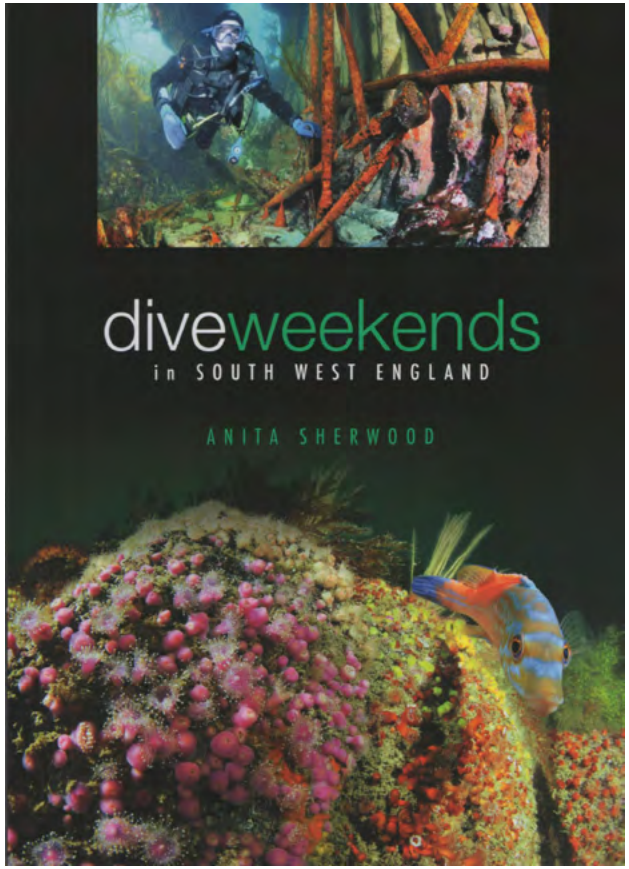
Based on the dives I know in the Plymouth area this is a very useful and accurate collection of local knowledge and I can only assume that those wishing to sample the weekend delights of, say, Falmouth, for example, will also find this a very informative stepping stone to enjoy the local dives.

Top 100 British Shore Dives

by Anita Sherwood

I interviewed Anita Sherwood in UwP Issue 58 Jan/Feb 2011 after she and her business partner Chris Redman had just published Top 100 British Shore Dives.

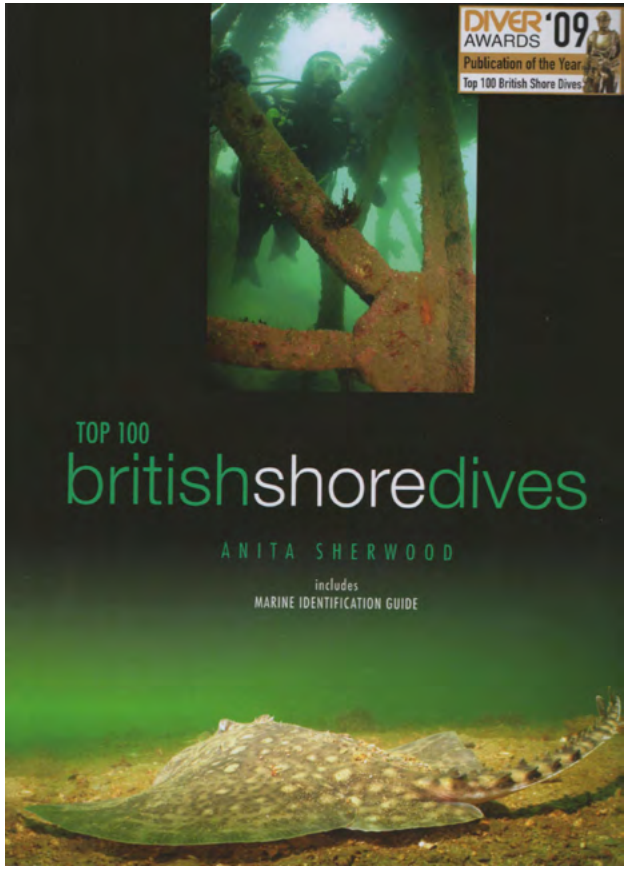
My opening comment was: "It's not often that a well illustrated and informative book on UK diving comes to the market but when I saw Anita Redman's 100 Best British Shore Dives I was delighted"



Well that title is now back in print over six years later and should appeal to a whole new group of British shore divers. My review of it back then quoted: "The book layout is very attractive"…"One of the things which struck me about the book is the high quality of the photography".

As the name implies 100 shore dives are described and illustrated with the precise information you need to be able to experience them yourself and the really excellent images will inspire those with cameras to emulate Anita's which, believe it or not, were shot with a fairly basic compact camera and strobe.

As the winter approaches these two books



will make great Christmas presents and provide inspiration and information for you to plan your next years diving.

Both books are £14.95 each or £29.90 for the pair and postage is free.

Peter Rowlands
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Both books are available direct from:

www.britishshoredives.co.uk

My Shot

by Ricardo A. Valera

During a recent visit to Little Cayman, an opportunity for a day of shore diving opened up and my wife and I decided to give it a try.

To close the day, we chose for our third shore dive a site known as Salt Rock Dock, which happens to be the main port from where supplies are ferried into the island apparently every 10 days or so. When we pulled into the driveway, another vehicle parked right next to us and I could not help but ask the lady if she knew it was OK to dive here? To which she quickly replied… of course it is, in fact, I'm getting ready to dive just now so if you all want to join, let's do this. Not that we needed much more reassurances, but we did welcome her offer with open arms. We managed to put in a couple of hours at this site. Easy entry and exit with lots of macro photography opportunities and depths ranging from 20 to 45 feet.

As we were about to wrap things up and while finding on our way back to a set of concrete steps on the north side of the Salt Rock Dock structure, easiest way to exit the water, I'm just wrapping up some shots of small jumping hermit crabs when all of the sudden, a juvenile hawksbill turtle comes in to inspect what I'm up to.

This particular turtle was completely unfazed by our presence. The typical underwater photography dilemma flashed through my mind as my wide-angle lens was sitting nice and pretty in our hotel room; nevertheless, I just ran the typical thought through my mind…. Just enjoy this moment, your camera is sporting a Macro lens just now. The hawksbill kept coming closer and closer, and for a fraction of a second, it looked straight at my Macro lens and voila, I captured this unusual eye contact.

Diving in Little Cayman is very nice and its reefs are in pretty good shape. Shore diving isn't part of its principal offerings but certainly doable. While we still have a long list of places to visit and dive, Little Cayman is one worth repeating.

Canon 7D equipped with a Canon 60 mm Macro lens, housed in Nauticam with dual Inon Z-240's, using the following manual setting: ISO 200; 1/160th of a second and f:18.

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"My Shot" can be a particular favourite of yours or one which brings back special memories and deserves to be appreciated by a wider audience.
Images need to be 150dpi, longest length (horizontal or vertical) 20cm saved as medium compression jpeg format. and sent with around 300 words of explanation together with camera details and settings.
E mail them and you could be in the next issue of UwP!
peter@uwpmag.com

Guidelines for contributors

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

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

Uw photo techniques - Balanced light, composition, etc
Locations - Photo friendly dive sites, countries or liveaboards,
Subjects -, Anything from whale sharks to nudibranchs in full detail
Equipment reviews - Detailed appraisals of the latest equipment
Personalities - Interviews/features about leading underwater photographers

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

How to submit articles

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

1. The text should be saved as a TEXT file and attached to the e mail
2. Images must be attached to the e mail and they need to be 150dpi

Size - Maximum length 20cm i.e. horizontal pictures would be 20 cm wide and verticals would be 20cm high.

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.

Parting Shot

In September this year we went with some friends back to the Farnes islands (Northumberland, UK) for diving and photographing the seals. Of course they are here and almost everywhere always playing with the divers and biting their fins.

On one of the dives there were plenty of seals at the surface but almost none under, they seemed to be shy or they are not in a mood for playing. So, since there is also plenty of interesting life other than the seals, I decided to have a look under the kelp for trying to take some pictures of the hidden inhabitants of the Farnes.

This is not always easy to go inside the forest of kelp with all the diving equipment, but as soon as you go under the upper leafs of the kelp, at some places, you can find some very clean corridors on light pink sandstone.

Then I entered a few meters into one corridor (may be the habit of cave diving) with the idea to take a picture of the corridor and the sky over it at a place where the kelp allows the light to enter in it. So I arrange the setup of my camera for a vertical shot with the lower strobe close to the soil pointed in the direction of the sky and the upper strobe lightening in front of the camera.

When I was making some lighting tests, all of a sudden a young seal came into the corridor from the dark end and he (or she) was almost as surprised as me and they stopped right over my lower strobe set at ½ power. The position of the seal was by chance perfect for a kind of backlighting effect on the whiskers and also for lighting all the small bubbles trapped in the fur. Everything was then going very quick and after only few seconds the seal jumped over me still surprised to see that some other mammals are also using his tracks under the kelp without any authorisation from the usual user.

After this magic encounter, with nobody here and so after few minutes, I was going over the kelp forest and once again the same seal was then surging up out of the kelp just in front of me and then he (or she) went a few meters away, disappeared under the kelp before surging up in front of me. He (or she) repeated this several times and it was one more magic moment which these seals can offer to divers.

Jean Michel Machefert
www.jmfrog.com

Nikon D2x, housing Aquatica, Nikon 10.5mm, 1/ 100, f 11 , ISO 400 , 2 strobes Nikon SB 910 in Patima housings.

Do you have a shot which has a story within a story?
If so e mail it with up to 500 words of text
and yours could be the next Parting Shot.
peter@uwpmag.com
and yours could be in UwP100