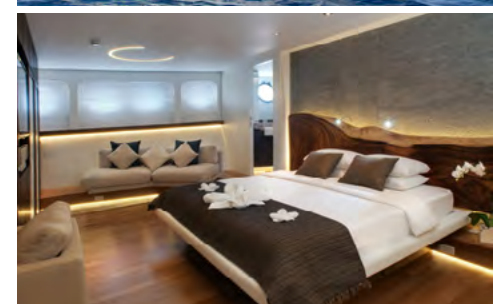






## An experience without equal

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.



*"The reef systems here are some of the most pristine I have seen anywhere in my dive travels around the globe, and Wakatobi resort and liveaboard are second to none. The diversity of species here is brilliant if you love photography." ~ Simon Bowen*



[www.wakatobi.com](http://www.wakatobi.com)

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# Underwater Photography

A web magazine UWP108 May/June 2019

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Cover shot by  
Fernando Lessa

Underwater Photography 2001 - 2019

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Publisher/Editor Peter Rowlands

[www.pr-productions.co.uk](http://www.pr-productions.co.uk)

[peter@uwpmag.com](mailto:peter@uwpmag.com)

# Editorial

## Pool photography

Anyone who poo poos swimming pool photography as plain and boring should take look at the images on pages 26 and 27 from the CMAS International Indoor Meeting of Underwater Photography 2019.

They are just the highlights and show the creative achievements possible from such venues. True, these pools are photographically sterile but that's the point. It's a plain body of usually warm, clear water into which you can pour your imagination.

This style of underwater photography has never really taken off in the UK but in continental Europe it's very popular indeed and taken very seriously.

There is a great deal of planning, visualization and teamwork which goes into these events and CMAS and their co-collaborators are to be congratulated for their support in organising such events.

The images they produce are very dramatic, artistic and inspiring.

## Collaborating

Louis Otis' and Fernando Lessa's excellent illustrated story about the revival of salmon in Vancouver is very positive but it is also good example of what can happen when two talents collaborate.

Fernando has been keeping me updated with his images recording the salmon revival in Vancouver but his pdf presentations were always understandably thin on words because English is not his natural written language. As a result I was rarely able to include his images but now he has collaborated with Louis we have the classic situation of one plus one equals three.

Louis is an emerging talent who actually pitched me the idea for the article. It was well presented, reasoned and not overblown and he could see that any exposure to his writing skills must be worth it on his CV.

The result is plain to see and the moral of the story must be that you may be a great underwater photographer but if you want to get your images published as illustrated articles you will probably stand an increased chance of success if you collaborate with a writer and then everyone's a winner.

## Photo trips

I've said it before and I'm going to say it again because it's been a while.

Underwater photography tends to be a solitary pastime. In the main it's not a team game and usually has to be self learnt by trial and error.

The biggest leap forward I made in my formative years was putting an advert in the then BSoUP newsletter saying that I was planning on spending a few days prior to the 'On the Day' or 'Splash In' in the UK, practicing. The idea was literally that. Practicing; not competing. Diving together, trying out images (in those days it was an achievement to get the exposure right) and bouncing ideas off each other.

The result was a gathering of about half a dozen souls and we had a blast. The weather was good and we were all mad keen to progress without trampling over each other. We all had differing skills and histories but together we progressed and it became an annual get together which did lead to some of us doing well in the 'Splash In' some years.

Now I'm not saying that that is what you should do because that was then and this is now and there are a whole host of 'photo trips' available

commercially which, in a sort of way, replicate my start; they provide opportunities to meet and dive with like minded individuals and see where it leads.

Now I'm not talking about the high profile trips led by leading luminaries pushing for excellence but rather those trips with a competent underwater photographer on board going to photo friendly places at the right time of year. They are there to help you with or without lecturing, to be consulted if needed but above all to provide a convivial, hopefully non competitive trip to indulge and improve your skills with like minded individuals.

If you are on the learning curve there can be no better way to progress but don't go to show off; go to look, listen and learn and if you, in turn, can impart some of your knowledge and experience to help someone else then you will have contributed as well.

Many underwater photographers are repeat customers because these trips provide exactly what they need; a couple of trips a year slotted in between a busy business and family life where they can have a bit of 'me time' and indulge in their passion or hobby whichever level suits.

**Peter Rowlands**  
[peter@uwpmag.com](mailto:peter@uwpmag.com)

# News, Travel & Events

## Seal And Lagoon Tour



We visit a very special lagoon, protected from the wind and one of the sunniest places in the UK. The water here is crystal clear and unpolluted with a white shell sand beach, surrounded by fringing kelp forest reefs. This marine paradise has a large resident seal colony of both common/harbour seals and grey seals. This tour is suitable for passengers wanting to swim, kayak, SUP or just relax and soak up the beautiful environment. It's perfect for beginners however experienced guests will be equally blown away by this place.

Kids really enjoy this trip with

lots of stops and activities to keep them interested throughout the day, making it perfect for all the family. With lots to discover above and below the waves, it's also a great way to introduce them to the marine environment.

Low impact small group guided by marine biologist

March-July, September-October  
£140-£160 per person (discounts for kids)

Minimum numbers required for trip to run

Pick up at Oban or Tobermory, Isle of Mull

[www.baskingsharkscotland.co.uk](http://www.baskingsharkscotland.co.uk)

## Join Marty Snyderman at Bunaken Oasis September 2019

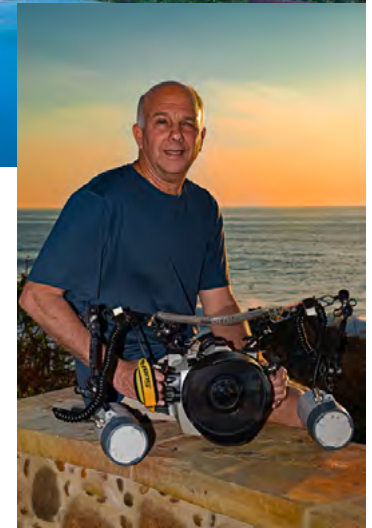


Marty Snyderman will be joining us from the 1st of September for 10 nights, running his first Bunaken Oasis photography workshop. Prices start from \$3,815.

Marty Snyderman is a longtime still photographer, author, photography instructor, and speaker specializing in the marine environment. Marty's still photography has been used by the National Geographic Society, Nature Conservancy, National Wildlife Federation, Oceana, Shark Research Institute, and many major publications, natural history museums and aquaria that express interest in marine wildlife and ocean-related issues.

Marty is one of approximately 80 people inducted into DEMA's SCUBA diving Hall of Fame, making him a proud recipient of DEMA's 2008 Reaching Out Award.

Learning underwater photography can be hard work & challenging, however, when you get that one shot it feels incredible! If you are looking to improve your underwater photography skills why not join Marty Snyderman, this September for a 10-day workshop.



[info@bunakenoasis.com](mailto:info@bunakenoasis.com)

[www.bunakenoasis.com](http://www.bunakenoasis.com)

[www.uwpmag.com](http://www.uwpmag.com)



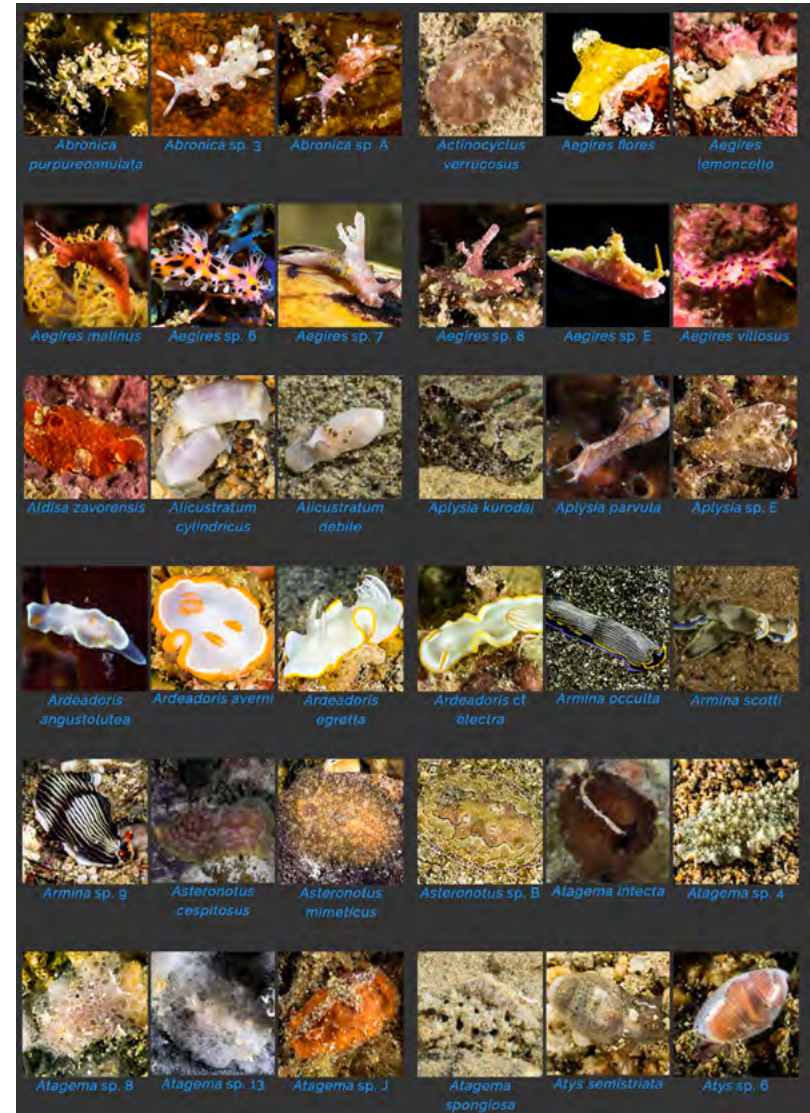
Looking to improve your underwater photography skills?

Join Marty Snyderman, this September  
for a 10-day workshop.  
Prices start at \$3815

info@bunakenoasis.com  
www.bunakenoasis.com



## Nudibranchs from Crystal Blue Dive Resort



Following a recent trip to the Crystal Blue Dive Resort in Anilao we have updated our site with 50 additional species along with a few other flatworms and a new section on crustaceans. You can enjoy it here

[www.nudibranch.org/Philippine%20Sea%20slugs/html/philippine-nudibranchs.html](http://www.nudibranch.org/Philippine%20Sea%20slugs/html/philippine-nudibranchs.html)

[www.divecbr.com](http://www.divecbr.com)

[www.uwpmag.com](http://www.uwpmag.com)

Gregory Sweeney Photography Adventures

Tiger Shark Live Aboard Dive Trip

12 -18 October 2019  
Feb & March 2020 Dates

[www.TigerSharkDive.com](http://www.TigerSharkDive.com)

Tiger Beach , Bahamas

# UNDERWATER PHOTO WORKSHOP

**PUERTO GALERA, PHILIPPINES**  
**JUNE 16-23, 2019**

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**EDITING ~ IMAGE CRITIQUES ~ REVIEWS**

**Phil: [tropicalone@bellsouth.net](mailto:tropicalone@bellsouth.net)**

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**RESERVATIONS: [admin@asiadivers.com](mailto:admin@asiadivers.com)**



[www.asiadivers.com](http://www.asiadivers.com)



## San Diego UnderSea Film Exhibition 2019

The 2019 San Diego UnderSea Film Exhibition (SDUFEX) is calling for entries. In its twentieth year, it is being held at the state-of-the-art Irwin M. Jacobs Qualcomm Hall in San Diego, California and is expected to be a sell-out event. The deadline for entries is 15 June, while the festival itself will be held on 4 and 5 October.

The first San Diego UnderSea Film Exhibition was first organized in 2000 by a small group who had been meeting at Chuck Nicklin's dive shop to share information on shooting and editing underwater video. In the past twenty years, it has grown into one of the most prestigious underwater film festivals worldwide. Help us make the 20th festival the best ever by submitting your underwater film! Our venue is state-of-the-art Irwin M. Jacobs Qualcomm Hall, and last year was a sellout with over 500 people each night.

Our approach includes affordable tickets, the opportunity

to share your work with an appreciative audience, and a panel of independent judges who are distinguished in their fields.

The top three films as selected by an audience vote each night will be awarded prizes. The film with the highest number of votes each night will be awarded cash prizes of \$500, \$250, and \$100 for 1st, 2nd and 3rd places respectively.

The films should be submitted in 1920 by 1080 resolution with 20 – 30 Mbps encoding in H.264 in .mov or .mp4 format. The film(s) submitted will be the exhibition version that will be screened as uploaded to FilmFreeway should your film(s) be selected.

If, for some reason you are not able to use FilmFreeway, please contact us via email ([sdufexfilm@gmail.com](mailto:sdufexfilm@gmail.com)) for alternative submission methods.

[www.sdufex.com](http://www.sdufex.com)

[www.uwpmag.com](http://www.uwpmag.com)

# Tiger Beach, Bahamas

## Shark Trip

October 12 - 18 2019

Tiger Beach is a remote offshore location in the Bahamas known as the shark diving capital of the world. The stars at this ½ mile stretch of powder white sand are the tiger sharks, mostly female, who are resident here all year but aggregate in large numbers starting in October of each year. Other sharks are also present and are no less charismatic to photograph but each in their own way: Caribbean reef sharks and lemon sharks. Sightings of great hammerhead and bull sharks are becoming more common.

Diving without a cage among these large sharks allows you to get up close and personal for a thrilling adventure full of action. Seeing this many species of sharks is an opportunity to appreciate and value their role in our oceans.

Photographers will enjoy the clear water and bright sand bottom and taking images of sharks over the green sea grass or reefs. The tiger sharks swim in a pattern and pass close to divers and the crewmembers at the bait crates. You can observe the patterns and place yourself in position to get head-on shots.

I use a Nauticam housing with my Canon 5D MK IV . Most photographers use strobes but the light will not reach in all situations. I have used several lenses over the years like the EF 15mm 2.8 Fisheye and the 17 -40 f 4, but my main choice is the 16



– 35mm f2.8L. The fisheye works to get the shark nose to fin in the frame and getting close is not a problem if you are brave enough.

Bring a water resistant camera for topside shots.

We depart/return to West Palm, Beach Florida making for easy flight connections to any southeast Florida airport.

Our boat is the MV Dolphin Dream, a 86' expedition charter yacht with 5 shared cabins and diving platform. It holds 10 guests plus crew and is very stable and comfortable to ride through the Caribbean waters.

Underwater photographer Gregory Sweeney is your host and is available to offer photography help and tips during the trip and while preparing for travel.

[www.TigerSharkDive.com](http://www.TigerSharkDive.com)



**Manta Fest 2019**  
**24 August to 8 September**

Manta Ray Bay Resort and Yap Divers have announced the dates of their 2019 Manta Fest Photo Festival.

In its twelfth year, it will feature presentations from David Fleetham, Frank Schneider, Tim Rock, Andreas Schumacher, Ray Bullion, and Brad Holland.

Package includes;

Hotel room, 3, 5 or 11 dive days (2-tank), Participation in photo contest, Seminars and workshops, Evening Media Presentations, Shark split photo, Land/culture Photo opportunities, Private Beach BBQ, Land, culture & island tour, Local dinner buffet/meal;, Breakfast, Roundtrip airport transfers, Free Wi-Fi in public areas, Hotel Taxes, Wake-up service with coffee and tea

2019 packages:

4 night / 6 dives from: \$1,039

7 night / 10 dives from: \$1,709

10 night / 16 dives from: \$2,399

14 night / 22 dives from: \$3,239

[www.mantafest.com](http://www.mantafest.com)



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SCOTLAND**



**4 Day & 7 Day Tours - 100% Success in 2017 (2-3 Day Tours 83%)**

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- **Biggest Numbers & Most Consistent Worldwide Basking Shark Hotspot**
- **Based in Hebridean Isles**
- **Grey & Common Seals**
- **Whale & Dolphin Hotspot**
- **Puffins, Seabirds & Eagles**
- **Evening Photography Dives**
- **Stunning Scenery**
- **One - Seven Day Tours**
- **Guided by Marine Biologists**
- **Scientific Research Programme**

## White Sandy Beach Resort, Lembeh



The resort will feature twelve comfortable Oceanfront Cottages, just a few meters from the remote white sandy beach (unique in Lembeh Strait) to assure a quiet stay.

Next month we will have 6 Oceanfront Cottages available, the restaurant, bar and lounge and the swimming pool.

The construction will continue on the second plot of land and will be completed in the second part of the year and will include a Seaview SPA, a camera room and a classroom for courses.

Our diving services will be run on 15 meters fiberglass speedboats to

quickly reach all dive sites in Lembeh.

Our standard program includes two dives in the morning and a third dive after lunch, night dives are available every night; we offer PADI courses and you can book your nitrox diving package.

We are offering special launching rates, making your diving holiday so inexpensive, in this new exclusive resort: our All-Inclusive Dive Packages start at USD 395/person for 3 nights in Full Board accommodation and 2 days of diving (up to 6 day-dives).

[www.eco-divers.com](http://www.eco-divers.com)

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DIVERS

*a resort where diving is passion*



DIVE RESORT

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INDONESIAN SEAS

[www.alor-divers.com](http://www.alor-divers.com)

## The Orcas Have Arrived!



Great news! We've received a message from our partners that the orcas are already arriving and the rays are following them — which is early and indicates that 2019 will be a great season.

I've been working for two years observing the orcas with a local operator, and we've set up unique logistics for this expedition. We'll be highly mobile, guided by aerial scouting. We'll travel by ground along the coastline — changing our hotel every night or two — ensuring that we are always located close to the action.

This will be a fast-paced and challenging expedition in a rugged environment, so we're only looking for four highly-experienced explorers with strong free-diving skills.

Due to popular demand and the good fortune of the orcas arriving early this year, we've decided to add another trip, scheduled June 1 – 8, 2019. I only take 5 people on these expeditions. 3 spaces are already filled, so I have two spaces still available.

To reward anyone able to act fast and sign up at this late point in time, I'm reducing the price of this trip by \$2,500 off the price on the website expedition page

This trip is mostly snorkeling & freediving, but to make the experience even better we can equip each qualified diver with a pony tank.

[www.biganimals.com](http://www.biganimals.com)

[www.uwpmag.com](http://www.uwpmag.com)



# FUJIFILM X-T3 MIRRORLESS DIGITAL CAMERA

Introducing the new 200DL Underwater Housing for the Fujifilm X-T3 mirrorless digital camera. Every detail has been thoughtfully designed to enhance creative control, streamline the system, and reduce travel weight to a bare minimum. Add the optional DL4 DS Link TTL Converter for the fastest, most reliable, and most accurate TTL strobe exposure in the water.

Read more at [ikelite.com](http://ikelite.com).



# New Products

## Ikelite Fujifilm X-T3 housing



A full featured and durable waterproof housing for Fujifilm X-T3 mirrorless digital cameras. Suitable for scuba, snorkel, surf, pool, and any application in or around the water.

The fourth generation Fujifilm X-T3 features a 26.1 megapixel BSI X-Trans CMOS 4 APS-C sensor and is capable of 4K/60p 10bit video recording. Autofocus (AF) performance has been improved over previous models including low light AF performance.

The weather-sealed body includes analog controls for shutter speed, ISO, and exposure compensation, and allows customization of 9 buttons and dials.

This housing features our robust Dry Lock (DL) port system. “Dry Lock” refers to the placement of the o-ring on the outside of the port mount. This improves visibility and reduces the chances of water dropping onto your precious camera sensor. DL ports are the lightest on the market, yet robust and capable of standing up to rough surf. A system of extensions can accommodate a huge variety of lenses with ease.

Most popular zoom lenses and select lens focus rings can be engaged using simple gearing 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. The unique rear seal design prevents accidental twisting or stretching of the o-ring for simple and confident assembly. We have eliminated the need for an o-ring groove or channel which can trap sand, dirt, or debris. Three double-passivated stainless steel locking lid snaps are simple to use and virtually unbreakable. The clear back allows you to see the o-ring form a solid, watertight seal as it closes.

[www.ikelite.com](http://www.ikelite.com)

## YS-D2 STROBE



- AUDIBLE & VISUAL READY & TTL CONFIRMATION
- DUAL POWERED MODELLING LIGHT WITH RED FILTERS
- BACKLIT ILLUMINATED REAR CONTROL PANEL
- FASTER RECYCLING TIME
- DS-TTL II WITH +/-2 EV RANGE

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[www.sea-sea.com](http://www.sea-sea.com)  
01803 663012 - [sales@sea-sea.com](mailto:sales@sea-sea.com)

## NA-BMPCCII for Blackmagic Pocket Cinema Camera 4K



With the Pocket Cinema Camera 4K, Blackmagic is giving users affordable 4K Raw video. The Blackmagic Pocket Cinema Camera 4K delivers true DCI 4K capture at 60fps recorded in either 12-bit Blackmagic raw format or a variety of 10-bit ProRes flavors. Video can be recorded internally to SD or CFast 2.0 cards or via USB-C to a compact SSD. The MicroFourThirds mount means a large selection of lenses.

The NA-BMPCCII is not just an update of the original NA-BMPCC, it is a ground up redesign for the new Blackmagic Pocket Cinema Camera 4K designed to take full advantage of the great new features of this cinema camera by also supporting additional batteries that can bring run-time above 3 hours, a portable SSD and the ability to use external monitors or recorders.

The NA-BMPCCII comes with a custom battery cage that holds 4 x 18650 Lithium Batteries (batteries not included) and when used with 4 x 3400 mAh batteries results in run-times exceeding 3 hours. This battery cage sits securely beneath the camera inside the housing and connects directly to the camera's power supply input. Atop the camera's position inside the housing is a slot that holds a compact T5 SSD which connects to the camera via USB-C.

The NA-BMPCCII features DSLR style ergonomic handles with stainless steel stiffening brackets that are compatible with the optional handle strap (PN 28130). The rear



monitor window is compatible with the Monitor Shade for the NA-502 Housing (PN 17916) which attaches via four screws.

[www.nauticam.com](http://www.nauticam.com)



### Nauticam NA-D850 for Nikon D850



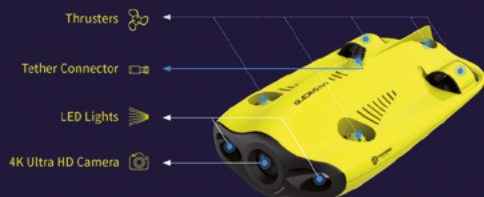
#### "The Next Frontier"

Proving that speed and resolution can indeed coexist, the Nikon D850 is a multimedia DSLR that brings together robust stills capabilities along with apt movie and time-lapse recording. Revolving around a newly designed 45.7MP BSI CMOS sensor and proven EXPEED 5 image processor, the D850 is clearly distinguished by its high resolution for recording detailed imagery. Nauticam is the market leader in build quality, ergonomics, and reliability. Built on a foundation of innovative product design and modern manufacturing technology, NA-D850 is the ultimate accessory for the exciting new Nikon D850 camera.

[www.reefphoto.com](http://www.reefphoto.com)

# WE ARE UNDERWATER PHOTOGRAPHERS JUST LIKE YOU!

## 4K UNDERWATER DRONE WITH 100M CABLE



### GLADIUS MINI

is the first five thruster minisize underwater drone in the world. Equipped with a 4K ultra HD camera, it can dive up to 330 feet deep and is perfect for underwater photography and exploring. The submarine-like five thruster design ensures stable underwater footage. Any underwater exciting moment can be recorded and ONE-STEP shared to your families and friends. With a backpack, you can start your trip right away. Whatever adventure you go on with friends or family, the GLADIUS MINI is a highly entertaining and unique underwater drone for everyone to enjoy.



## INON Straight Viewfinder Unit II

INON INC. is pleased to announce official releases of new Straight Viewfinder Unit II for X-2 designed for INON X-2 series housings and its optional Diopter Correction Lens.

### Features

- Newly designed straight type viewfinder based on full frame DSLR.
- High performance large prism and optimized glass material make it possible to see every corner of camera's viewfinder image clearer and brighter. Unlike conventional viewfinders, this bright viewfinder enables you to focus precisely and comfortably even in dark underwater.
- Optically designed to suit to an EVF: electrical viewfinder of a DSLR camera which provides wider viewing angle, so no vignetting nor blur even in corners.
- Magnification of this viewfinder is same as camera's viewfinder. As its eye-point underwater is extended to 60mm/2.4inch, no vignetting of viewfinder image even through a mask.
- Viewfinder body is made from corrosion resistant aluminum and FRP: fiber reinforced plastic to make the body compact, lightweight yet durable.



- Same mount system as existing INON viewfinder.

### Specifications

- Size inc the mount: (L)101.8mm/4.0in x (W)72.2mm/2.8in x (H)74.0mm/2.9in
- Weight: 305g/10.8oz (air)
- Depth rating: 75m/246ft

[www.inon.co.jp](http://www.inon.co.jp)

## CB70 SQUARE GROUPE

### UNDERWATER HOUSING TRANSPORT & RINSE TANK

\* SHOWN WITH NAUTICAM 1DX HOUSING ULCS ARMS SEA&SEA STROBES FOR SIZE REFERENCE ONLY



FOLDED FOR TRANSPORT



[CINEBAGSUNDERWATER.COM](http://CINEBAGSUNDERWATER.COM)

# BACKSCATTER M52 AIR LENS



## ALL-NEW ACCESSORY LENS FOR OLYMPUS TG-5



CLICK FOR  
FULL REVIEW  
& TEST SHOTS

## DivePad - Universal Housing for Tablets



Divepad is the world's first Universal underwater housing for iOS and Android tablets (protected by International Patents).

Compatible with all iOS and Android tablets with up to 10" diagonal screen size. With iOS tablets (iPad) the housing allows you to use all the advanced features of the camera by downloading the Divepad App from the App Store.

With Android tablets, the control unit enters into keyboard mode and allows you to use different applications of our tablet, and all the advanced photo / video features

The housing is made from a solid block of aluminum anodized for maximum resistance over time against wear and saltiness.

The watertight seal is guaranteed by a double O-ring on the back and by 8 stainless steel lever latches.

Internally, a double adjustable

caliper support has been designed, which allows you to fix your tablet firmly and quickly. On the right side there is a 6Ah power bank that allows additional autonomy to your tablet.

The tablet is controlled by the electronics inside the case: once the Bluetooth is switched on, the connection is automatically activated by pressing the power button. The buttons equipped with optical sensors enabled us to eliminate physical keys.

The electronic board is equipped with an internal battery that provides autonomy of about 14 hours and that is recharged via a USB-C connector in about 30 minutes.

The tablet communicates with the housing via a Bluetooth connection. All you need is the application downloadable from the App Store or Google Play.

[www.easydive.it](http://www.easydive.it)



## Nauticam NA-Z7 for Nikon Z7/Z6



**"More than mirrorless.  
Nikon mirrorless."**

Underwater image makers rely on environmental diversity to push their art to its limits and not just in the underwater environment. With the introduction of the Nikon Z7 and Z6, the full-frame mirrorless camera market has major new competitors to push the segment even further.

The Z7 and Z6, Nikon's first full-frame mirrorless cameras, offer underwater shooters the same legendary Nikon sensors with the versatility of an electronic viewfinder and the compactness of a mirrorless system. The NA-Z7 supports both the Z6 and Z7 models.

[www.reefphoto.com](http://www.reefphoto.com)

# Nauticam

Europe's Nr. 1 Nauticam expert



**Certified Service Center**  
Professional workshop with pressure tank and Nauticam trained engineers



**Super fast delivery**  
We stock all popular Nauticam products



**Repairs and overhauls**  
Your partner in Europe for in-store full overhauls and repairs



Nauticam NA-A7RIII housing for Sony A7RIII and A7III



Nauticam WACP 0.36x Wide Angle Conversion Port



Nauticam NA-RX100V PRO Package for Sony RX100 V



Nauticam MWL-1 macro to wide angle lens



**WE ARE UNDERWATER PHOTOGRAPHERS... JUST LIKE YOU.**

## Deeptrekker DTG3 Underwater ROV



Canadian company Deep Trekker has launched DTG3 ROV which is a remotely operated vehicle that can be used in marine environments.

“Bridge technology allows the user to experience wireless control and viewing, multi-vehicle operation over the internet, and software upgrades from anywhere in the world,” said Chad Plesa-Naden, embedded systems engineer lead, Deep Trekker.

It can reach depths of 305 meters and has a 12-hour battery life. It includes enhanced live viewing and recording capabilities. 4K video technology offers crisp and detailed recordings. It is operated by a waterproof handheld controller.

Sonar

“DTG3 provides advanced stability even in rough underwater environments; the freedom to move with direct sonar integration, and an automated station holding capable of

rotating 270 degrees.”

Deep Trekker Inc. was founded in 2010. The company is headquartered in Ontario Canada, with engineering and manufacturing all completed in house.

Based on a clean sheet design, the premiere product, the DTG2 ROV was introduced in August 2011. Since that time, Deep Trekker Inc has developed 6 robot lines.

Deep Trekker's robots are used globally for structural inspections, marine surveys, sample collection, drowning victim search and recovery, security checks and in the aquaculture industry.

The 4K internal camera is easy to use, with live zero latency viewing on the handheld controller and a 270 degree rotating field of view. Switch to photo mode to snap photos up to 8 megapixels.

[www.deeptrekker.com](http://www.deeptrekker.com)

[www.uwpmag.com](http://www.uwpmag.com)

**SONY  
RX100VI**



**BACKSCATTER**

**UNDERWATER  
CAMERA  
REVIEW**



## Nauticam NA-S1R housing for Panasonic S1 & S1R

The Panasonic Lumix S1 and S1R share an identical magnesium alloy weather-sealed rugged body which is built around a full-frame sensor and what was previously referred to as the Leica SL-mount but now given the moniker of L-mount.

Both cameras will feature dual card slots, one for a UHS-II v90 SD card and the other an XQD which will support the higher transfer rate CFexpress media in the future as well as both an HDMI (type A) and USB-C port.

Panasonic has given both models the same autofocus system which relies on their DFD (depth-from-defocus) contrast detection system. They have given the cameras 9 autofocus modes with customizable options. Panasonic claims a low-light autofocus capability of up to -6 EV.

With the ability to house both the Panasonic LUMIX S1 and S1R cameras, the Nauticam NA-S1R housing gives the underwater image maker tremendous versatility. Nauticam's drive for innovation and focus on real-world usability are



clearly reflected in the features that are built into the NA-S1R.

Nauticam engineers are obsessed with usability and the Mission Control philosophy means placing essential controls where they are needed, unrestricted by where they are located on the camera body. Placing the controls as close to the handles as possible and within easy and natural reach, the user can focus on composition and timing their shot while adjusting exposure or focus without taking their eye off the EVF or LCD.

The NA-S1R has a double thumb lever on the rear left side of the housing that accesses DISP and Playback while a double thumb lever on the left front activates the customizable Fn1 and Fn2 buttons. A rear double thumb lever on the right side is for AF-On and REC.

A lever on the right read of the NA-S1R allows for focus mode switching between C/S/MF and a multi-directional pad gives the ability to navigate the menu or move the focus point.

Sigma's MC-21 EF to L adapter will allow for the use of Sigma EF-mount lenses to be used with the S1 and S1R cameras. The NA-S1R is designed to not only accommodate the adapter but to allow for the use of the existing focus and zoom gears for Canon EF-mount Sigma lenses for the N120 Canon System along with the existing Canon N120 extension ring and port combinations for those lenses.

[www.nauticam.com](http://www.nauticam.com)



## Isotta housing for Nikon Z series



Isotta has announced their new housing for the Nikon Z6 and Z7 mirrorless cameras. Featuring many of Isotta's standard features, the housing will ship with a TTL converter as standard that can fire strobes optically or electrically (with optional bulkheads). It has a port diameter of 120mm and has sufficient internal space to allow the use of the ZTF adaptor.

The Isotta housing for the Nikon Z6 and Z7 will ship in March, priced at €2.790,00 including local Italian sales tax.

[www.isotecnic.it](http://www.isotecnic.it)

[www.backscatter.com](http://www.backscatter.com)

## Two new LeakInsure sachets

Due to popular demand Leak Insure have launched two new value packs of their Slim and Shorty size sachets. These packs contain 10 sachets and offer a 20% saving.

Leak Insure sachets contain highly absorbent granules that can hold 400 times their own weight in freshwater. Place a Leak Insure sachet in your underwater housing before you dive. If your camera starts to leak the sachet will absorb the water. This can buy valuable time to get to the surface and save your camera.

A must for any diver or underwater photographer.

Protect your underwater-camera from damage caused by condensation and minor leaks with our super absorbent sachets.

Condensation can cause just as much damage as a minor leak. Our Leak Insure sachets will remove any moisture from inside your housing & prevent condensation. This will ensure better pictures and less damage to your camera.

This pack contains 10 Slim size Leak Insure absorbent sachets in a re-sealable bag.

These sachets are suitable for compact underwater camera housings.

Contents: 10 Sachets 20mm x 80mm



Absorbition Capacity approx.: 17.5ml per sachet.

Leak Insure sachets contain highly absorbent granules that can hold 400 times their own weight in freshwater. If you place one or two Leak Insure sachets in your underwater housing before a dive you can buy valuable time to get to the surface and save your camera if it starts to leak.

[www.leakinsure.com](http://www.leakinsure.com)

[www.uwpmag.com](http://www.uwpmag.com)

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PHOTOGRAPHERS  
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**150 METER WATERPROOF**



**FOR HERO 5/6/7**

**ACTIONPRO ALUMINUM  
HOUSING FOR GOPRO**



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## Fantasea Sony FA6400



Fantasea introduces the rugged and stylish FA6400 Housing for the Sony a6400 mirrorless camera. The housing is expected in May 15th, 2019.

The Fantasea FA6400 Housing was designed and manufactured specifically for the Sony a6400 camera. The FA6400 Housing features an ergonomic design with access to all essential camera functions. It offers the highest professional standards of functionality, style and durability.

Despite its compact size and light weight, the a6400 delivers speedy performance and a range of features you'd expect from a full-frame model. Click Here to read more about the Sony a6400 mirrorless camera.

[www.fantasea.com](http://www.fantasea.com)

## Aquatica 5HD monitor



Aquatica has announced their 5HD monitor. It features an HD monitor with peaking and false color to assist focusing and exposure, housed in an aluminum housing with a sun shade and Aquatica's rotary closure. Battery life is 4 hours, and the monitor will accept 4K input over HDMI.

The Aquatica 5HD monitor will be shipping soon, priced at \$2,195 in the U.S.A.

[www.aquatica.ca](http://www.aquatica.ca)

**Nauticam**  
innovation underwater



*Unleash your creative potential*

**NA-XT3**

*for Fujifilm X-T3 Camera*

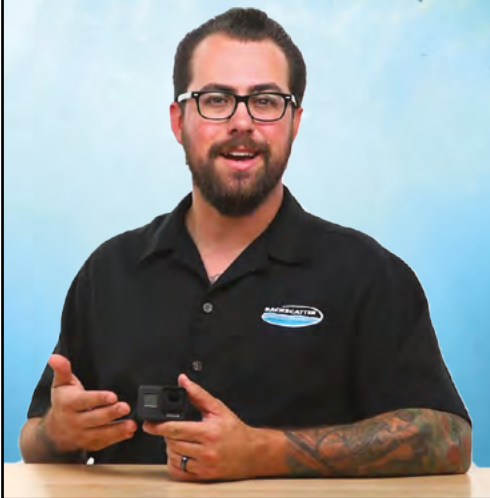


[www.nauticam.com](http://www.nauticam.com)

# GOPRO HERO7



## UNDERWATER CAMERA REVIEW



## Backscatter M52 Wide Angle Air Lens

The Backscatter M52 Wide Angle Air Lens joins the Backscatter M52 Wide Angle Lens to offer another wide angle lens option for the Olympus TG-5.

The Backscatter M52 Wide Angle Air Lens is designed to be an intermediate wide lens and offers a narrower 81° field of view compared to the 120° view produced by the Backscatter M52 Wide Angle Lens.

This slightly narrower field of view makes it easier to fill the frame without having to get quite as close to a subject. Shooters do not need to close as much distance as when shooting with a wider lens, yet are still able to minimize the amount of water that must be shot through for better image clarity, color, and contrast. This is ideal for newer underwater photographers who are not yet quite as comfortable with close working distances.

Switching from wide angle to tighter fish ID and macro shots has never been easier than with the Backscatter M52 Wide Angle Air Lens. A tighter field of view can be achieved by simply zooming in. The Backscatter M52 Wide Angle Air Lens supports a partial zoom through, allowing you to utilize much of the built-in lens zoom function.



For true macro shooting, just switch to Microscope Mode and zoom all the way in. This allows the camera to focus almost as close as when no accessory lens is installed at all.

Because of the size of the lens and slightly increased focus distance it's difficult to achieve the tightest possible macro, but for adapting on the fly and shooting whatever you encounter during a dive, both big and small, then the versatility and combined macro and wide capabilities without having to remove the lens makes the Backscatter M52 Wide Angle Air Lens the best of both worlds.

[www.backscatter.com](http://www.backscatter.com)



## Nauticam NA-A7RIII for Sony a7R III



### "Reality Realized"

Sony, the pioneers of the full-frame mirrorless camera with their a7 line have brought us their latest iteration and it is awesome. Taking cues from the just released a9 the a7R III adds better autofocus, faster continuous shooting, and the same great 5-axis stabilization we've come to love. 4K footage can be captured either from the full width of the sensor or from a Super 35 size crop.

A professional housing befitting of a top-of-the-line camera, the NA-A7RIII underwater housing provides fingertip access to all key camera controls in a rugged and reliable aluminum underwater housing. Ergonomic camera control access is one of the defining strengths of a Nauticam housing, and the NA-A7RIII continues this tradition.

[www.reefphoto.com](http://www.reefphoto.com)



## Ikelite 200DL Underwater Housing for Canon EOS RP Mirrorless Camera



Introducing a full featured and durable waterproof housing for Canon EOS RP full-frame mirrorless digital cameras. Suitable for scuba, snorkel, surf, pool, and any application in or around the water.

Canon EOS RP Mirrorless Camera Features  
Weighs less than a pound (440g / body only)

26 megapixel CMOS sensor  
4K/24p video capture  
Dual Pixel AF system  
Quick autofocus and good low light performance  
High-precision 0.39-inch OLED EVF (electronic viewfinder)  
Accepts RF-mount lenses or EF-mount lenses with the EF-EOS R Mount Adapter

200DL Housing Features  
200ft (60m) depth rating  
Extendable shutter release lever  
Extendable AF-ON thumb lever for back button focus  
Interchangeable Dry Lock (DL) port system including flat ports with 67mm threads, compact 6" domes, and ultralight 8" dome ports  
Corrosion-proof ABS-PC construction  
Clear view back with laser markings  
Manual flash hotshoe with ICS-5 bulkhead  
Optional TTL converter for fast and accurate strobe exposure  
Optional 45° or Straight Viewfinders  
Optional top grips  
Built-in vacuum valve  
M16 accessory port for third party accessories



NA-BMPCC II for Blackmagic Pocket Cinema Camera 4K



NA-S1R for Panasonic Lumix S1/S1R Camera

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PHOTOGRAPHERS  
JUST LIKE YOU!**

**INON Z-330 STROBE**

**THE STROBE WE HAVE ALL BEEN WAITING FOR**



**Fibre snoots, dome diffusers and snoots are also available for the Z-330.**



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## Hugyfot Vision Sony RX100 VI



The Vision Sony RX100 housing is the most versatile Sony RX100 housing system ever.

In order to get the best out of your Sony RX100 VI, Hugyfot engineers developed this rugged, yet extremely versatile housing.

Installing the Sony RX100 IV or V only takes seconds thanks to the plug and play wiring system and the rotary secure lock mechanism.

The housing comes in 2 different configurations:

- back equipped with a 7" HDMI monitor and 2 Lithium power banks that generate a 8 hour battery life
- back equipped with push buttons and rotary controls to have full access of camera functionality and 1 Lithium power bank that generates a 6 hour battery life

The Vision Sony RX100 housing comes standard the Hugyfot multi-functional wing and rigid aluminium handles with 1" mount balls.

Color (anodized): black  
 Pressure rated: 200m  
 Length: 330mm  
 Width: 240mm (with sun hood)  
 Height: 180mm  
 Weight on land (power banks incl.): 3.800gr  
 Weight in water (camera & power banks incl.): +800gr

[www.hugyfot.com](http://www.hugyfot.com)



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NA-GFX Housing for  
Fujifilm GFX 50S Camera

[www.nauticam.cn](http://www.nauticam.cn)

## Nautieye lights

Nautieye is a brand of Super Global Co., Ltd. which established since 2011, has been committed to diving product research, development, processing and production, and has won the trust and praise of many well-known OEM customers due to its technological innovation and excellent quality.

In 2018, we started to create our own brand—Nautieye, focus on design, engineer, and manufacture innovative underwater photographic equipments. We also continued to work in the fields of underwater lens, underwater multi-function photographic lamp, and underwater flash lamp and so on, and constantly promoted innovative products.

Our products have all-great functions, excellent appearance, and competitive prices. Our goal is to enable you to have many unforgettable underwater photography experiences! Our mission is to increase the popularity of underwater photography and more enjoyable for amateurs and professionals.

The Nautieye brand always holds the business philosophy of good faith cooperation and win-win development, and always adheres to



the development direction of product innovation and quality first. We look forward to working with you and seeking common development with our best products and services.

We sincerely invite you to be our distributors if you are interested in our products. Please feel free to contact us for any enquiry.

[www.nautieye.com](http://www.nautieye.com)



## Nauticam NA-RX100VI for Sony DSC-RX100 VI



### "Close in on the Action"

With the sixth iteration of the RX100 series, Sony has continued to add features to this workhorse compact camera and Nauticam is also adapting with the new NA-RX100VI housing. The

NA-RX100VI housing provides the ergonomics, build quality, and innovative feature set our customers demand in a tiny, travel friendly package with the addition of an interchangeable port system to accommodate the longer zoom lens of the Mark VI. Nauticam designs are always improving, and new features are integrated into each new release. The ergonomic experience has been tailored for a photographer's right hand on the side of the housing, placing key controls literally at the users finger tips.

[www.reefphoto.com](http://www.reefphoto.com)

# WORKSHOPS

ANILAO  
MAY 18-25, 2019

## PHILLIPINES



PHOTO  
+  
VIDEO

LEMBEH  
OCT 4-14, 2019

## INDONESIA



PHOTO  
+  
VIDEO

BLUE HERON  
BRIDGE  
Dates Vary

## PALM BEACH

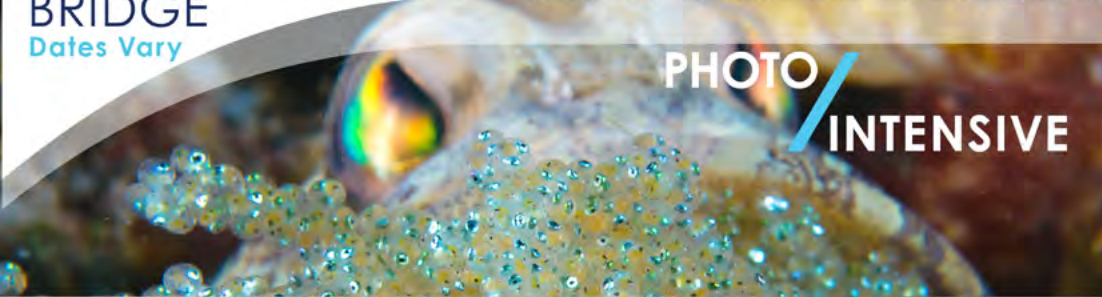


PHOTO  
/  
INTENSIVE



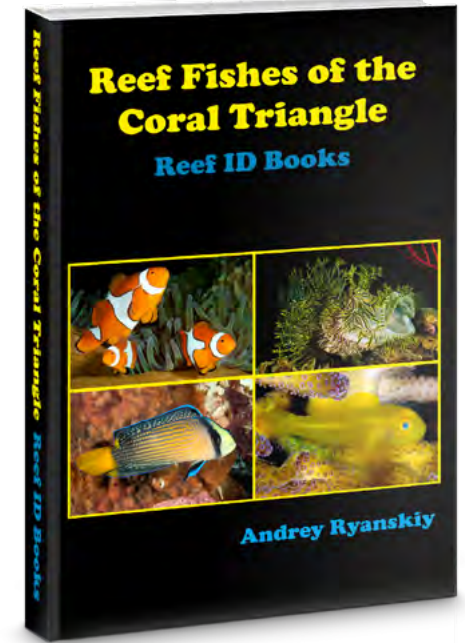
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[www.reefphoto.com](http://www.reefphoto.com)

## Reef Fishes of the Coral Triangle

The world of tropical fishes is infinitely rich and colorful, especially in the center of world biodiversity – the Coral Triangle. It is a region that encompasses the waters of six Southeast Asian countries: Indonesia, Papua New Guinea, Philippines, Malaysia, Timor-Leste and Solomon Islands.

The book presents more than 1400 species of reef and coastal fish that can be found and photographed in depths and regions accessible to recreational diving. They were photographed without the use of special traps and chemicals hazardous to the coral reef and its inhabitants. Photographs, showing color variations, age and differences in gender, are included. A lot of species covered by this guide have never before appeared in field guides or popular books. Some of them were recently described (2015-2019), some were known from tank photos only. Others are still waiting to be described.

Compact text blocks provide information about Common name, Latin name, family, geographic distribution, size, and the most distinctive features. An extensive photo index at the beginning of the book helps you to find the right group of fishes, especially for



readers who have not yet mastered their names. The arrangement of 10 photographs on each page also helps the identification process, since at the single view, the entire group of similar fish species is often visible at the spread of the book and there is no need to repeatedly flip through it.

Small and compact, available as paperback and in electronic form, it is designed for divers, underwater photographers, and snorkelers. This information will be useful to aquarists who are interested in the fish of the region.

[www.reefidbooks.com](http://www.reefidbooks.com)

[www.uwpmag.com](http://www.uwpmag.com)

# MIRRORLESS MIRRORLESS ON THE WALL



WHO HAS THE LARGEST SELECTION  
OF THEM ALL?



THATS WHO.

## Urban salmon

After almost three years, I'm happy to say the Urban Salmon book is ready!

I'm especially thankful for the Rivers Institute / BCIT and The Pacific Salmon Foundation, for supporting the printing of the book.

Featuring 48 images and 64 pages, the book is the result of more than 200 hours underwater and more than 25 creeks and rivers visited.

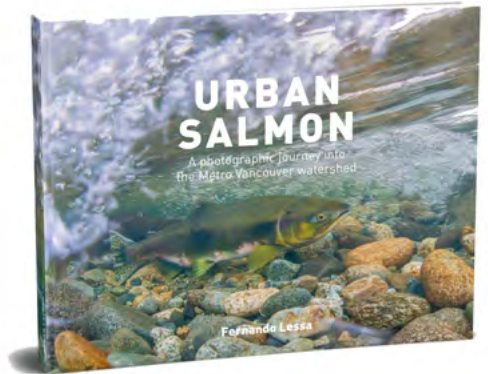
During almost 3 years, the project visited the most important Urban Streams, documenting all the 5 species of salmonids and all the amazing underwater life that can be found in our waters.

The project had the privilege of visiting rivers in West and North Vancouver, Vancouver, Burnaby, Surrey and Langley!

It was officially launched March 18, at BCIT, in a great event organized by SER-BCIT.

The event was sold out and was amazing to see some many salmon people together!

The book is available online



[www.urbansalmon.com/book](http://www.urbansalmon.com/book)

[www.uwpmag.com](http://www.uwpmag.com)

# International Indoor Meeting of Underwater Photography

15th - 17th Feb 2019 Faenza, Italy

The Italian Sports Fishing, Underwater Activities and Finswimming Federation (FIPSAS), coordinated with Centro Sub Nuoto Club 2000 Faenza, the organization of "International Indoor Meeting of Underwater Photography" in Faenza, Italy.

Competition controllers of the organizing committee Mr. Eros Gaddoni, and Mr. Antonio Marcelli were in charge of the event. Under the supervision of the Italian Federation (Fipsas) Delegate Mr. Mario Genovesi and CMAS Visual Commission member Mr. Michele Davino acted as the Competition Director.

The event was open to the participation of photographers and assistants/models who are aged 18 or more and members of the Clubs affiliated to National Sports Federations recognized by CMAS and whose status is compliant with the CMAS, Regulations, Organizational Rules and the safety requirements set forth by the organizers.

11 teams attended the CMAS observed event between the dates 15-17 February 2019 which took place at Municipal Pool, Faenza.

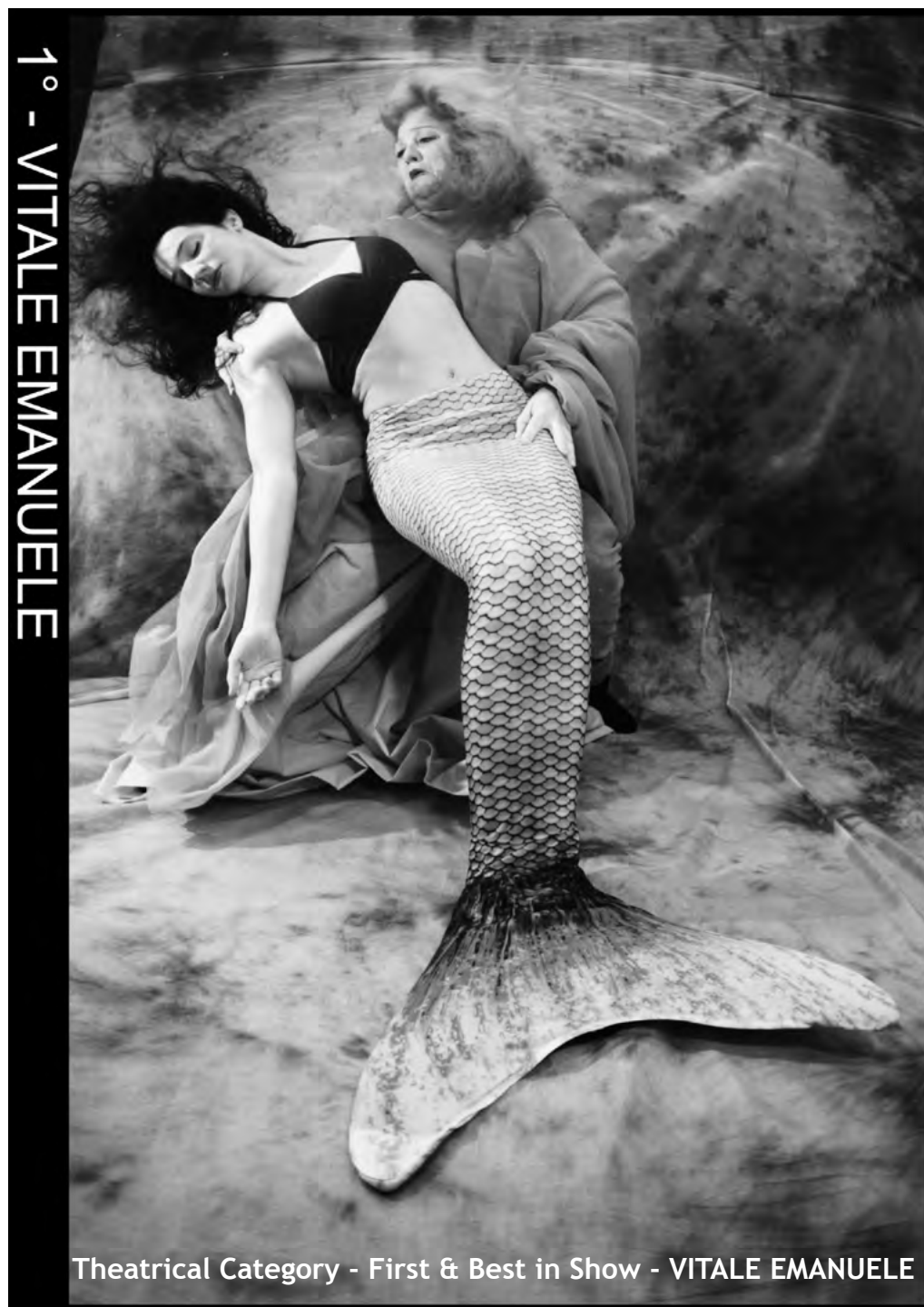
2 teams from Bulgaria, 1 team from Germany, 6 teams from Italy, and 2 teams from Spain competed to shoot the best photo in three different categories; Dynamic, Theatrical and Art/Model Category.

Two dive sessions of 90 min. at two different pools was a challenge for the photographers, assistants and the models.

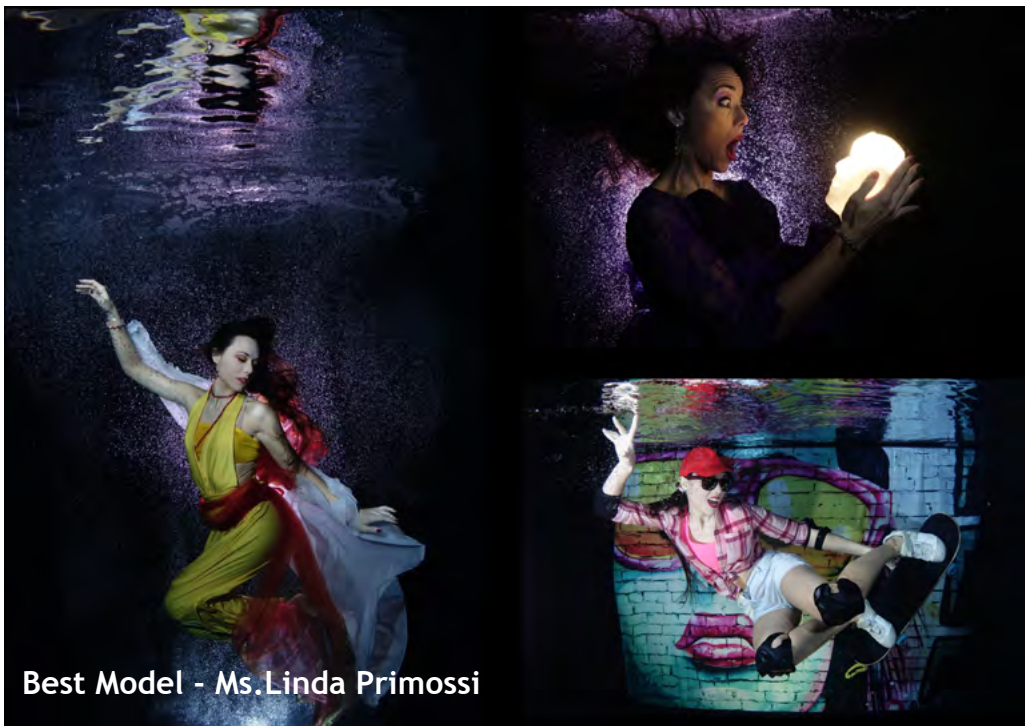
The indoor meeting was a success both from the organizer's and the competitor's point of view. CMAS competition and diving rules were observed with safety requirements in place.

Photos were judged by Mr. Pecchiari Gianni (President of the Jury), Andrea Pivari and Kerim Sabuncuoğlu (Director of CMAS Visual Commission)

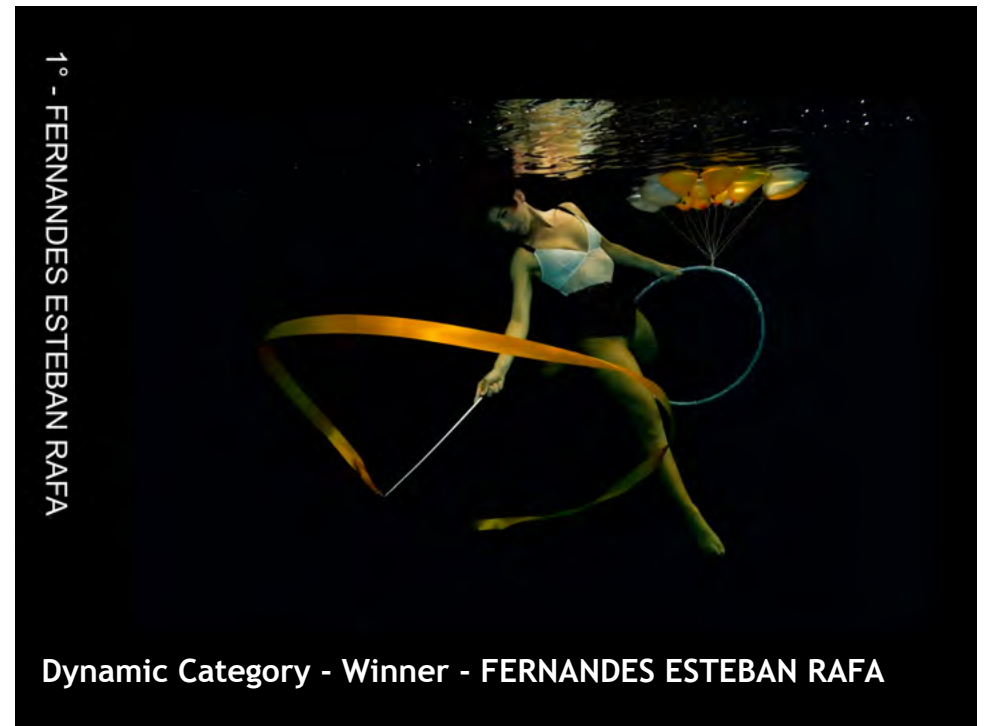
[www.cmas.org](http://www.cmas.org)



Theatrical Category - First & Best in Show - VITALE EMANUELE

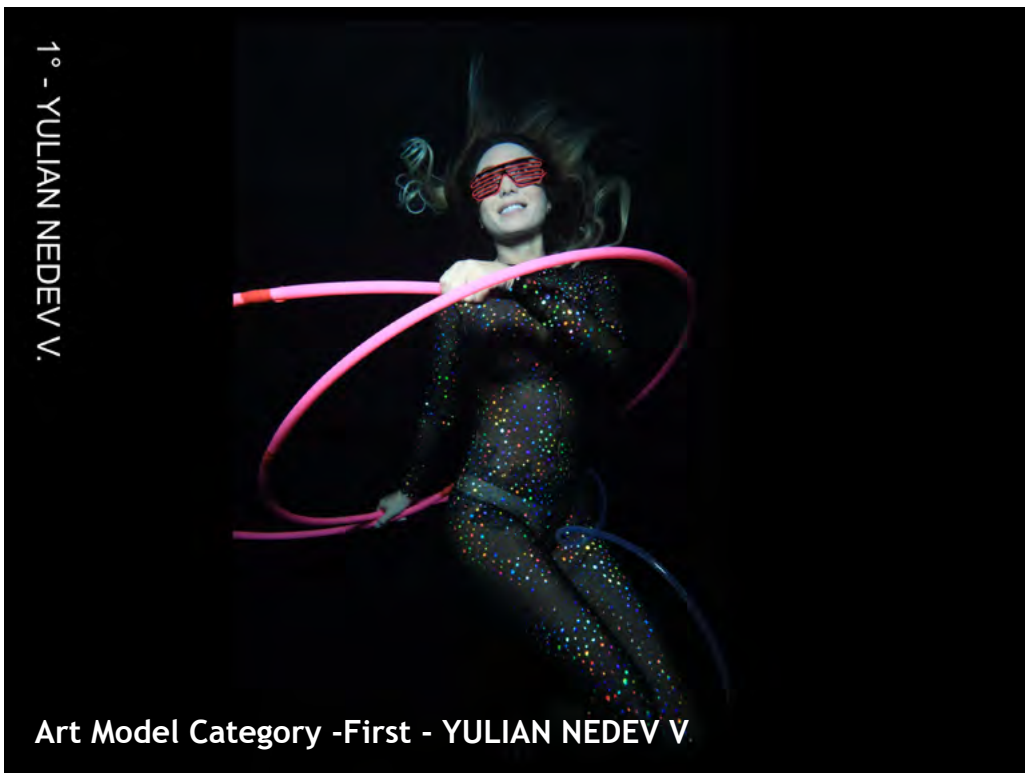


Best Model - Ms.Linda Primossi



1° - FERNANDES ESTEBAN RAFA

Dynamic Category - Winner - FERNANDES ESTEBAN RAFA



1° - YULIAN NEDEV V.

Art Model Category -First - YULIAN NEDEV V



# Blackmagic 4K cinema and Nauticam NA-BMPCCII

by Vance Burberry

With the Pocket Cinema Camera 4K, Blackmagic is giving users affordable 4K Raw video. The Blackmagic Pocket Cinema Camera 4K delivers true DCI 4K capture at 60fps recorded in either 12-bit Blackmagic raw format or a variety of 10-bit ProRes flavors. Video can be recorded internally to SD or CFast 2.0 cards or via USB-C to a compact SSD. The MicroFourThirds mount means a large selection of lenses.

As a professional cinematographer I am always evaluating new camera technology and tools that help expand my creative process. I have been filming for over 32 years, working mostly on land but also choosing to specialize in underwater imaging, having been diving for 40 years and a certified NAUI Instructor Trainer for 20.

The cinematography world is very demanding with overly ambitious schedules and tight budgets. Working underwater greatly magnifies those pressures. In my career I've filmed everything from feature work to music videos, commercials and

documentaries, both on land and underwater.

I have a partnership in a Nauticam Alexa Mini Housing with the shop where I am an instructor in Los Angeles. It's an incredibly wonderful system, that is beautifully designed. The quality of the Alexa camera's images is exceptional but the size and complexity of this camera system means setup time can be a burden on already tight schedules also the operating costs are fairly high. Because of this, I have long been hoping for a more compact solution that captures beautiful images of similar quality. Enter the Blackmagic Pocket Cinema Camera 4k and the Nauticam NA-BMPCCII.

I was fortunate to be able to test a pre-production version of the new Nauticam NA-BMPCCII housing on Catalina Island, California.

I was blown away by the results, finding the NA-BMPCCII with the BlackMagic Pocket Cinema Camera 4K to be an underwater system that fits seamlessly into the professional cinematography toolbox while





***The NA-BMPCII features a notch above the camera holds a T5 compact SSD which is connected to the camera via USB-C and allow for the recording of Raw or ProRes video to high-capacity edit-ready media.***

***The NA-BMPCII is designed with the Nauticam Mission Control philosophy insuring access to essential controls within easy reach of the handles. Thumb levers provide access to ISO, Shutter Speed, White Balance, Autofocus, and Review.***

***The NA-BMPCII ships with an auxiliary battery cage that holds 4 x 18650 lithium batteries. The cage sits securely below the camera and can provide a total run time in excess of 3 hours with 4 x 3400 mAh batteries. Batteries are not included.***

still being compact, efficient and incredibly cost effective.

The NA-BMPCII housing, like all other Nauticam products is beautifully designed and engineered. Having owned several Nauticam housings for a variety of cameras, I've found the quality to be consistent across the board including the new NA-BMPCII. The overall layout of camera controls, the built in external power supply and the internal mount for a Samsung T5 SSD drive highlight the amount of consideration for the underwater shooter's needs that goes into the design.

The test was for a week but weather and water conditions were a challenge throughout. Regardless, I was able to get it in the water during a trip out to the dive park at Casino

Point in Avalon on Catalina Island California. Conditions were poor but testing proceeded. I had preset the camera recording format settings during my prep session before my trip. Some formatting settings need to be set beforehand as the touch screen is not accessible underwater. This is not an issue at all as most professional cameras require a similar approach. As I only had access to one N85 dome port for the test, I used a 7-14mm Panasonic Lumix F4 lens with manual focus control. Although the NA-BMPCII gives you have easy access to the auto focus of the camera, I personally prefer manual focus as it's still the standard in the professional cinematography world. Prior to entering the water and throughout the dive, the vacuum



system confirms the water-tight integrity of the housing which gives great peace of mind, knowing your camera is secure from water damage due to leaks.

Dropping to about 30' and just hovering a 3 or 4 ft from the bottom, I wanted to get a feel for working with the various controls, starting with white balance, a critical element underwater. A lever near the right handle opens up the Color Temperature Menu, which is navigated by a neighboring control wheel below the shutter. For these conditions, I set the camera to a color temperature of 8000k. If you have a white-balance card, pressing and holding the control will create a custom white balance. Tapping the white-balance control lever again exits the menu and the control reel returns to controlling the lens iris, if using electronic lenses.

I had preset the high frame rate on the camera to 60fps to facilitate smooth slow motion for a project setting of 23.98FPS. A dedicated HFR button allows quick switching between the different frame rates. On the other toggle of the white balance thumb lever, you can access the shutter angle. The shutter angle is managed in the same way as white balance, using the control wheel. Precise and simple



as I've come to expect from my Nauticam housings.

Custom function buttons (of which there are 3), momentary auto-iris, momentary auto focus, zoom for manual focus, still shooting, camera run/stop, and very critical, ISO adjustments. Everything is clearly marked and easily accessible from outside the housing by a combination of dials, buttons and levers. Within five minutes I'd found my way committed to memory where everything was just by feel, a testament to the thoughtful design of the housing.

The housing was very well balanced with a very slight negative buoyancy which I prefer. Over the years, I have developed a light touch with the camera to allow for precise control. The well balanced feel of the setup made it feel like the larger cinema camera housings I've become accustomed to in terms of the ease of maintaining stability throughout a shot. Impressive for such a compact underwater system. The NA-BMPCCII was a joy to shoot with, moving through the kelp and terrain and while being able to make adjustments quickly and easily was a dream, especially in what were quite challenging conditions. The housing performed incredibly well and I could not be more pleased and am anxiously awaiting one of my very own. I will

have a camera system that can not only be easily taken anywhere to shoot with for fun, but also will serve as another valuable tool in my professional toolbox.

To sum up, the Nauticam BMPCC11 is a must have in my opinion, If you are a recreational diver who is simply passionate about underwater imaging or are a professional cinematographer the NA-BMPCCII is built for you. I believe this setup to be a revolution in underwater cinematography as now anyone can have access to the tools to shoot cinema quality underwater video.

#### Technical Specifications

##### Dimensions

370mm(w) x 220mm(h) x 124mm (D)

Weight in air 3.2 kg

Weight in water TBA

Depth Rating 100m

**Vance Burberry**

To see more of Vance's work:

[www.vanceburberry.com](http://www.vanceburberry.com)

[instagram vance310](https://www.instagram.com/vance310)



# *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](http://www.magic-filters.com)*

# Ikelite Sony A6400 Housing

by Phil Rudin

Ikelite Underwater Systems is a USA based company which has expended its distribution network to cover most areas of the world during its over fifty years in business. Ikelite has developed a large and loyal customer base built on a foundation of excellent customer support and product reliability.

Ikelite supports the Sony Alpha line of APS-C sensor cameras with housings for the A6000, A6500, A6300 and the newest A6400 which was announced in mid January 2019. In March 2016 Ikelite announced a housing for the Sony A6300 camera which uses the Dry Lock Micro (DLM) port system for Sony E-mount and FE-mount lenses.

I reviewed the Sony A6300 system for the Sept/Oct 2016 issue of uwpmag.com after field testing the new system during a dive trip to the Philippines. The Ikelite A6400 housing became available soon after the release of the new camera and I have just returned from field testing this system in Mexico.

## Sony A6400 camera

The Sony Alpha A6400

mirrorless APS-C sensor camera has been developed around the same high quality 24MP APS-C sized Exmor CMOS sensor used in the A6300.

The A6400 has the BIONZ X processing engine and while the chip is not identical to the Professional Sony A9 it has vastly improved. The A6400 has 4K/30p video capture, tilting touch screen with 180 degrees up and 90 degrees down tilt.

Image quality in RAW is all but identical to the A6300/A6500 with ISO sensitivity from ISO 100-32000 (expandable to 102400), dust and moisture sealed magnesium-alloy body with much more. What most separates the A6400 replacement camera from the A6300 is the impressive autofocus capabilities and boot-up times using the advanced Bionz X processor with 425 phase detection points and real-time tracking.

Sony has also added the exceptional eye-auto focus and animal eye-auto focus features which have been carried over from the full frame Sony A9, A7R III and A7 III cameras version 5.00 firmware update. The most significant new autofocus feature on the A6400 is object tracking which



replaces both lock-on AF and center lock-on AF. I will address this features in the field testing portion of this review.

The A6400 has the same focus peaking (showing a color for the in

focus areas during manual focus) used in the Sony A7R III full frame camera body and while many will never use manual focus feature it is nice to know it is available if needed.

The most impressive features



of the A6400 for me were the outstanding AF speeds, overall image quality, low light performance and the improvements in overall camera speed. I found that for underwater photographers the most significant drawbacks with the A6400 are its rather slow 1/160th flash sync speed, the rather poor battery life with the 90mm F/2.8 macro lens and for videographers a continuing problem with manual white balance issues that all carried over from the A6300.

I would hope that going forward Sony will update the APS-C camera line with the new “Z” batteries used in the A9, A7 III and A7R III full frame cameras. The A6400 also lacks IBIS which is not a major downside for me.

The Sony A6400 sells in the US for an MSRP of \$898.00 for the body and \$998.00 with the 16-50mm F/3.5-5.6 kit zoom lens. These prices are about \$100.00 less than A6300 at its release. I consider the A6400 to be one of the best value at its price point compared to many other APS-C mirrorless or DSLR cameras because of the outstanding image quality, its small size, AF speed and feature set. I also highly recommend the A6400 with the 18-135mm F/3.5-5.6 lens as



a kit. The 18-135mm zoom is perhaps the most optically advanced Sony “E” lens available and is an excellent choice for land/travel photography.

### Ikelite A6400 Housing And Port System

The Ikelite Sony Alpha A6400 housing has the DLM port mount design and looks like a smaller version of the Ikelite Sony A7R III housing I reviewed in UWPMAG.com issue #103.

The A6400 housing features the same opaque gray ABS-PC polycarbonate material for the front section of the housing and a transparent DSLR style polycarbonate housing back. The gray color provides extra protection from the sun during long boat rides and allows better contrast when viewing the LCD screen.

The new Sony A6400 housing unlike the previous A6300 housing has adopted a new approach to TTL flash photography. The previous housing had the TTL circuitry built into the housing and supported the complete line of Ikelite DS series TTL strobes using Ikelite electronic single or dual sync cords.

Ikelite’s new DL2 DS Link TTL Converter for



Sony mounts into the B1A Bulkhead on the outside of the housing using the five pin connection for dual or single Ikelite TTL sync cords.

On the inside of the housing the B1A bulkhead is connected to the ST1 hotshoe which attaches to the hot shoe on top of the camera. This external sealed DL2 converter design uses integrated TTL encoding specific to all of the Sony Alpha camera models and is tuned to Sony’s exposure protocol. That makes the DL2 DS link compatible with Sony A6000, A6300, A6400, A6500 and all of the A7 and A9 full frame cameras both past and present.

The DL2 converter can be switched between TTL and manual flash exposure by pushing a button on the converter. The converter can be used in two flash modes, flash fill or rear curtain exposure. The DL2 DS is powered by the strobe battery when turned on and will be in TTL mode indicated by a bright blue LED indicator light on the converter.



Just set the Ikelite strobes to TTL and the system is ready to fire in TTL. Plus/minus exposure compensation can be accessed through the camera menus. To shoot in manual strobe exposure push the mode button on the side of the converter, the LED indicator light will change to red and power levels can then be set manually on the strobe.

The new converter works with all of Ikelite's DS strobe line and is also available a configuration for Nikon cameras. The complete DL2 DS TTL converter, B1A bulkhead and ST1 hotshoe Kit retails for \$450.00 USD. The TTL converter can also be moved between Sony housings when upgrading.

Removing the TTL circuitry from inside the housing reduces the

retail cost of the housing by \$200.00 over the past A6000, A6300 and A6500 housings. This allows those using fiber optic strobes to avoid the extra cost of the Ikelite built-in TTL circuitry. Strobes using fiber optics can be fired in TTL using the two fiber optic ports on the front top of the A6400 housing. Strobes using fiber optic cords mimic the A6400's on-board popup flash to achieve TTL or manual flash. Fiber optic cables can be used with TTL strobes like the Inon S-TTL, Sea & Sea DS-TTL and several more.

The housing also includes a rear button to raise the on-board flash for people like me who forget to do so before entering the water.

Every Ikelite A6400 housing is pressure tested to 60 meters (200



*Cozumel Mexico, Sony A6400, Sony E 10-18mm F/4 OSS at 18mm, Ikelite housing and port, Two Ikelite DS-161 Strobes in manual, ISO-100, F/13, 1/160th sec.*

feet) and the ABS-PC construction provides corrosion resistance with a minimal amount of maintenance.

The light gray color and clear back give a direct view of the main O-ring seal and an excellent edge-to-edge view of the three inch 921,600 dot LCD screen which can be tilted up about 20 degrees for better viewing.

The A6400 housing has no pickup finder for the 2,359,296 Dot EVF which is of little use without a large accessory optical viewfinder which is not supported for this

housing. I would add that the A6400's three inch LCD worked very well and I did not miss the EVF during my test dives.

The control buttons on the housing back are well placed for a housing of this size, the button control symbols are laser engraved on the back of the housing so they won't peel off or fade.

All of the cameras essential buttons and controls can be reached even with gloves and most are accessed in the same way as when

the camera is being used above water. Large dry suit gloves may present a bit of a problem as with any housing of this size.

The video start/stop button is RED and out of the way of the other control buttons. With past housings I have accidentally bump the video control button and started recording, this was not an issue with this housing. It is also quite easy to move the mode control dial to the movie mode and use the shutter button to activate video if an opportunity presents itself and you have reassigned the video button for another function.

The housing has a shutter lever and a thumb lever for AF/MF & AEL which makes back control auto focusing quite easy and intuitive. If you prefer using the front shutter release to half press for focus and release this also works very well. For this review I did not use the back focus at all because the auto focus tracking is that good in AF-C. Both focusing options worked equally well with this camera.

For this review I had the focus trigger mounted facing down rather than up as shown on the Ikelite web site. This allowed me trigger the camera using my right thumb rather than my right forefinger. Using the 1/16 inch Allen wrench provided with the housing the trigger can be repositioned in less than a minute.

The housing also includes a lens release control which is located on the left side of the housing. This is a very useful control since several of the supported Sony/Zeiss lenses need to be mounted from the front of the housing while the port is removed.

The camera attaches to the camera tray using the standard 1/4-20 screw which is attached to the tray. The tray allows access to the battery compartment and memory card slot without needing to be removed.

When the tray slides into the rear of the housing both the lens release and rear thumb control lever need to be raised to allow space for the camera. Once the camera body is installed you can then slide the TTL sync cord into the hot shoe and secure it with a clockwise turn of the locking device. My suggestion is to keep the body cap on the camera and have the housing facing port side down at all times.

The camera tray has no locking device and could slide out if tilted backwards. The back plate can then be secured to the housing using the two locking clamps which will hold the camera firmly in place. Remember to tilt the LCD screen outward for a better view

***Barrel Sponge, Cozumel Mexico, Sony A6400, Sony E 10-18mm F/4 OSS at 10mm, Ikelite housing and port, Two Ikelite DS-161 Strobes in manual, ISO-125, F/8, 1/160th sec.***



before closing the back. A lens and gear can then be mounted to the front of the camera and the port is then mounted over the lens. Once you have installed the camera a few times this process becomes second nature.

The zoom/focus wheel for lenses like the Sony E 10-18mm F/4 zoom are located on the Ikelite dome ports not on the housing. Ikelite offers optional trays with one or two grips which can be used with removable flex arms or O-ring ball heads for standard strobe/video arms and clamps. The housing has two 1/4-20 mounting points on the bottom to attach the Ikelite tray and the tray has a tripod mounting point for video shooters.

Be aware that the assembled system is fairly light in salt water when using the six inch dome and the macro port. I found no need for float arms or buoyancy floats to keep the system well balanced for use with one hand. I always keep the system slightly negative so that I can but it down if I want. Finally the housing has an optional vacuum system which includes the pump for drawing the vacuum. I recommend this \$185.00 option for additional security from flooding.

Ikelite offers a verity of ports to support both Sony E-mount and FE-mount full frame lenses. Supported lenses include the E-mount 16-50mm

“kit” zoom, 18-55mm zoom, 16mm with the fisheye and ultra-wide converters, 10-18mm zoom, 30mm macro Zeiss 50mm macro and Zeiss 12mm F/2.8 plus several more. Sony FE (full frame) lenses include the 28mm with the fisheye and ultra wide converters, 24-70mm F/4 zoom and 90mm macro. I

kelite also supports the Canon 60mm and 100mm macro lenses using the FE to E-mount Metabones adapter. Keep in mind that the full frame lenses have a 1.5X crop factor on the APS-C sensor. Consult the [ikelite.com](http://ikelite.com) web site for port charts as additional lenses are always being added as the system expands.

The A6400 housing is rated to 60 meters (200ft) tips the scales at 1195 g (2.6 pounds) without ports and the dimensions are 184 x 1140 x 152 mm (7.25 x 5.5 x 6 in). The housing ships in the US with installed O-rings, hex keys, lubricant and a manufactures one year warranty for an MSRP of \$775.00. Ikelite trays, arms, ports, gears, strobes, TTL converter, sync cords, vacuum kit and more are sold separately.



*Caribbean Spiny Lobster, Cozumel Mexico, Sony A6400, Sony E 10-18mm F/4 OSS at 18mm, Ikelite housing and port, Two Ikelite DS-161 Strobes in manual, ISO-800, F/14, 1/160th sec.*

## Field Testing The Ikelite A6400 Housing

I field tested the Ikelite A6400 housing system on a recent trip to Cozumel, Mexico. My system included the housing with vacuum system, two Ikelite DS 161 strobes with the Ikelite DL2 DS TTL converter and a dual sync cord, tray with ball mounts and strobe arms.

For the A6400 review I used three E-mount lenses the Zeiss Touit 50mm F/2.8 macro, Sony 10-18mm

F/4 zoom with OSS and the Sony 16mm F/2.8 with Sony VCL-ECF2 Fisheye converter. Each lens requires a different port, the Zeiss 50mm macro uses the 5516.45 flat port (with 67mm threads) and 5516.65 extension, the Sony 10-18mm zoom works best with dome port with zoom 5516.15 and 5515.43 zoom gear, this is a six inch port, the larger eight inch port can also be used but without the zoom feature, the 16mm with Fisheye converter is best used with the 5516.11 six inch super-wide dome

port with the dome shade removed. An eight inch port can be used with both the Sony E 16mm/fisheye combo and E 10-18 zoom the large port is most suited for split images. The [ikelite.com](http://ikelite.com) web site has the complete list of lens and port options.

The 10-18 zoom is mounted to the camera from the front of the housing as I described above followed by the gear. Once the gear is aligned on the lens I found that mounting the dome port worked best when the port is face down on a flat surface with the neoprene cover in place. It is very easy to lineup the housing over the port and push it firmly into place before securing the three retaining screws that hold the port securely to the housing.

I strongly suggest lubricating all O-rings regularly and disconnecting ports from extensions every few dives if you don't want them to stick together. If you are using fiber optical sync cords they should have the 90 degree mount and they should be installed before the eight inch port to allow clearance between the cords and back the port. With the Zeiss 50mm macro and Sony 16mm with fisheye converter both lenses can be mounted to the camera before it slides into the housing allowing the ports to be mounted at any time prior to drawing the housing vacuum.

The Sony E 10-18mm zoom worked well with the six inch port and would be my first pick as a rectilinear wide angle

zoom. The Zeiss E-mount 12mm is still optically the best W/A lens I have tested with the Sony APS-C system. The E 16mm with the fisheye adapter was a bit better than expected but no where near as good as a dedicated fisheye would be, hoping to see Sony step-up and provide a native fisheye in APS-C or full frame soon.

Since I am frequently ask about my camera settings I shoot in manual mode at ISO-100 to 320 for macro most often with the highest shutter sync speed which for A6400 is 1/160th sec. I use the same settings for electrical sync and fiber optic strobes in TTL or manual, my F/stop range for macro is from F/8 to F/16.

For wide and fisheye lenses I shoot in manual mode at ISO 200-640 and 1/15th to 1/160th with an F/stop range from F/5.6 to F/16. These settings are a starting point and will change depending on the subject matter, water conditions, depth, time of day and more.

The Ikelite DS 161 TTL strobes and the new DL2 converter are an excellent combination for both TTL and manual use. If reducing the size of the system is important for travel

***Sergeant Major, Cozumel Mexico, Sony A6400, Sony E 10-18mm F/4 OSS at 10mm, Ikelite housing and port, Two Ikelite DS-161 Strobes in manual, ISO-250, F/8, 1/160th sec.***



© PHIL RUDIN PHOTO



*Sailors Choice, Cozumel Mexico, Sony A6400, Sony E 16mm F/2.8 with Fisheye Converter, Ikelite housing and port, Two Ikelite DS-161 Strobes in manual, ISO-640, F/16, 1/160th sec.*



*Peacock Flounder, Sony A6400, Zeiss 50mm F/2.8 macro, Ikelite housing and port, Two Ikelite DS-161 Strobes in TTL, ISO-100, F/13, 1/160th sec.*

the DS-51 strobes are also an option. I also tested the system using strobes fired with fiber optic cables and the on-board camera flash. Results were also very good but the on-board flash can be slow recycling adding to the drain in camera battery power.

The biggest news for underwater photographers is the excellent auto focus speed and accuracy obtained using continuous AF (also single-AF) and the new object tracking and eye-AF features. These are also features which can be added to the Sony Alpha III and A9 line of full frame mirrorless

cameras using the new Version 5.00 firmware upgrade for A9 and Version 3.00 for A7 III and A7R III.

With eye-AF the system activates as soon as you half press the shutter and follows the subjects eye around the frame. With previous firmware a second function button on the lens or camera body needed to be pressed to start eye-AF and held while the shutter was pressed to take the exposure. This system worked well above water but was a bit of a struggle underwater. I had the eye-AF assigned to the OK button on my A7R

III which is a bit difficult to press on the housing while pressing the shutter release.

Shooting models underwater with or without a face mask the eye-AF is excellent even from a meter or more away. The green AF box locks on the eye and then follows the model around the frame in portrait or landscape orientation. With the A6400 and the full frame upgrades all you need to do is half press the shutter button and the system locks on and follows the eye around the frame.

This system also features animal

eye-AF and will lock onto many animals which have eyes similar to the human eye. It works very well with animals like dogs, cats, many birds and other wild life. Underwater I was not able to make it work well with fish, octopus, crabs or other critters who's eyes are quite different.

What is even more promising than the excellent eye-AF for U/W photographers is how well the AF-C/AF-S system works with what Sony calls Real-Time Tracking. Real-Time Tracking is most associated with fast moving subjects using long



*Sailfin Blenny, Sony A6400, Zeiss 50mm F/2.8 macro, Ikelite housing and port, Two Ikelite DS-161 Strobes in TTL, ISO-100, F/13, 1/160th sec.*



*Octopus, Sony A6400, Zeiss 50mm F/2.8 macro, Ikelite housing and port, Two Ikelite DS-161 Strobes in TTL, ISO-100, F/13, 1/160th sec.*

lenses for events like motor racing, motorcycles, sports action, birds in flight and more.

Using the A6400 and Zeiss 50mm F/2.8 macro with the focus area set to Tracking Expanded Flexible Spot in AF-C the AF locks onto a subject and holds the focus as long as the shutter button is half pressed. Rather than having the subject moving like with a motorcycle the locked on subject can be moved around the frame. The best example of this is to lock onto the animals eye in the center of the frame then recompose

the eye to a different part of the frame with the eye remaining in focus the entire time. This is a bit like using back focus for the eye and then recomposing and releasing the shutter.

The up side to the real-time tracking is that the eye is much more consistently in focus than when using back focus. Using this system my rate of keepers in sharp focus has improved and the speed at which the system locks focus is among the best if not the best of any APS-C system I have used. The Zeiss 50mm macro which was considered slow and hard

to lock-on with the A6300 is now a speedy workhorse.

For more information on how to setup these features on the A6400 and Sony's full frame mirrorless camera line I suggest looking at markgaler.com for a free 200 page PDF download explaining all of the A6400 functions.

The A6400/Ikelite would be an excellent underwater system for anyone entering underwater photography, moving up from a compact system or downsizing from a DSLR to mirrorless. The Ikelite

A6400 housing is a great choice if you are looking for an interchangeable lens system that combines reasonable price, size, speed and image quality. Most new A6400 users will be shooting with the kit lens to start and adding lenses and ports if they do not already own higher quality lenses.

Thanks to the Ikelite team for their assistance with the underwater equipment used for this review.

**Phil Rudin**

## Kit for sale

If you're looking for a specific piece of kit, enter a keyword (e.g. flash, housing, Ikelite, etc.) to show only the adverts you want.

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SET of Sea & Sea YS 250 PRO, incl.diffusers and TCL ball mounts, 2x batteries, 2x chargers (EU and UK). 5-pin Dual Sync cord-1pc, 5-pin Sync Cord N-2pc, 2sets - Double Ball Arm L and M, YS-TTL Converter, spare ... [More >](#)



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Aquatica Macro Port (Manual & Autofocus) for any DSLR Aquatica housing with the 4 lugs bayonet fitting. £180. Sea & Sea YS -120 Duo Strobes with instructions & one Diffuser they are in good used condition and in full working ... [More >](#)



### FOR SALE – Nauticam Na-d800 Housing for Nikon D800

Nauticam Na-d800 Housing for Nikon D800 Excellent condition. Full overall by Nauticam in December 2017, not in the water since. Vacuum check; electronic monitoring circuit installed, no vacuum system. 2000 euros + shipping ... [More >](#)



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Nauticam flat port for Sony 28mm + sony lens 28mm +Nauticam flat port for Sony 90mm + sony lens 90mm+Nauticam trigger flash for sony. SOLD Can be sold separately. Total price 1260€ (does not include insurance and shipping) ... [More >](#)



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SEA & SEA MM2 U/W CAMERA WITH ACCESSORIES: - Yellow SUB 50 TTL strobe / arm extension - SEA & SEA 16mm Wide angle lens MM-2 - SEA & SEA Macro lens ML-2/3T plus attachments - Removable view finder - ... [More >](#)



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# Nikon Z7 Underwater Review

## by the Backscatter Team

The Nikon Z7 is the first full-frame mirrorless camera from Nikon, and it's a high-resolution 46-megapixel beast that produces the best overall image quality seen yet from a mirrorless camera. Team Backscatter set the camera up in a housing and headed down to the Caribbean for a comprehensive underwater field test. Read on and watch the video below to learn what underwater shooters need to know about the Nikon Z7 and why we have affectionately dubbed it the 'Mini-D850'.

In the case of the Nikon Z7, we are comparing the image quality against the Nikon D850 - which is the Nikon Z7's closest relative - and our current pick for best still image quality produced from any camera tested underwater so far.

The Nikon Z7 packs the best imaging sensor found in any current mirrorless camera. Images that the Nikon Z7 captures are packed with sharp detail and vibrant colors and have become the new benchmark by which mirrorless image quality will be judged.

The Nikon Z7 is leading the current camera pack when it comes to

raw image quality, coming in second only to the Nikon D850. One would have to get down to some really tight pixel-peeping to pick out any significant differences.

The Nikon Z7 shares the Nikon D850's native ISO value of 64 for an additional two-thirds of a stop of dynamic range, giving us that phenomenal detail in the highlights and shadows. A good example of this is in wide scenes where the reef in the foreground is dark and the sunball-lit surface is clipping out to pure white.

One of the biggest things to consider when looking at mirrorless cameras is the Electronic Viewfinder (EVF). The lack of an optical prism and mirror within the camera body is the defining difference between Mirrorless and SLR cameras. Until now, the electronic viewfinder found on most mirrorless cameras has been

*This school of grunts provides an accurate look at the beautiful color reproduction and sharp image detail that the Nikon Z7 produces straight-out-of-camera.*

*Nikon Z7 | Nikon 8-15mm @ 15mm | 1/125sec | f10 | ISO 100*

Nikon D850



Nikon Z 7



Nikon D500



©BACKSCATTER

See our comprehensive video

Topic Time Codes

00:28 - Image Quality

02:25 - Electronic Viewfinder

05:07 - Autofocus

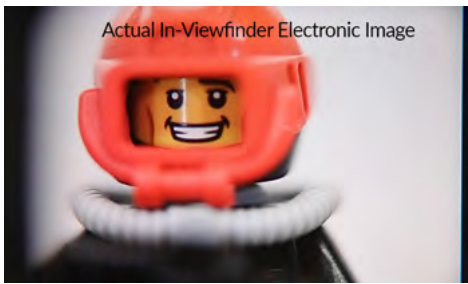
07:23 - Camera Body & Controls

09:35 - How We Shot It

11:21 - Video

13:26 - Conclusions





***Actual shot of the in-viewfinder electronic image, which has a sharp resolution and good dynamic range.***

our biggest turnoff. The problem is that most of them just don't come close to the dynamic range that an optical viewfinder can display. This leaves underwater photographers to struggle when composing shots because you just can't see what's going on in the often underexposed foreground and overexposed background.

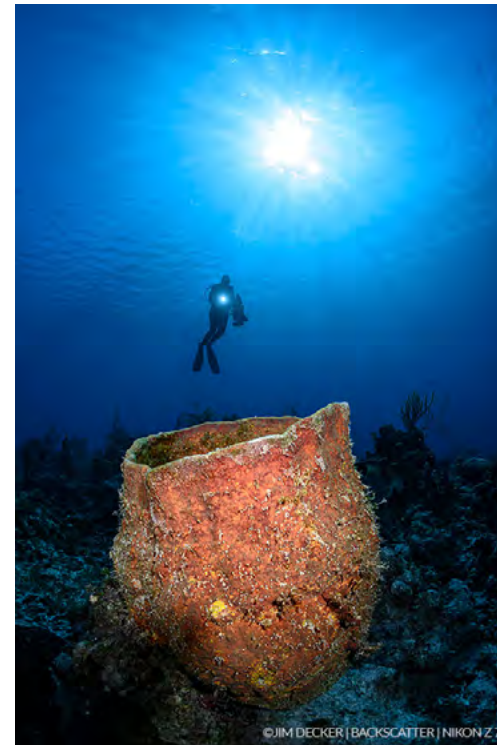
As soon as the Nikon Z7 was in a housing and under the surface, the new and improved electronic quality was immediately apparent. This is absolutely the best electronic viewfinder that we have put our eyes and mask up to yet. It's so good that you'll almost think that you're looking through an optical viewfinder.

While it is possible to shoot only from the LCD screen and not use the electronic viewfinder at all, it is actually advantageous to use the electronic viewfinder in order to shoot as close as possible to traditional SLR style.



***This shot was executed with the housing tucked into the sand and the lens aimed slightly upwards, creating an awkward shooting angle if composing from the LCD screen. Thanks to our expanded 45-degree viewfinder and exceptional electronic image quality, the viewfinder could be easily effectively for composition.***  
***Nikon Z7 | Nikon 8-15mm @ 15mm | 1/200sec | f8 | ISO 64***

This can bring a number of benefits, but where it has the most impact is when shooting macro and using an expanded 45-degree viewfinder on the housing. By keeping an eye on the viewfinder, the camera



***The dynamic range that the Nikon Z7 is capable of, thanks to a native ISO value of 64, allows for super-rich details in both the darkest shadows and brightest highlights, both of which are on full display here in the shadowed reef and bright surface.***  
***Nikon Z7 | Nikon 8-15mm @ 15mm | 1/200sec | f9 | ISO 64***

and housing can be placed nice and low in the sand, and you will not have to contort your head and face into an awkward angle or get yourself buried in the sand just to see what you're shooting.



***This shot was easily composed thanks to the improved electronic viewfinder image quality. The edges of the shadowed reef could be lined up and framed properly just as if shooting with an optical viewfinder thanks to the impressive dynamic range and detail of the electronic viewfinder.***  
***Nikon Z7 | Nikon 8-15mm @ 15mm | 1/125sec | f10 | ISO 100***

Another benefit of the electronic viewfinder is the ability to see your image playback for review purposes directly in the viewfinder, meaning you never have to take your eye away to review your shot



© JIM DECKER | BACKSCATTER | NIKON Z7

*For this shot, the autofocus point selector was moved directly over the blenny and the autofocus button was held down for continuous tracking as the blenny moved in and out of his hole, resulting in a sharp finished product with the proper focus achieved.*  
**Nikon Z7 | Nikon 105mm VR | 1/250sec | f36 | ISO 100**

and make adjustments. This is incredibly helpful when shooting super macro, because any camera movement, even just a few millimeters, can totally lose your subject. Having to pull your head away from an optical viewfinder to see your image on the LCD screen can sometimes mean just enough system movement to have to hunt for your subject again or entirely re-compose the shot.

Between electronic image quality and in-viewfinder image review, we feel that the EVF on the Nikon Z7 has raised the bar for what we expect from a mirrorless camera electronic viewfinder.

## Autofocus

Overall the Nikon Z7 performed fairly well in the autofocus department, with good speed and accuracy. It wasn't quite as fast as a Nikon SLR but



© JIM DECKER | BACKSCATTER | NIKON Z7

*Autofocus was able to pick up on the eye of the blenny as long as it was fairly stationary and was not too far out of focus in the frame, to begin with, ultimately resulting in a crisp photo with the critical focus point right where we want it.*  
**Nikon Z7 | Nikon 105mm | 1/250sec | f22 | ISO 100**

it still felt snappy and responsive. The biggest thing to note about autofocus is that the Nikon Z7 uses an entirely new system for autofocus, both inside the camera and in terms of user control, so those migrating from a Nikon SLR may find it to be a little unfamiliar at first, but ultimately easy to adjust to and use.

The Nikon Z7 has both single and continuous autofocus modes, with controls and focus points being easily accessible through the 'i' menu, as there is no dedicated AF button such as on an SLR body.

There is a 493-Point Phase Detect Autofocus subject tracking mode, but it's not the same as the 3D AF Tracking Mode that we have in the Nikon D850 and Nikon D500. While this feature does a decent job on the Nikon Z7, the accuracy, intelligence, and speed of the 3D tracking on Nikon



© JIM DECKER | BACKSCATTER | NIKON Z7

*We could have nailed more in-focus shots of this moving subject with a higher-performance continuous autofocus system. Ultimately we achieved a good result with the 493-Point Phase Detect Autofocus, but we would have had more frames to choose from and fewer elements to manage in real-time if 3D AF Tracking were available.*  
**Nikon Z7 | Nikon 8-15mm @ 15mm | 1/125sec | f14 | ISO 800**

D850 is a high bar to meet. There is definitely a noticeable difference between the two when compared side by side, with the Nikon D850 taking the top spot.

Super macro was shot with a Nikon 105mm VR lens and diopter. Shooting like this provides a 1:1 and higher reproduction ratio, which is a true stress test for any autofocus system. For most shots, if the focus was 'roughed in' then the autofocus could do the rest of the work and snap to the subject consistently. If the shot was so out of focus as to be nothing but bokeh blobs through the viewfinder, then the camera wanted to hunt a lot more and had a harder time snapping to focus. In other challenging autofocus scenarios, such as close focus wide angle,



*3rd party lenses and older Nikon lenses wouldn't autofocus with the Nikon FTZ Adapter, so for now, it's best to use current generation Nikon lenses such as the Nikon 8-15mm and Nikon 105mm VR.*

the camera experienced some focus hunting as well.

It seemed that the Nikon Z7 liked surfaces with a lot of texture and contrast for the best autofocus results. If looking for the ultimate high-performance autofocus, the Nikon Z7 just isn't going to match what the Nikon D850 can do. Overall the autofocus is pretty good and is ranked about in the middle of the pack compared to other current full frame mirrorless cameras.

## All New Z Lens Mount & Mirrorless Body

The most unique aspect of the camera body itself is the debut of the new Z Mount for Z Mount lenses. Nikon plans to accommodate some very wide open aperture lenses, which need a wide opening to the sensor, so the Z Mount was developed to achieve this.

At the time of this review, there aren't any Z Mount lenses that we're excited about shooting underwater. Most optics recommended for underwater are either extreme wide angle or very tight macro, and the

current Z Mount lenses on offer are limited to mid-range zoom lenses.

Fortunately, Nikon also released the Nikon FTZ Adapter, so your F Mount lenses will work just fine. The Nikon FTZ Adapter supports full autofocus, aperture, and metering just as if using the F Mount lenses on a native body.

The camera body itself is smaller than a Nikon D850 or Nikon D500 and it really doesn't sacrifice anything significant when it comes to primary controls and operation. One of the most useful features is the 'i' menu for quick menu access to essential controls.

There's a photo/video mode switch, and the camera remembers the independent settings for each, so no time is wasted adjusting shutter speed and white balance when changing modes on-the-fly.

There are front and rear dials for aperture and shutter speed, and a dedicated ISO button. There is also a single XQD card slot.

While this body is smaller than its SLR counterparts, for underwater



*For action shots one must actually be able to see the subject the entire time, and not be hindered by an image popping up in the viewfinder after every activation of the shutter. By disabling the automatic image review we are able to keep shooting single frames as fast as our strobes will recycle with an uninterrupted view, maintaining our composition and focus on the subject to ensure the precise moment is captured.*

*Nikon Z7 | Nikon 8-15mm @ 15mm | 1/200sec | f11 | ISO 100*

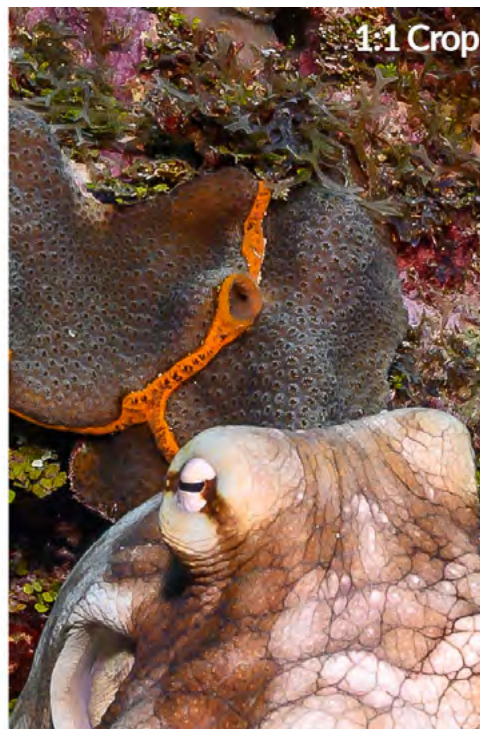
purposes, by the time the camera is in a housing with a port to support a full frame lens, not to mention arms and lights, you really aren't left with any huge size savings or reduction of in-water profile. For travel and diving purposes, this system is basically the same as an SLR.

## Best Underwater Settings

Straight out of the box, most mirrorless cameras, the Nikon Z7 included, are configured by default to be shot like a compact camera - that is they expect to be shot primarily from the LCD screen. We want to set up the Nikon Z7 to shoot as close as possible to an SLR to make effective use of the electronic viewfinder.

A key setting on the Nikon Z7 is

*The Nikon Z7 produces rich images on par quality-wise with it's bigger brother, the Nikon D850, resulting in shots that are packed with sharp detail and vibrant colors.*  
**Nikon Z7 | Nikon 8-15mm @ 15mm | 1/125sec | f11 | ISO 800**



to disable the automatic image playback in the electronic viewfinder. This allows for an uninterrupted live view through the EVF, so you can shoot away without any blackout or pop-ups. This nets a faster overall shooting speed, where the only speed limitation is that of the recycle rate of our strobes.

When you need to check the shot, just hit the playback button and the image pops up right there in the EVF giving you instant feedback and allowing you to keep your position. This also frees up the LCD screen to display your 'i' menu and key settings.

Another helpful setting to change is the press-and-hold requirement for buttons like ISO. These are changed to 'toggle' so that it is not necessary to perform an awkward control-hold and dial activation simultaneously.

## Full Frame 4K Video Capture

The Nikon Z7 captures full frame 4K 30p video at 144 megabits per second in H264, essentially

sharing the same video specs as the Nikon D850. It uses the full width of the sensor when recording in 4K, so there is no crop factor to contend with when rolling video. This is excellent because it allows for super-wide fisheye shots. Additionally, it is possible to enable the crop-sensor DX mode to tighten up the shot by 1.5x without sacrificing depth of field, especially helpful for getting in tighter when shooting super macro and dealing with paper-thin depth of field.

For underwater shooters, the true test of any camera's video capabilities comes down to ambient light custom white balance color. Just like the Nikon D850 before it, the Nikon Z7 produces some truly great looking ambient light underwater color.

The white balance results look good down to about the 45-foot to 50-foot range in tropical, clear,



*See our underwater video ambient light custom white balance test results.*

*The color results looked very similar to those from the Nikon D850, which was a monumental leap forward for Nikon. Consider that the Nikon D500 was basically unusable for video and that camera is still current. The Nikon Z7 is producing a massive amount of underwater color improvement over previous Nikon cameras.*

blue water testing conditions. Between 50-feet to 55-feet is where the color began to fall apart a bit, with the water color starting to shift away from blue and more towards magenta. This is about the normal expected depth limit for most ambient light custom white balance captures, with Canon being the notable exception by capturing accurate color down to the 70 foot depth range.

See our underwater video ambient light custom white balance test results.

The color results looked very similar to those from the Nikon D850, which was a monumental leap forward for Nikon. Consider that the Nikon D500 was basically unusable for video and that camera is still current. The Nikon Z7 is producing a massive amount of underwater color improvement over previous Nikon cameras.

There isn't a dedicated white balance button on the camera, but the function is easily accessed through the 'i' menu and a new white balance can be executed super easily. This is one of the fastest and easiest to execute custom white balances out there right now. You also get 6 separate banks for storing white balances, which is awesome because we have to capture a new one every for every 10-feet of depth that we change.

## Conclusion - The Mini-D850

The Nikon Z7 is our new favorite full frame mirrorless camera and we've taken to referring to it as the

"Mini-D850". It packs an awesome image quality on par with the Nikon D850 thanks to the insanely sharp 46-megapixel resolution and a native ISO value of 64 for outstanding dynamic range. It has the best electronic viewfinder that we've seen yet, and it displays an electronic image that is sharply defined with plenty of dynamic range detail. The autofocus was fast and accurate overall, though we do wish the Nikon Z7 had the same autofocus system and operation as the Nikon D850. While the body itself is smaller and lighter than an SLR, the overall underwater system size is about the same.

## Who Is This Camera For?

The Nikon Z7 is a great choice for primarily still-image shooters that want a smaller-than-an SLR camera body without sacrificing image quality or camera controls, the best electronic viewfinder currently available, and video capabilities to rival that of the Nikon D850.

If your primary interest is shooting video, then it's worth looking at Canon over Nikon for the best in-camera ambient light color, but for those who want to primarily shoot stills and also be able to roll some video that looks great down to 45-feet then the Nikon Z7 is a solid choice.

The end video product was basically equivalent to that produced by the Nikon D850.

If camera body size is of no concern, then go for the Nikon D850 specifically to gain the 3D AF Tracking Mode, which is the most notable practical shooting advantage that the Nikon Z7 just cannot compete with.

**The Backscatter Team**  
[www.backscatter.com](http://www.backscatter.com)



# Scubalamp MS20

by Phil Rudin

Light shaping devices have been around for about as long as photographers have been making images. As underwater photographers we have used the position of the sun to create interesting lighting effects, a verity of diffusers to widen and soften strobe lighting, multiple strobes can control shadows, highlights, contrast, color, depth and more.

Another technique underwater photographers have taken right from the studio photographers toolbox is the use of snoots for shaping and directing light onto a subject. Most snoots have a cylindrical or conically (cone) shaped light reflector which fits over a strobe to produce a focused light beam directed onto the subject.

The snoot creates a column of light which will allow you to separate a subject from its background or place a very narrow sliver of light on an element of your subject like its eye or mouth. We most often see snoots used for macro photography but snoots can also work well for some close focus wide angle situations.

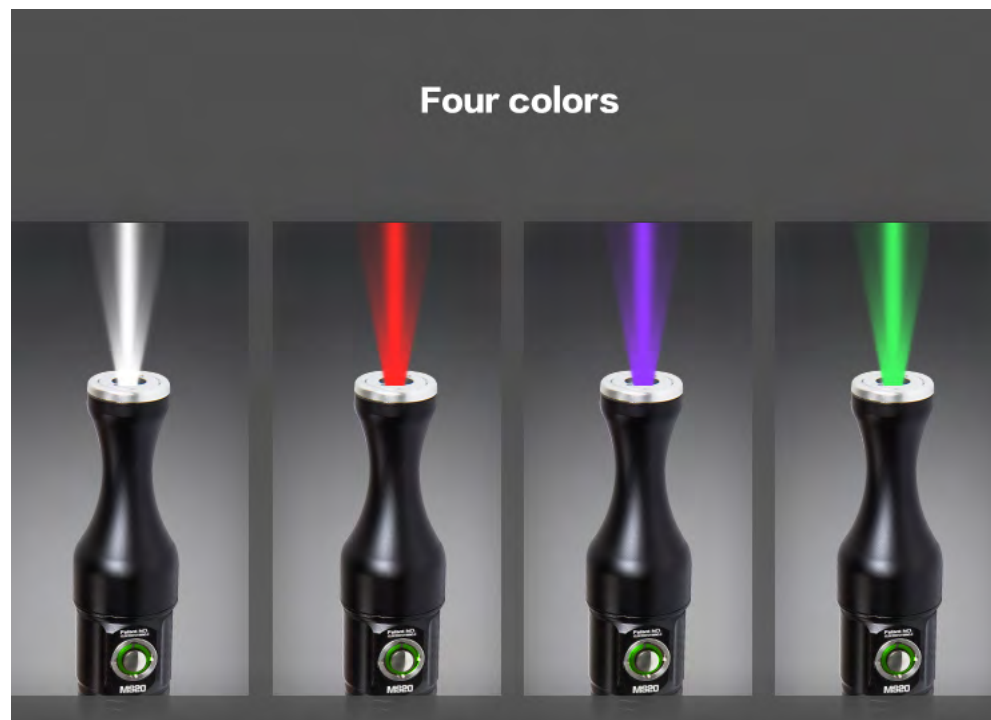
I began using snoots made from a white plastic funnel and taped to my strobe more than thirty years ago in my film days. This was a

very frustrating endeavor because it was hard to tell where the snoot was pointed and without the instant feedback of live review you never knew if you got the shot you wanted.

With modern digital equipment using snoots can still be a bit frustrating but is far more productive than the thirty-six exposures from the film days. Most modern strobes have an LED focusing light which will allow you to aim the narrow light beam much more accurately onto the subject.

The use of snoots has become so popular in underwater photography that several types of snoots are now commercially available and many more home made versions can be found on the internet. Most commercially sold snoots are two distinct types. Those where the light is transmitted through a hollow tube and those where the light is transmitted through a bundle of fiber optic cables.

With the hollow type of snoot different size tubes can be added to widen or narrow the light beam. Color filters can be added and the light cone can be moved closer to or further away from the subject to change the shape of the light. Moving the light





closer to the subject hardens the edges of the light beam and moving the light back softens the edges.

A harder edged light beam will reduce “spill” (stray light) from getting onto parts of the photograph where you don’t want the light to be. While the soft edge light beam creates a smoother transition across the photograph from light to shadow which is preferable for many critter portraits as it is with people portraits shot in the studio.

Fiber optic snoots are made from a bundle of fiber optic cables that are held in place over the flash tube(s) on your strobe. When the strobe is fired the light is transmitted through the fiber optic bundles and onto the subject.

With fiber optic snoots the size and shape of the light beam can be changed by adding different size narrowing tips to the light emitting end of the fiber optic cables. Fiber optic snoots are flexible which allows them to be more easily shaped to your needs and because they are smaller in size they will fit into a smaller space.

Many fiber optic snoots are also made with two separate fiber optic bundles which can be mounted onto one strobe head. This style of snoot allows you to light both sides of your subject or create any



number of lighting ratios. As an example you can light both of the subjects eyes without lighting the entire animal, a very cool effect.

I met with Raymond Bro and Steven Lim from Scubalamp at DEMA in November 2018 and they gave me a demo Scubalamp MS20 snoot light for review. Scubalamp Underwater Photography Equipment (scubalamp.com) headquarters and factory are located in China. Scubalamp also has offices in Singapore and Taiwan with distribution throughout most of Europe, Asia and Australia with limited distribution in the Americas.

The product line focuses on lighting for recreational diving, technical diving, underwater photography and video. The product line includes a verity of photography and video lights, dive lights, ambient light filters, camera trays, support arms, float arms, support hardware, batteries, chargers and much more. One of the many unique products sold by Scubalamp is the MS20 four color snoot.

Unlike the other snoots described above the Scubalamp MS20 is a bright continuous light which uses a CREE XP-L HI LED with a projected



*Octopus Eye Detail, Sony A6400, Zeiss Touit 50mm F/2.8 macro, Ikelite Housing, Scubalamp MS20 (BLUE), auto ISO-1600, F/13, 1/160th sec.*

lifespan of up to 50,000 hours. The MS20 has two sections the light head with the on/off color select switch and the rear battery compartment.

Both sections are made from high-grade aviation aluminum alloy with type III hard anodization for maximum corrosion resistance.

The working voltage for the unit is 2.7 to 4.5 volts using one compatible 18650 battery which is included along with the battery charger.

The MS20 has a five degree round beam which covers an area of approximately 30mm at a distance of 100mm from the subject. The MS20 is 1200 lumens with white, red, violet and green color choices. The patented on/off/color select switch allows you too easily switch between colors with a one finger push.

The battery compartment is threaded and has two O-rings for added security. Simply unscrew the battery compartment, insert a charged battery and reattach. Be sure to grease the main O-rings as part of the regular maintenance along with a through rinse after use in saltwater.

Once a charged battery is installed the light switch will glow green indicating that the battery has a charge. Push the switch once and the white light comes on, push again and the red light comes on followed by violet, green then off. Once the MS20 is turned off the green glow on the switch will extinguish. The MS20 is threaded on the bottom to except the included YS ball adapter or a wide verity of other mounting options.

The MS20 is 19cm long, 29mm at the light end and 34mm at the battery end. Depth rated to 100 meters I found the MS20 to be very robust and very easy to travel with.

Because my MS20 was a demo I am not sure how many times the battery may have been charged or used, as a result burn times could vary a bit. I tested the battery life by turning the light on with a fully charged battery in a bucket of water and then cycled through the different colors.

After one hour and forty-five minutes the glowing green light on the switch went from green



to amber allowing letting me know the battery had about half power left. If the amber light comes on while using the white or red light and you switch to a violet or green the glowing green light comes back on indicating extended battery life with those two colors.

Using violet or green extends the run time to two hours and twenty-five minutes before the amber light turns back on again, at five hours and thirty-five minutes the amber light switched to red. At around four hours the light intensity begins to slowly decrease and at six hours the white light is still on but is at about 20% of the original intensity.

A fully drained battery (over six hours of run time) will take about eight hours to fully recharge. Run times may very slightly depending on the age of the battery, battery manufacturer, ambient temperature and other factors.

## Field Testing the MS20

One of the first things that excited me about testing the Scubalamp MS20 snoot was the ability to easily use the light off camera and to have a constant light source that I could effortlessly move around the subject to optimize results.



*Hermit Crab, Sony A6400, Zeiss Touit 50mm F/2.8 macro, Ikelite Housing, Scubalamp MS20 (BLUE), auto ISO-400, F/16, 1/160th sec.*

For my review I added a standard ball head and attached the MS20 to two different small tripods. This arrangement allowed me to get the light head very close to the subject without disturbing the subjects surroundings. This method of lighting works well for static or slow moving subjects like

crabs, octopus, nudibranch, frogfish and a verity of other subjects.

When using any snoot subject selection is very important to the photo process. Finding the correct subject to light with a five degree beam can be challenging and being able to setup the tripod without doing any damage to marine life can also be problematic.

For me leaving the environment the way I found it is more important than any photograph. Many macro areas may not be suitable for using a tripod so the MS20 can also be mounted direct to the housing using any number of mounting options like standard strobe arms, cold shoe mounts and more.

Proper subject selection is also required for each color of light, not all subjects worked with the four different light colors. With subjects that have white or light colored appendages the colored lights will over power these lighter areas and may look too intense. Personal taste and how the images are processed in post will also vary between photographers because the colored lights alter reality to an extent.

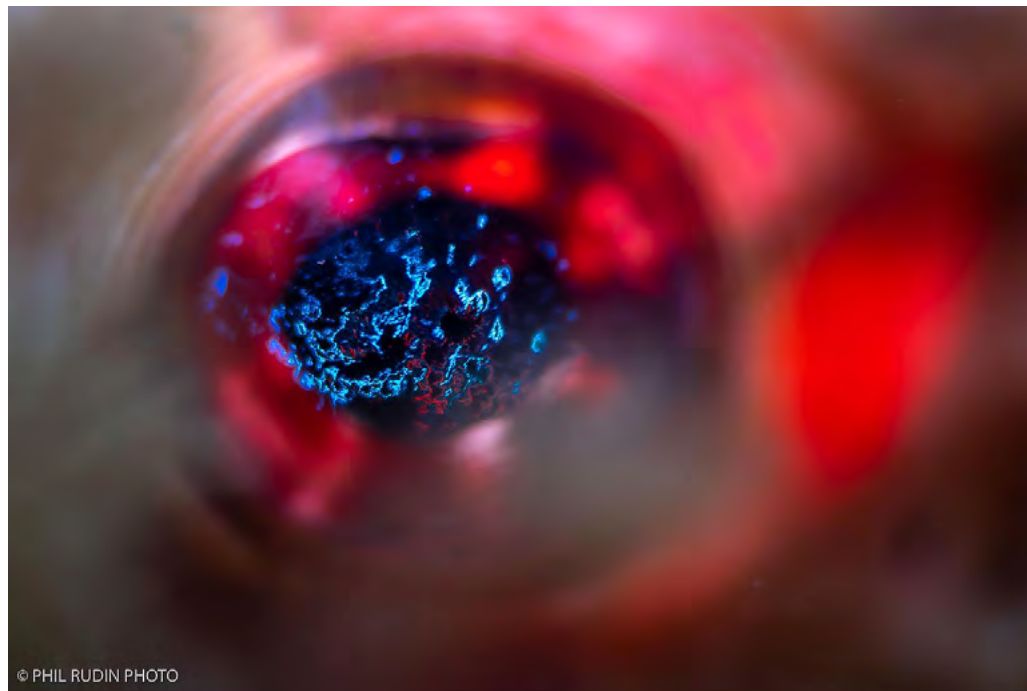
I shot most of my images with the MS20 on two small tripods, one with rigid legs and one with flexible legs. My preference was for the tripod with the rigid lens which were about six inches long. The light head to



subject distance was from about 20 to 100 millimeters producing a circle of light from about 5mm to about 30mm in diameter.

The closer the light comes to the subject the greater the light intensity becomes as would be expected. The white light was more intense at a given distance v. the red, violet and the green which appeared to be the least intense for a given distance. I used three different camera bodies and two different macro lenses for this review.

I shot the new Sony A6400 (reviewed in this issue) with the excellent Zeiss Touit 50mm F/2.8 macro in an Ikelite housing and Sony



*Scorpionfish Eye Detail, Sony A7 III, Sony FE 90mm F/2.8 macro, Nauticam NA-A7R III housing, Scubalamp MS20 snoot (RED), ISO-100, F/3.2, 1/200th sec.*

A7 III and A7R III cameras with the outstanding Sony FE 90mm F/2.8 macro lens in a Nauticam NA-A7R III housing.

I experimented with a verity of camera settings first using all manual settings for ISO, F/stop and shutter speed. Later I switched to the Sony's excellent auto ISO with the limits set between ISO-100 and ISO-6400. This method auto selects the ISO based on the chosen F/stop and shutter speed with the camera in manual mode. I also used negative exposure compensation to reduce ambient light

since the MS20 was my only light source other than ambient light. The auto ISO worked very well with the chosen shutter speed and F/numbers giving me the exposures I was looking for.

With white light the exposure compensation was set to zero for a more even overall exposure. I also used F/2.8 and F/3.2 with both lenses to capture subjects with very limited depth of field using the colored lights to accent just the in-focus areas of the subject for a more abstract image.

Since the MS20 is a continuous



*Yellowline Arrow Crab, Sony A7 III, Sony FE 90mm F/2.8 macro, Nauticam NA-A7R III housing, Scubalamp MS20 snoot (RED), ISO-100, F/13, 1/80th sec.*

for unusual captures. The MS20 is an excellent tool for those die hard macro photographer who are always looking at new ideas for expanding their creative work. The MS20 can be used as a stand alone light source or in conjunction with other light sources like strobes and snoots.

The Scubalamp MS20 four color snoot retails for around 298.00Euro, A\$399.00, \$330.00USD check with your retailer for more information on pricing. I would like to once again thank the entire Scubalamp.com team for allowing me to use the test unit for this review. Also checkout the entire Scubalamp line at [scubalamp.com](http://scubalamp.com) and at [scubalamp](https://www.facebook.com/scubalamp) on [facebook.com](https://www.facebook.com)

**Phil Rudin**

[www.scubalamp.com](http://www.scubalamp.com)



light source exposures could also be controlled by raising and lowering shutter speed to allow more or less light into the camera. When shooting macro with strobes shutter speed has little effect on the exposure because the strobe provides almost 100% of the exposure. Exceptions would be when slowing the shutter and taking an upward angle to open the blue water background or to blur subject motion.

Using a tool like the Scubalamp MS20 snoot light allows the creative juices to flow and the imagination to run wild with the possibilities

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# Breaching sunfish

Images by Lee Black

Text by Natasha Phillips

The ocean sunfish is the world's largest bony fish, reaching up to 3m in length and as such they are an incredible species to see in the wild. These leviathans feed primarily on gelatinous planktonic prey including jellyfish medusae, salps and ctenophores, but less well known is that as smaller fishes, up to 40% of their diet also includes crustaceans, molluscs and some fish species. Since they pose no threat to humans and typically swim at a cruising rate of around 0.5 m/s, these gentle giants are a wonder to swim alongside or to watch as they bask in surface waters.

The sunfishes are notable for their somewhat unusual appearance, with a round, truncated body, extended dorsal and anal fins, and lack of a true caudal tail. This body shape or bauplan, differs to many other open water fish species where often more torpedo-like streamlining offers pursuit predators like tuna and marlin a distinct advantage. However, when we look into the sunfishes

evolutionary history, the origins of this strange shape become apparent. The fishes as a group, first emerged around 500 million years ago, but it was only around the middle Eocene, approximately 40 million years ago that more modern coral reef fishes appeared. Of these reef-dwellers, a group of puffer fish appear to have moved from the shallow sunny reefs out into the open ocean, and over geological time, the ocean sunfish as we know it evolved. Although it may look like a misshapen marine pancake, the sunfishes' body plan actually represents millions of year of evolution, honing that original puffer fish shape to thrive in the open ocean.

Unfortunately for the sunfishes, their strange shape, selection of slow jellyfish prey and basking behaviours have given them a reputation as slow-moving and sluggish. They have even been described as incapable of moving quickly. But never judge a book by its cover, nor a sunfish by its' sunbathing! If startled, sunfishes can swim very fast at rates >2 m/s





*Nikon D4, Nikkor 28-300mm lens at 10 frames per second.*

and they have been known to travel long distances at consistently high speeds covering >20 km/day, equivalent to some shark and salmonid species.

One of their most impressive, but rarely seen, swimming techniques requires an incredible combination of speed and power, leading them to breach clear of the water up to reported heights of 10 feet! As with many species which breach, scientists remain unsure as to why they perform such extreme behaviours. Sunfishes can reach

a weight of 2.3 tonnes and so these breaching behaviours represent a significant investment of energy. It has been suggested that these leaps, which are often repeated in a series of breaches (and subsequent giant splash downs) could be an attempt to dislodge persistent parasites, remove remoras or to scratch skin irritations. Other large marine species such as humpback whales, spinner dolphins and basking sharks are also known to breach, although these have also been thought to pose as

displays of fitness to impress mates, communication signals over long distances, signs of stress or perhaps for the sheer joy of jumping!

Many marine species are able to swim in a distinct pattern whilst regularly breaking the water's surface in a movement known as "porpoising". This differs slightly to the individual large breaches as seen in sunfish, as porpoising is a regular leaping behaviour undertaken whilst travelling. Intriguingly this means of travel provides a more energetically



*Nikon D4 with a Nikkor 14-24mm lens with a single Sea&Sea YS-250 Pro strobe on Ultralight Buoyancy arms.*

efficient method of swimming at high speeds, however this will only occur when an animal, such as a seal or penguin, is swimming close to the sea surface after a specific 'cross-over' speed has been reached and then leaping behaviours become more energetically efficient.

Sunfish breaching events are relatively rare but sometimes photographers are able to capture this incredible event, such as this series of images, where the sunfishes' power and capabilities can be appreciated in stunning detail.

### Images: Lee Black

*Lee is an engineer, former dive instructor, and photographer based in Oklahoma. Since hanging up his fins and underwater housing on a full time basis, he spends his time on a lesser-known type of photography that you can see on his instagram account:*

[leblackflowtography](https://www.instagram.com/leblackflowtography)

### Text by Natasha Phillips

*Natasha is a marine biologist based at Queen's University Belfast who regularly writes, tweets & produces mini-films about sunfish & other cool wildlife on twitter @ SunfishResearch and on YouTube @ Swimming Head Productions*



# Blanket Octopus

by Mike Bartick

The Blanket octopus is perhaps one of the most mysterious sea creatures of all times. They are a pelagic octopus that live their entire lifecycle in open ocean which not only make's them hard to find, but even harder to study in their natural habitat. Much of what is known is speculation and the information presented here is gleaned from books, the internet, and further formed by personal observations from having multiple personal encounters. What I have learned is that the Blanket octopus is a complex animal with intriguing behaviors from the way they mate and reproduce to hunting strategies and defense. One thing is for sure, nothing can truly prepare you for the moment you encounter one.

Diving in the open ocean at night will allow the interested to witness and encounter the night sea, first hand and in person, there is just no substitute for it. Blackwater diving as we like to call it is conducted over deep water while using a lit downline to attract planktons. I enjoy doing these kinds of dives all over the world but conduct most of them, right here in my own backyard, the Balayan bay, Anilao, Philippines.

My first sighting of a Blanket Octopus (*Tremoctopus gracilis*) was nearing the end of a dive. I was finning back to the downline when I saw a huge shadow cross our lights. At first, I thought it was a massive jellyfish passing by, then as I got a bit closer I thought it was a fat ray of some kind. Continuing to kick closer I could begin to make out



*The male blanket octopus are very small in relation to the female of the species. If you look closely, you can see the jellyfish tentacles being held by the octopuses lateral arms. It is unclear to me if the arms of the jellyfish can continue to grow along with the octopus.*

*Nikon D850, Sea & Sea housing, 60mm Nikkor, YS D2 strobe. 1/200th @ F20 ISO400*

the coloration and body details, It was at that instant that I knew exactly what I was seeing. It was indeed a 1+ meter Blanket Octopus, perhaps a bit larger. Its head was as big around as a basketball, it's arms were pulled in and made up the rest of the shape that I mistook as a ray. I was at approximately 15 meters of depth or 45 feet and finning hard to keep

up and trying to get out in front of it. As I did, its massive purple- green blanket, began to unfurl and open.

In this situation shooting with a 60mm lens, you try everything you can to get a shot. I began finning backwards to give myself some space but the Occey kept coming straight towards me. I did



*(Above) Small female with jellyfish tentacles, clearly visible. Im not sure at what point they give up the tentacles but the larger females don't appear to hold to them.  
Nikon D850, Sea & Sea housing, 60mm Nikkor, YS D2 strobe. 1/320th @ F20 ISO400*

*(Left) A small female was perhaps one of the first ones I found. It was near the bottom of my downline at the very end of the dive! why does that always happen? I was able to quickly fire a few photos catching it in what appears as a protective posture. The jellyfish tentacles are there but harder to see as they are being held by the arms and suckers.*

*Nikon D500, Sea & Sea housing, 60mm Nikkor, YS D2 strobe. 1/200th @ F18 ISO400*

everything I could to get a shot, any shot. No one would believe me if I only came back with a story. I shined my powerful hand torch back towards the downline hoping one of my friends would also see me and come down to join. The octopus was casual and orbited our downline effortlessly moving about and seemed as curious about me, as I was of it. Looking up I saw my buddy arriving to join me and the two of us

had our first experience of a lifetime together.

After downloading the images, I realized that our “blanky” was obviously a female as she was also carrying eggs. WOW! I yelled, Oh my god, this is \*#\*# insane!. It was 3:00am and I'm sure I woke up my neighbors

The Blanket Octopus Contains 4 known species:

1 T. gelatus-a gelatinous deep



*This is by far the largest female blanket octopus I have ever seen. She was easily more than 1 meter or 3 feet in length, never extending her blanket. The male by contrast is the size of a pea or 2cm. The proper term for this is size difference is “sexual dimorphism”. The female is more robust than the male as part of nature’s design for reproduction and is the most extreme example of dimorphism in any animal that is non microscopic.*

*Nikon D500, Sea & Sea housing, 60mm Nikkor, YS D2 strobe. 1/200th @ F18 ISO640*



*Male Blankets might be small, but they are mighty. They have a complicated relationship with the female apparently. It’s also reported that she might not even know when she mated as the sperm loaded arm from the male, snaps off after making contact with the female then finds its own way to the holy grail. If you think about this a little, it makes sense. The female, being so large can glide through the water making contact with multiple males while she is fertile, increasing the odds of a higher rate of fertilized eggs. Nikon D850, Sea & Sea housing, 60mm Nikkor, YS D2 strobe. 1/200th @ F16 ISO400*

water Tremoctopus, cosmopolitan and found in tropical and temperate waters

2 T. robsoni-Known from the waters off of New Zealand

3 T. gracilis-Palmate octopus-Found in the Indo-Pacific Region

4 T. violaceus, violet colored-Lives in the Atlantic

The four different octopus can

be found in almost all of the planet’s oceans but each inhabit a different region, sans the polar regions. Their lifecycle can last up to 5 years and have been observed hunting in the same area for an extended period of time. Being a pelagic animal means they don’t make a burrow in the sand or create a home like other octopus

do. These Octopus mate, hunt, feed and thrive in the open water and can roam from the depths of the dark zone to the surface, truly master’s of their open ocean domain.

Over the last year or so, I’ve been lucky enough to have multiple encounters with the Male’s and Females and have also been lucky

enough to come away with a few decent photos. To have these kinds of encounters requires a willingness to stay out all night on the sea along with a huge scoop of luck.

Unique in appearance and unique in behavior the Tremoctopus are immune to the deadly nematocysts of many cnidarians including the



*A quick video to show the action of a Blanket Octopus captured by my guest, Mike Dunn. Many times the Blanket octopus will swim to us, nearly colliding with us at times. Watch as she elegantly opens her blanket and moves through the water.*

© Mike Dunn

Man O'war jellyfish. It is reported that juvenile Tremoctopus rip the stinging tentacles from the jellyfish then holds them with their lateral arms, whipping them about to sting their prey and perhaps to protect themselves. Many photos show the trailing tentacles and clearly illustrate that this is indeed a common behavior.

Oddly enough, we don't have a population of Man O'war jellyfish in our bay which leads me to assume that they aren't selective and will use the tentacles of any venomous jellyfish.

The sexual behavior is also quite interesting. The male of the species exhibits the highest degree of dimorphism then any other animal yet to be discovered. The female can measure up to 2 meters in length while the males only reach a size 2 centimeters, size and weight ratios differ as much as 10,000 times. Male Tremoctopus use a specialized arm called the hectocotylus like other male octopus



*Fly over. The female can be very fast and when she opens her blanket, she often flips around in a 180 degree direction. This makes them tough to photograph and hard to follow, an excellent escape and evade strategy. Nikon D500, Sea & Sea housing, 60mm Nikkor, YS D2 strobe. 1/200th @ F18 ISO400*

which contains its sperm pack. The male only needs to touch the female with this specialized arm as it instantly sticks to her then snaps off, perhaps without her even knowing. The arm then creeps down or somehow finds its way into the ovum of the female where she crushes it, releasing the sperm and fertilizing her eggs when the time is right. Hatching is intermittent.

The male, like other octopus having completed his life's work, now dies. However the female still

has a long life ahead, brooding and caring for her eggs until she finally dies from starvation much like other Octopus.

Research says the eggs are kept in a "sausage shaped calcareous secretion" but I couldn't make that out from my photos.

The Tremoctopus gets its common name from the blanket that it can quickly unfurl and retract. When fully extended they resemble "Rocky, the flying squirrel" and fly through the water in much



*Blanket opening and heading for the surface. Another escape strategy is to head up to the surface where they will skim along just below the water line. I saw this one at 25+ meters when it opened its blanket and turned a 180 and came towards me at full speed. I swam along with it trying to fit it into the frame.*

*Nikon D850, Sea & Sea housing, 60mm Nikkor, YS D2 strobe. 1/200th @ F25 ISO400*

the same manner. The texture of the blanket looks like an exaggerated version of the webbing that a common octopus has and uses to web over their prey when hunting. However, these guys deploy the blanket to make themselves look bigger and perhaps to hunt and catch crustaceans or other cephalopods like the paper nautilus. The thin membrane is colorful and ocellated much like the feathers of

a peacock with a pink, purple-green hue.

They can also detach their webbing to ensnare a would be predator or to evade as well as ink.

The web is attached to the 3rd and 6th arms of the female, palmed by the 4th and 5th arm.

They will snap their arms outward repeatedly, tightening the blanket as it moves through the water.

Like I said above, there is nothing quite like encountering one of these majestic animals in the wild. This season has brought us multiple encounters as did the last and im looking forward to learning more about these incredible sea going octopus.

Now get out there and have an adventure!



**Mike Bartick**

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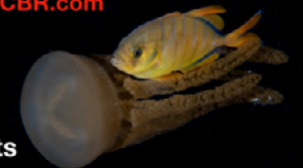
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# Back in Safe Waters: The Salmon of Vancouver

Text by Louis Otis

Images by Fernando Lessa

The Pacific salmon, one of the symbols of British Columbia, is back in Metro Vancouver. To be accurate, it never completely left, but for a while in the mid-1900s, its future was hanging by a thread. Pollution, destructive urban development, and weak environmental legislation threatened to force it out of the area. This was a sad development for the salmon, a local resident since time immemorial and an integral part of many First Nations' way of life for centuries.

## Stuck in traffic

Diver and photographer Fernando Lessa has been documenting the state of the salmon and of its habitat in Metro Vancouver for the last two years for his not for profit project, Urban Salmon. The objectives were to document

the fish in its Metro Vancouver habitat, donate an image bank to local conservation groups for educational purposes, and produce a photography book.

The project came to life a bit by accident. Fernando had arrived in Vancouver a few months earlier. He had been involved in marine projects in his native Brazil in the past and planned to do it again eventually.

***By 1955, Brunette River had almost become a dump and the salmon were almost extirpated. It was the first river in Metro Vancouver to be restored by a streamkeeper group. It is now home to four species of salmonids. The yellow and orange hues take over the Metro Vancouver landscape in the fall. It signals the pre-winter rains are coming, and so is the salmon.***

***Brunette River, Burnaby, BC  
Nikon D800***

***1/4 f8 ISO 1600 20-35 f2.8 Nikon***





*A cutthroat trout feeds in the rapids of Lynn creek, North Vancouver. Nikon D800, Ikelite housing, 18-55mm Fx f3.5-5.6 +2close-up. SO 800 1/200 f11 Ikelite D800 Housing, 180mm dome + extension. 2 Nikon SB105 with diffuser.*

But for the time being, between getting settled and studying, he figured he had other fish to fry.

One day, as he was stuck by Byrne Creek Ravine Park in Vancouver’s brutal rush hour traffic, he looked the place up on his phone and learned it had salmon. “I just decided to return the next day with my wetsuit and photography gear,” he recalls. That’s how Urban Salmon began.

Over the next two years, Fernando donned his wetsuit countless times, diving in over 25 creeks of

Metro Vancouver to chase salmon in sometimes murky and often frigid waters.

### **A story of resilience**

Who has ever seen a teddy bear of a salmon? Who goes on a trip to dive in salmon rivers? Salmon don’t have the same appeal as say, sharks, clownfish, or coral, and their habitat is certainly not as sought after by divers. That makes attracting attention and getting funding for conservation challenging. And yet, the salmon’s



*A modern wild fish has to share space with urban environments. Eagle Creek, Burnaby, BC*

journey in life may be one of the most fantastic of all marine species.

They hatch in creeks and rivers before swimming out to sea through a network of streams that can be simple or very intricate, depending on their point of origin. After a few years in the open sea, they embark on the salmon run one of nature’s great spectacles.

Their journey takes them hundreds or thousands of kilometres back to spawn – and usually die – in the creek or river where they were born. The run is not just fascinating

because of the precision with which the salmon are able to find their place of birth. It also benefits a whole ecosystem, from the species that feed on the running salmon to those that use nutrients from decaying salmon in the streams or that wash up on the banks.

As development heavily impacted the network of streams and the water quality in many parts of the Metro Vancouver watershed, getting back to their spawning grounds proved difficult for the salmon, if at all possible. By the second half of the



*A pink salmon (*Oncorhynchus gorbuscha*) laid these eggs in the Seymour River. The winter rains will cover the eggs deep under the gravel where they will mature for around 90 days. Once they hatch, the young salmon will migrate straight to the sea, where they will spend the majority of their two-year life cycle. Seymour River, North Vancouver, BC. Nikon D800, Ikelite Housing, 1/125 f8 ISO 1600 Sigma 15mm f2.8*

1900s, the once thriving salmonid populations were dwindling fast.

In the 1970s, streamkeeper groups and associations dedicated to the protection of the salmon and watersheds in BC were aware that the point of no return was close. The salmon was no one's priority. That's

when they rolled up their sleeves and started to get more involved.

Through the hard work of volunteers dedicated to protecting BC's watersheds and better environmental legislation, the outlook gradually improved and salmon started returning to Vancouver



*Pink salmon (*Oncorhynchus gorbuscha*) are bright silver in the sea. Once back in freshwater, their colour changes to pale grey on the back and yellow-white on the belly. Males also develop a big hump on the back. They are usually found in bigger rivers and run on odd years. Here, a male pink salmon is transitioning from seawater to freshwater form. Seymour River, North Vancouver, BC. Nikon D800, Ikelite Housing, 1 SB-105. 1/125 f8 ISO 1600 Sigma 15mm f2.8*

in greater numbers. Studies such as Urban Salmon show that after 40 years of efforts, a balance in the ecosystem seems to have been restored. But this story serves as a reminder that the line between a healthy and agonizing watershed can be dangerously thin.

## **From Brazilian rivers to Canadian rainforests**

Fernando credits his grandfather as the source of his passion for fishing and diving. He later studied biology, and it only made sense he sought to combine his studies with



*Hastings Creek is a short creek in North Vancouver. Though it was heavily altered, it still has some charm. Here, juvenile wild salmon flourish in Hastings Creek Park.*

*Hastings Creek, North Vancouver, BC*

*Nikon D800, Ikelite Housing, 2 SB105.. 1/125 f16 ISO 1600 105mm f2.8 macro.*

his love of water and photography. He dived extensively in Brazil where he participated in underwater documentation projects in the Coastal Mountain creeks and rivers, in the savannah, and in the Amazon rainforest. He would face different logistical challenges for Urban Salmon, however.

Diving in the frigid waters of Metro Vancouver in search of salmon was a new experience for Fernando. “I started with a 7mm second-hand

wetsuit,” he says. “I used it for a year, but it started to fall apart and I got tired of freezing. I now use a semi-dry suit which allows me to get in the water year-round. The issue”, he adds, “is that gear is often made for diving in the emerald or blue waters of the tropics, and that’s definitely not what you get in the Pacific Northwest!”

Besides the cold water, lugging a good underwater photography gear setup to the diving spots was not always easy. “Using a boat as a base



*The Nooksack dace (Rhinichthys cataractae) is one of the many endangered species found in our urban streams. They are part of the Chehalis fauna, a unique group of fish that got isolated in the Pleistocene glaciation. They are only found in four rivers in British Columbia and are protected under the federal Species at Risk Act (SARA).*

*Brunette River, Burnaby, BC*

*Nikon D800, Ikelite Housing, 2 SB105. 1/125 f8 ISO 1600 105mm f2.8 macro.*

allows you to bring a lot of gear, but when you’re hiking a few kilometres or bushwhacking through thick forest, the reality is different,” Fernando explains. “Limiting the equipment to the minimum is important. I’m not afraid to take my gear to the limit, and sometimes beyond. If I don’t, the logistics behind some dives become much more complicated.”

The project required patience to

visit all the creeks to find the salmon, not to mention browsing through and editing over 50,000 photos. But the frequent dives allowed Fernando to swim with thousands of salmon, get a good peek at their universe, and document it all thoroughly. Managing the project to make it fit with work, studies, and regular obligations sometimes proved challenging, but the itch to get underwater always



*A coho salmon (Oncorhynchus kisutch), still in its ocean colors.  
Brunette River, Burnaby, BC  
Nikon D800, Ikelite Housing, 2 SB-105 . 1/125 f8 ISO 1600 Sigma 15mm f2.8*

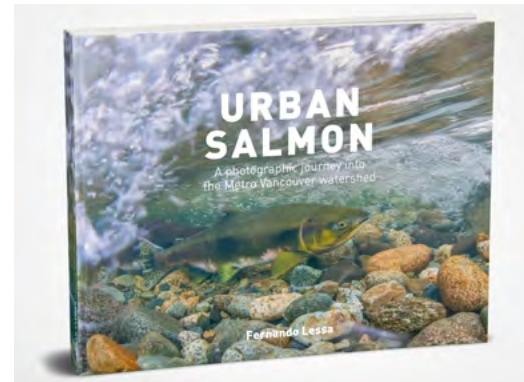
prevailed.

In the end, Urban Salmon was a resounding success, receiving support from local conservation associations as well as from some businesses, including Patagonia. It produced over 50,000 photos and videos, a lot of which will be donated to local streamkeeper groups for educational purposes. Fernando also recently released a photography book that features some of the best and most important photos from his dives.

### Promoting conservation through photography

The photos are telling: the fish are back. They adapted to a revitalized watershed that still features some underwater man-made structures, and streams that are barely a few inches deep and run parallel to roads. The salmon is resilient and seems to have found its place once again, but the balance remains fragile.

Most people's reflections about salmon are limited to their dinner table, so raising awareness about its



state is no easy task. To guarantee their survival, our species has to keep lending a helping hand, and that often comes in the form of selfless volunteer work or not for profit initiatives such as Urban Salmon. As Fernando points out, one of his objectives was to “remind people of Vancouver that having this incredible fish in their backyard is a privilege they should not take for granted.”

Urban Salmon's positive reception will allow Fernando to keep working on conservation initiatives. His new project, “The Hearth of the Fraser”, will look at the Fraser River, one of the most important rivers in British Columbia, both economically and environmentally, but also one that is suffering from nearby development and farming.

In the meantime, the video shot for Urban Salmon will be turned into a short documentary. The newly published book, Urban Salmon: A photographic journey into the Metro Vancouver watershed, is available

online at [www.urbansalmon.com/book](http://www.urbansalmon.com/book) and ships worldwide.

### Louis Otis

Louis is a freelance writer and photographer with a healthy interest in the outdoors.

### Fernando Lessa

Fernando is a diver, photographer, and biologist. Urban Salmon is his first solo project in North America. Find more information about his project and his book

[www.urbansalmon.com](http://www.urbansalmon.com)



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# Molnar Janos Cave

by Adam Kellermann and  
Cezary "Czaro" Abramowski

I can bet that very few inhabitants of Budapest are aware what lays beneath their feet when they walk the streets of the Hungarian Capital City every day.

The story starts in the XIX century with Janos Molnar or should I say Molnar Janos (Hungarian usually speak the surname in the first place). That Hungarian pharmacist was fascinated by the sources of thermal water that were supplying numerous thermal pools in Budapest. Their health benefits were discovered by ancient Romans who were strongly present here in the II century. But let's go back to Molnar Janos. He was trying to understand the benefits of thermal waters but also he was curious where that water was actually coming from. He was particularly intrigued by a small lake at the foot of Gellert Hill. He observed water coming from the rocks and suspected that there should be a water filled cave system somewhere under the hill. Finally he discovered a dry entrance to the system and reached an underground chamber partially filled with water.

The underwater exploration of

the cave started in the 1950s. Later in the 70s and 80s divers from FTSK Delfin Dive Club explored the cave and marked 400m of the so cold old part. In 2002 came a real breakthrough (in the very sense of the word ;-). Explorers found a new passage and discovered a big spacious hall stretching for more than 80 meters and more than 15 meters tall. Since that time exploration continues and by the beginning of 2019 there is already more than 7km marked with guiding lines down to 90m depth. In the meantime a professional diving center was founded.

Molnar Janos Cave and Dive Centre are hidden between XIX century buildings of Frankel Leo Street. As I mentioned earlier it is at the foot of Gellert Hill on the left



*Artur at the intersection, above the sandy bottom of the cave. . OLYMPUS E-M1 with OLYMPUS housing. 2x INON D-2000 strobes. ISO 640; 8mm; F/1.8; 1/40s. Background highlighted with Trojan Fatman Video Lights. Photo by CA*

bank of Danube. Across the street you can find thermal pools built just before WWII supplied by the water from Molnar Cave. We pass through a metal gate to the small yard. On the right we see a lake covered by water lilies which are green all around the year. No wonder water temperature

is here 28 degrees Celsius even in January. Next to the lake there is an inconspicuous flap. That is the entrance to the old part of the cave. Through that entrance the first explorations were made.

In the yard we can see ruins of the old thermal spa which add some



*The lake just outside the diving center on a cold January morning.. This is the very same lake that attracted the attention of Janos Molnar in the XIX century. You can see the entrance to the old part of the cave. SONY A6000 with Nauticam housing. 2x INON Z240 strobes. ISO 200, 10mm; F9; 1/50s. Photo by AK*

atmosphere to the place. Just behind those ruins there is an entrance to the diving center. As soon as we cross the doors we are struck by high temperature and humidity. It is almost like in the Turkish bath. A long corridor leads to the main part of the diving base. It is built with a lot of attention to detail. For every part of your equipment there is a dedicated space. You can find a big map on the wall and a place for briefings. For instructors there is a lecture room available. Staff pay a lot of attention to

safety. They have strict procedures and requirements that you are expected to follow. The cave is available for those divers certified as a cave diver. For technical divers without cave training there are also cavern dives organized.

As soon you are briefed and ready, you follow the metal stairs to the platform. It is located in the very same chamber that the first explorers reached through to the dry part of the cave. Again the platform is designed precisely for maximum convenience of the divers. There are metal rings



*The intersection where one of the routes goes vertically up. OLYMPUS E-M1 with OLYMPUS housing. 2x INON D-2000 strobes. ISO 640; 8mm; F/1.8; 1/40s. Background highlighted with Trojan Fatman Video Lights. Photo by CA*

where you can attach your stage tanks. Under the platform at 6m there is a big deco bar. Once in the water you assembly at a big buoy located in the middle of chamber. Pre dive check, ok sign and you dive into warm thermal water. Visibility in the main chamber is not perfect. Water here is warmer but also not moving too much which does not help to clear it after a number of divers swim through it. There are several directions that you can follow

from the descent line. Molnar is rather a system that can be compared to Mexican Cenotes than a cave that can usually be found in southern Europe. All the routes are marked with solid guide lines strongly anchored in the rock. All crossings are marked with big markers indicating the way out and how far you are from the surface.

If you take the route to the left you will gradually descend trough wide tunnel. At around 10m depth



*”Aerial” view of the canyon. SONY A6500 with Ikelite Housing. ISO 6400; 10mm; F4; 1/60 s. Background highlighted with 2x Trojan Fatman Video Lights. Photo by CA*



*Divers at the intersection. SONY A6000 with Nauticam housing. 2x INON Z240 strobes. ISO 1600, 10 mm; F/7.1; 1/20 sec. Background highlighted with Trojan Fatman Video Lights. Photo by AK*

you will cross a thermocline where the temperature will drop from 27 degrees Celsius to a still comfortable 20 degrees. At the same time the water becomes crystal clear. And now magic happens. Suddenly you find yourself in a huge, open passage that brings the Grand Canyon to mind. The walls of the canyon looks like frilly curtains. For many years they were being formed by slowly flowing water. Far below you can see a sandy bottom. Your bubbles go up through narrow gaps in the rocks make a loud low

sound. Some divers believed that it is sound of the Tram riding streets above you. But they are actually separated by 60m of solid rock to the surface. So there’s little chance to hear anything from there.

Every couple of minutes you meet crossings where you need to decide on the line which was agreed at the briefing. Believe me after a few turns it starts to be more and more difficult so make sure that you have a well described dive plan with you. If you go deeper, the corridors become



**Rafal getting ready for the dive in the main chamber. This is the very same place reached by the first explorers. SONY A6000 with Nauticam housing. 2x INON Z240 strobes. ISO 1600, 10 mm; F/7.1; 1/20 sec. Photo by AK**

less spatial. The roof is closer to you and from time to time you need to carefully pass narrower restrictions. In some areas instead of sand you can find some clay on the walls and on the bottom. If you are not careful it is very easy to spoil the visibility to zero. As you gradually ascend you find yourself again in the big open spaces. Some walls are beautifully shaped by nature and some are just raw and rocky. Behind every corner you will find something different.

On the main tracks prepared for

visiting divers you can go down to 40m depth. If you are trained, certified and equipped enough you can choose more advanced routes going down to 70m depth. As I did mention Molnar Cave is a real labyrinth. You can make a loop and even traverse through the old part using the second entrance located outside. The cave is very well marked. Guiding lines are very solid and permanent markers will always guide you to the exit. But do not be fooled. This is still an environment that does not forgive any mistakes.



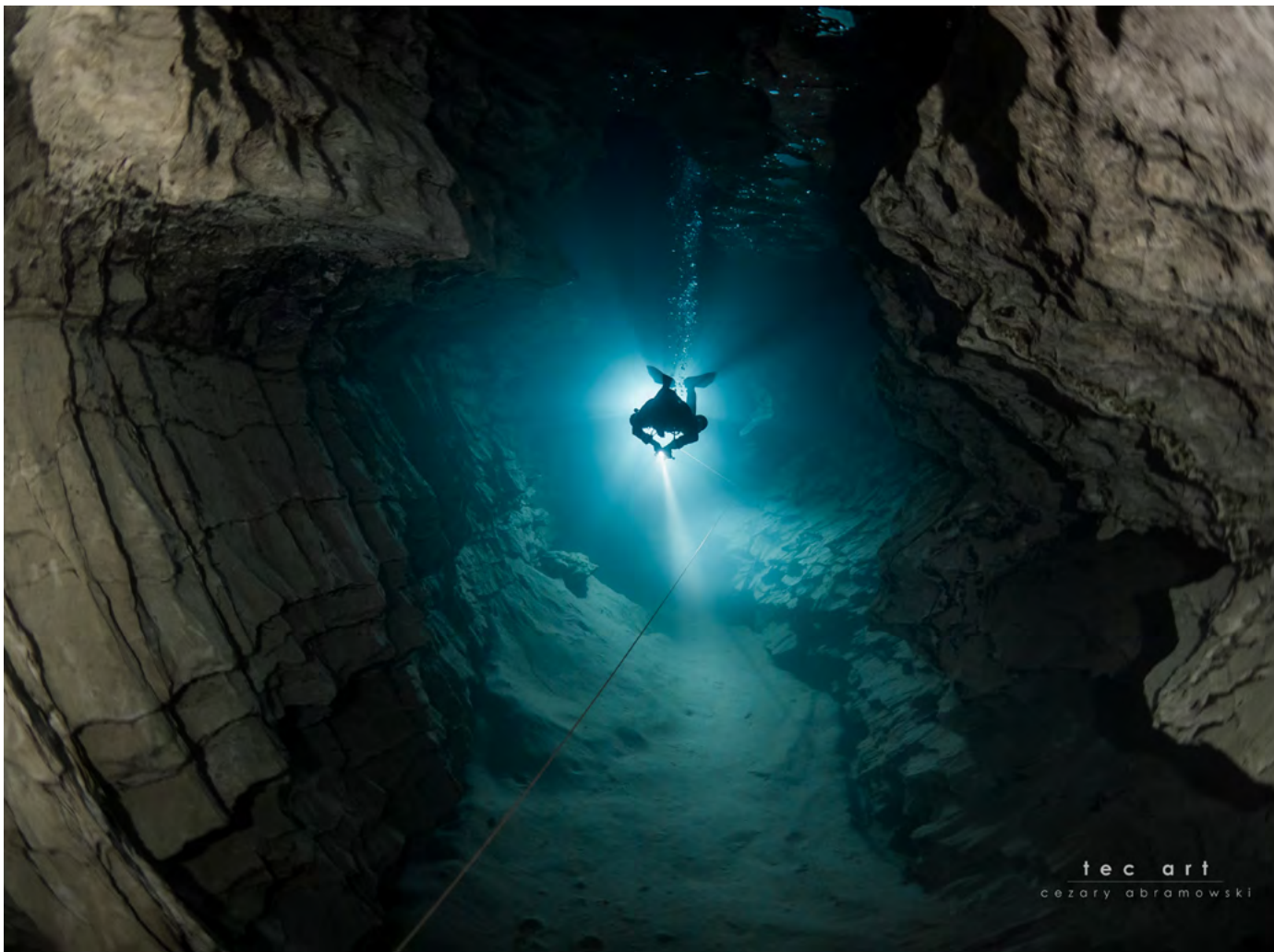
**The open spaces of the Molnar Cave. OLYMPUS E-M1 with OLYMPUS housing. 2x INON D-2000 strobes. ISO 640; 8mm; F/1.8; 1/40s. Background highlighted with Trojan Fatman Video Lights. Photo by CA**

Follow all the procedures that you have learned on your cave diver course.

As you are approaching the main chamber on your way back the water temperature rises back to 27 degree. It will make your deco more pleasurable. You can make yourself comfortable at the deco bar. It is a good time to review the pictures from your camera.

In January I was invited by

Cezary “Czaro” Abramowski to a photographic project in Molnar. Cezary is a cave diving instructor and very experienced technical diver. He has realized a few ambitious diving projects in Egypt and Mexico. Together with Artur Caputa and Rafal Tomaszewski we were diving for a few days to document the beauty of the place. Underwater caves provide photographers with some challenges. First and obvious is lack of the



*This composition was inspired by Stanley Kubrick's favorite one-point perspective. OLYMPUS E-M1 with OLYMPUS housing. 2x INON D-2000 strobes. ISO 800; 8mm; F/1.8; 1/40s. Background highlighted with Trojan Fatman Video Lights. Photo CA.*

natural light. If you turn off all the lights you start to understand the term pitch black. To capture the depth of the space in the wide chambers or long corridors you need an additional source of light on top of strobes installed on the housing. One option is an additional strobe with photo cell that will

remotely fire the flash.

The second option is video lights. We went for the second. I was using a SONY A6000 with wide angle 10-18 lens, double INON Z240 strobes. On top of that Rafał and Artur were equipped with Trojan 13 000 lumens video lamps to highlight



*One of the spatial passages. Walls were beautifully shaped by water flow. SONY A6000 with Nauticam housing. 2x INON Z240 strobes. ISO 1600, 10 mm; F/4; 1/60 sec. Photo AK*

the far background. Permanent lights will provide you with less power than strobes. At the same time they allow for more control over the frame and are helping your autofocus all the time. However in order to capture further background you need longer exposure times so further objects might be



*Artur reaching intersection at the wide chamber. SONY A6000 with Nauticam housing. 2x INON Z240 strobes. ISO 1600, 10 mm; F/7.1; 1/25 sec. Background highlighted with Trojan Fatman Video Light. Photo by AK*

less sharp. I was also using a trick of directing strobes away to deflect the light from the bright walls of the cave. Overall we had a great time and I do hope you will enjoy the results of our work.

Diving in Molnar Janos Cave is an amazing experience. Big open spaces, narrow passages, beautifully shaped rocks and even life. Yes in some places you can find living creatures – small creatures from freshwater amphipod genera.

It is truly surprising how such a big system can be hidden just below the streets of the big European City.

The project was supported by TROJAN dive lighting

<https://trojandiving.pl/gb/>

### Adam Kellermann



### Cezary "Czaro" Abramowski



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DeepExplorers

# French Polynesia

## Part 1: High Islands

by Jean Michel Machefert

This year we decided to visit a dream place we'd never been before: French Polynesia.

This location is far from Europe but quite convenient to reach. The international airport of Faa'a close to Papeete on the island of Tahiti has direct flights to Los Angeles (8h flight) and also to Auckland or Hawaii and even to Japan. Then from Faa'a local planes comfortably dispatch the travellers to all the most important islands of the French Polynesia.

French Polynesia is a group of 118 islands and many more islets located almost in the middle-south of the pacific. These islands are constituting 6 archipelagos: Marquesas Islands, Society islands, Tuamotu Archipelago, Gambier Islands, Austral islands and bass islands.

All these islands are scattered over more than 2000 kilometers (almost the same surface as Europe) and from a geological point of view they can be separated in high islands (islands with a mountain) and low islands (also named atolls) looking like a ring at a very low altitude.

Before going underwater let me explain some important geological phenomenon with some importance for divers.

The archipelagos of Polynesia are created on hot spots under the tectonic plate of the pacific. The hot spots could be considered as spring of liquid magma and at their location the earth crust is



*Panoramic view of the bays on the north coast of Moorea from the Beledere. Olympus tg5 (mode Panorama), 7.86mm, 1/200, f11 ISO 100*

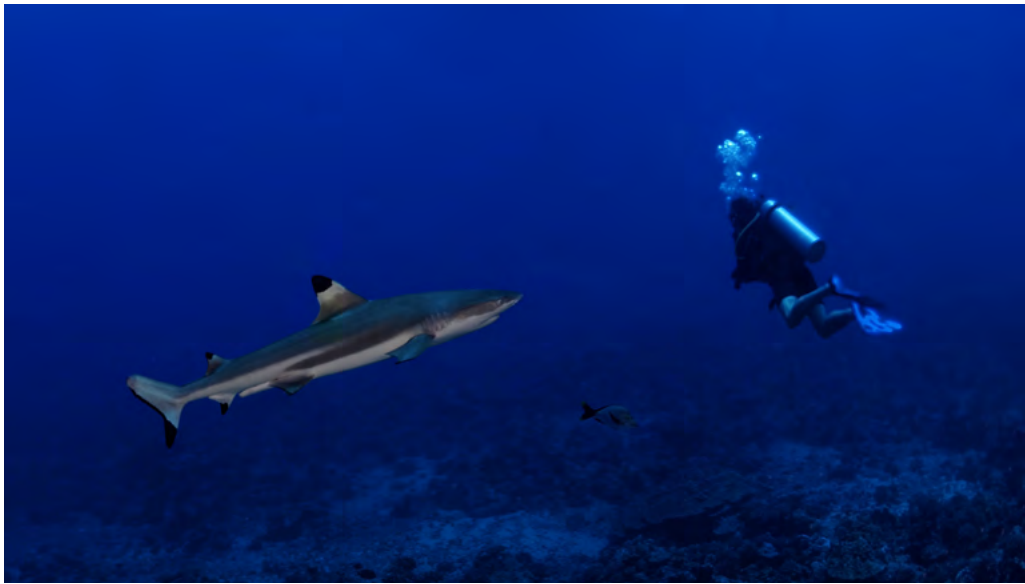


*Black tip on the reef barrier in Moorea. Nikon D2x, housing Aquatica, Nikkor 10.5mm, 1/ 125, f 10 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, 1/2 and 1/4 power*

pierced by the magma creating a volcano growing to build an island as soon as it develops over the surface of the sea.

The pacific plate moves to the North West

over the hot spot staying at the same place with an interrupted activity. Then a new volcano (island) is created at each sequence of eruption. When the plate moves away from the hot spot it cools with an



*Black tip shark looking at a diver on the reef barrier in Moorea. Nikon D2x, housing Aquatica, Nikkor 10.5mm, 1/ 125, f 10 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, 1/2 and 1/4 power*

*Trigger fish over a boulder of hard coral in Moorea . Nikon D2x, housing Aquatica, Nikkor 10.5mm, 1/ 125, f 10 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, 1/2 and 1/4 power*

increasing density and also under the weight of the volcano the bottom of the island goes deeper and deeper.

As a consequence with such phenomenon and with the erosion of the original volcanoes the older islands have a lower altitude and are more flat than the younger.

Indeed these geological phenomenon is very important for the diver. We are in tropical water and the coral needing sun and warm water grows in shallow depth at the edge of the volcano and continues to grow

vertically toward the surface when the volcano goes deeper.

At the beginning the coral built a reef around the volcano and after several millions of years the volcano is eroded and its bottom is deep enough to be fully covered by water but the coral is still there at the surface creating a big ring around the former volcano. Inside this ring this is the lagoon with shallow water. Now it's time to dive.

Since we arrive in Tahiti we decide to go by ferry (30 minutes) to





*Red fish on the reef in Moorea . Nikon D2x, housing Aquatica, Sigma 17-70mm at 26mm, 1/ 60, f11 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, 1/2 and 1/4 power*

the high island of Moorea at 17 km from our landing place. Moorea is for sure the most convenient location for some rest and the first dives after 21 h of flight (from France) even if there are some diving spots in Tahiti near Papeete.

Moorea was formed as a volcano about 2 million years ago. Now Moorea is a high island with an altitude of 1207m over the sea at the mount Tohi ea (the total height to consider is close to 3000m since the sea bed close to the shore line is near 1500m under the surface) and a

barrier reef goes almost completely around the island with a small lagoon between the volcano and the barrier.

With such barrier reef only 20 minutes of boat in the lagoon along the overwater bungalows built by international hotels are required for going to the place of the first dive close to the outer side of the barrier. The spot is almost 20m deep without too much current. Perfect for a first dive!

As soon as the boat stops a couple of black tip sharks are still waiting for us. We enter into the



*Turtle in the middle of hard coral bushes in Moorea . Nikon D2x, housing Aquatica, Nikkor 10.5mm, 1/ 125, f 10 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, 1/2 and 1/4 power*

sea followed by our sharks looking indifferent and staying at a reasonable distance (too far for my wide angle!).

The bottom is covered by many varieties of hard corals either forming bushes or small plates looking more or less as petals of roses.

Each bush shelters a big number of small fishes (anthias, damselfishes, chromis...) going back deeper between the boughs of coral as soon as they detect a move of water. At some locations clown fishes do their job consisting in defending their anemone against every kind of

predator and also from photographers. On the bottom in the middle of the corals some turtles are also used to stay and eat very well camouflaged. Some others are deeply entering into the cracks of the reef for resting without any risk of shark attacks.

Of course during all the dives the black tip sharks are not really far but always friendly and by chance for the photographer time to time they turn closer around the divers giving us the chance of nice pictures.

Between the areas covered by corals there are some patches of sand



*Clown fish on the reef in Moorea . Nikon D2x, housing Aquatica, Nikkor 10.5mm, 1/ 100, f 13 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, 1/2 and 1/4 power*

on which this is possible to see some white tip sharks lying on the sand always at locations with a discernible flow of water.

In Moorea there are other fishes more aggressive than black tip sharks: triggerfishes! as soon as you are over them they feel attacked and they rush on you with open mouth ready to bite and they do until you go under them.

They also are not very honest between them. The triggerfishes like to eat starfishes and in Polynesia starfishes are sometimes hidden deeply into the coral bushes and some small triggerfishes succeed time to time to extract them. But if a bigger triggerfish stay in the surrounding area he will wait until the end of the extracting process by the smaller and rush on him right after for stealing him the starfish.

All the dives and diving clubs are located on the north coast of Moorea and one of the particularity of Moorea is that lemon sharks can



*2 Black tip sharks on the reef barrier in Moorea. Nikon D2x, housing Aquatica, Nikkor 10.5mm, 1/ 125, f 10 , ISO 200 , 2 strobes nikon Sb 910, Patima housings, 1/2 and 1/4 power*

be observed close to the reef barrier and that they come close to the divers with more curiosity than aggressiveness. This is one of the few locations in the world with such behaviour of lemon sharks. Why? Because of a former touristic village.

In this famous “all inclusive” holidays organisation a big quantity of food was scrapped every day, and the best way to scrap it was at that time to throw it in front of the pass close to the village. Rapidly sharks were interested by the food and even species not frequently seen close to the shore as lemon sharks. The scrapping practice stopped suddenly when some tiger sharks took the habit to swim between the tourists at few meters of the private beach of the village... Now this village is closed (since 2001) and the shark feeding is regulated (shark feeding is only authorized outside

of the barrier at a minimum distance of 1km from a pass).

Nevertheless lemon sharks continue to be friendly (at a reasonable distance if you do not feed them) and close to the shore in Moorea. They are much shinier on the other islands of Polynesia.

One more comment on the dives in Moorea. All the pictures shown in this article were taken on this north coast of the island without feeding nor disturbing the animals and the environment (at least as much as a photographer not disturb the environment). For sure by looking carefully in books or on the web this is easy to find many much more attractive pictures of Moorea with plenty of lagoon sharks, sting rays... coming almost in contact with the front lens of the camera. Such pictures (most of the time split shots with an islet

at the background of the lagoon) are taken on the south east coast of Moorea either at 11h30am or 2pm in a sea park where the species are fed by guides.

So to conclude this first part of the trip in Polynesia, Moorea is a perfect place for diving right after the long flight required for arriving in Polynesia. The water is crystal clear, the diving spots are close to the shore, not too deep, and now the sharks and all other species are easy to see and to photograph. For the macro photographer there are also a lot of tiny life inside the coral reef for never ending dives...

But Polynesia is also the place of low islands named atolls with pass acting as concentrators for fauna creating then unique places for divers and photographers. Among all the islands of Polynesia, the archipelago of the Tuamotu with 76 atolls is really the place to go for discovering the flat islands of Polynesia, and sceneries completely different from what we have seen in Moorea.

This will be In the next issue of UWP magazine where we will show some pictures of the famous

pass of Rangiroa with hundreds of sharks living just in front of it. We will also show the reef and the pass of the atoll of Tikehau close to Rangiroa and known to be ( as J Y Cousteau said) the atoll with the richest marine life in the south pacific.

## Jean Michel Machefert

*Jean Michel began to dive in caves, lakes and the oceans in 1987. He started underwater photography in 1992 using a Nikonos IV. After shooting many years with a Nikon D70 he now uses a Nikon D2x in an Aquatica housing with 2 Nikon SB910 strobes in Patima housing.*

[www.jmfrog.com](http://www.jmfrog.com)



Since 1985, Raie Manta Club offers the best dives in Rangiroa (French Polynesia). Enjoy close encounters with the 'very big's'. Special care for photographers and rebreathers



# 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 publication 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](mailto: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 1

So, there I was, nearing the end of my dive and my trip, hanging over the deck of the Fujikawa Maru, one of the most famous ship wrecks in all of Truk Lagoon - if not the world. Looking down to the sandy bottom around 90ft I saw a large marbled stingray sifting through the sand having a late afternoon snack. I had the perfect lens on my Nikon D2x, my 12-24mm zoom, wrapped in my Subal housing with the 9in dome port.

Looking at my gauges, I had enough air, but not enough bottom time without going into deco. Being this was our last day of diving, I felt confident in my abilities to safely go into deco without a problem, and this opportunity only comes along only once in a lifetime I did what any avid underwater photographer would do - over the side and down to the sandy bottom I went.

Creeping up slowly on this beautiful stingray, I began taking pictures as I started to close in, only to realize that one of my two flashes was out of power. No worries, being that I was working with my Ikelite SS200s, I knew one would be more than enough to light the subject if positioned correctly. So, I carefully and slowly repositioned my flash so

as not to spook my new best buddy and kept creeping up until I was close enough that she/he filled my viewfinder. After a few more pics I took a look at my Suunto wrist computer and was shocked to see, again plenty of air, but how deep I was in deco - my Suunto required a mandatory 20+ minute deco stop. A few more pictures and off I go on a very slow ascent for a very long deco stop.

The good thing about the Fujikawa Maru is that a deco stop isn't like most, where you are hanging in mid water under the dive boat counting down the minutes. At the Fujikawa Maru you can explore the tops of two king posts that lie between 15-20ft below the surface. So, as I drained my tank down to a couple hundred pounds of air paying my fine to the nitrogen police I was able to explore the life encrusted king posts and recount the great 10 day trip my friends and I had exploring Truk Lagoon from our home base on the Odyssey.

Being that the marbled Stingray isn't a particularly colorful critter,



*Nikon D2x, 12-24mm Nikon D, Subal Housing, Ikelite SS200. ISO 100, f9, 1/100 sec*

I thought it best to convert this to grayscale and a 12"x18" print happily hangs on my wall reminding me of my adventure.

**Doug Wakeman**



**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](mailto:peter@uwpmag.com)

# Parting Shot 2

I take a camera every time I am in the water not so much because I enjoy taking pictures. It is more for my students who love seeing themselves diving and being able to share their experience.

I am a freediving Instructor from Greece but for the last years I spend a lot of time in Indonesia where people can not have enough of Freediving. Schools in north of Bali are multiplying and are busier than ever. After working the high season (May-Oct) in Amed and spending my days in Jemeluk bay and Tulamben, this off season, I found myself in Jakarta where most of the training takes place in pools. The freediving community here books a 5m pool for courses or training and in the end of the day it is “picture time”. One of the things that I found out working in this part of the world is that people here take their pictures and social media a lot more seriously than back in Europe. The tradition of “picture time” is very important for them. I am starting to think that they suffer me and the training only for the pictures in the end.

“Picture time” always starts with the group picture which is never a success in terms of coordination or posing but it is always fun.



*Canon EOS 550D, Sea & Sea RDX-550D housing, Tokina Lens Fisheye 10-17 F3.5-4.5 DX  
11mm 1/60s @f/5.0 ISO 800 -1 stop P mode*

**Nicholas Kouvaras**  
[www.freedivingsociety.com](http://www.freedivingsociety.com)

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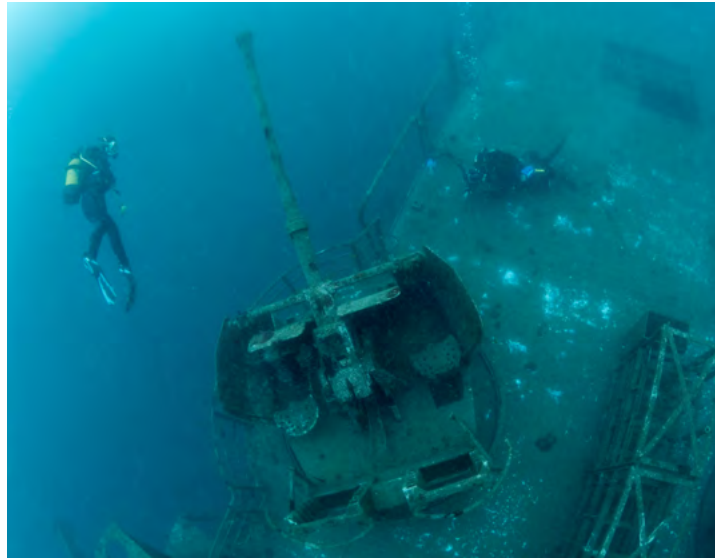
[peter@uwpmag.com](mailto:peter@uwpmag.com)  
If so, yours could be in UWP109

# Parting Shot 3

Following the sinking of an ex-Portuguese Navy corvette in Porto Santo, Madeira's archipelago, in 2016 (UWP-92), a new corvette was sunk this time in the Madeira Island. This will be the first of a new group of three ex-Portuguese Navy ships, that were made available by the Portuguese Navy to be sunk in the mentioned archipelago.

This ship, the Afonso Cerqueira, was sunk on the south coast of Madeira, near the famous Cabo Girão, and will be followed by another corvette (84 meters long), and a smaller patrol boat (44 meters long) hopefully until the end of 2020, and all on the south coast of the island.

The Cerqueira was sunk last September, by the Portuguese Navy team that had already sunk the previous one, and sits on a sandy bottom of 30 meters, making it available for almost all divers. All possible materials pollution materials were, as usual removed. All the inside was prepared for the safety of the divers, with open spaces (sometimes to big that decharacterized a bit the inside). This time not only the propellers were sunk with the ship, but also the three guns, giving the photographer's more interesting themes to shoot.

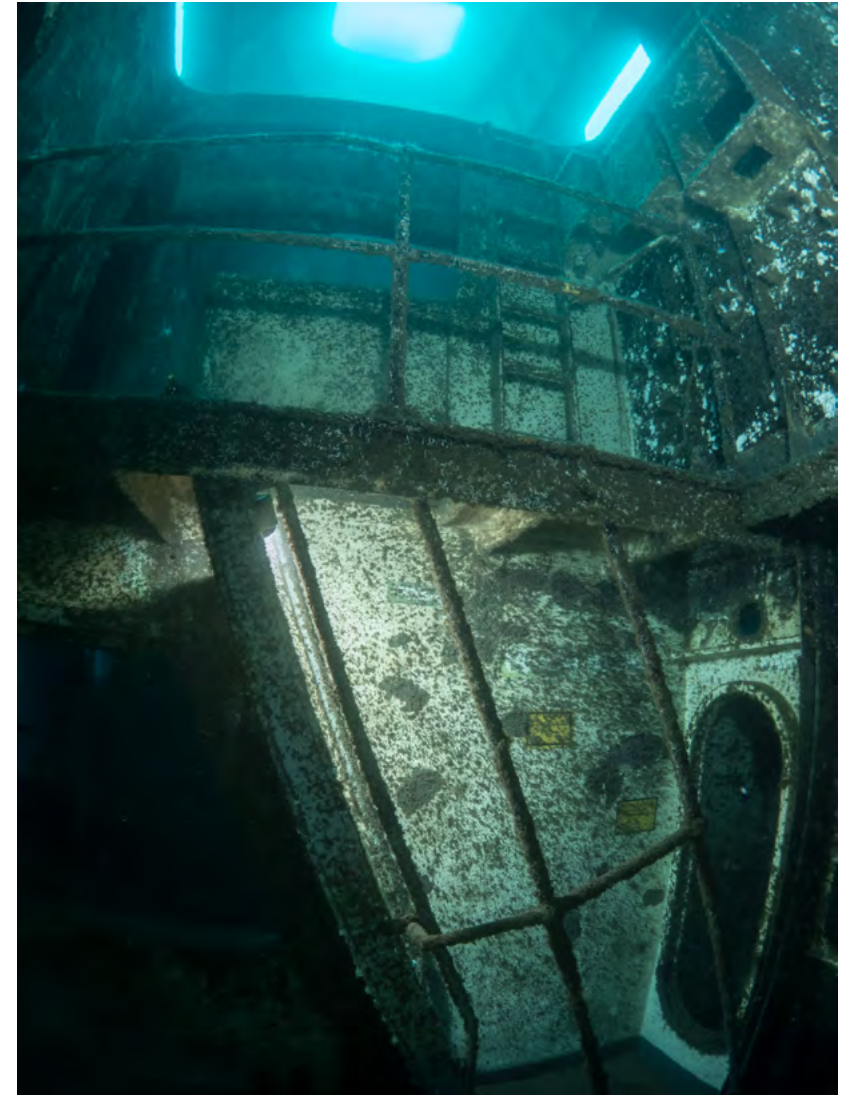


Although in the summer the water in the area is mostly crystal clear, on my dive this early Abril it wasn't. Some heavy rains had fallen, plus some unusual wind brought sediments to the area, reducing the visibility.

Life is starting to attach to the wreck, mainly smaller fishes and, at least, two octopus. The very thin volcanic sand is also getting inside the wreck, so divers have to be careful not to disturb it, or it will ruin photographer's life...

Unfortunately, no dive centers in the nearest town, so divers will take, at least a 25 to 45 minutes ride from the existing dive centers. One wonders why the first one was sunk in this place...

*Olympus M1 Mk2, Nauticam housing, Olympus 8 mm, f/8, 1/40, Zen dome, 2 Inon Z240 strobes plus another Inon Z240, on slave mode inside the wreck, camera settings - f/5.6, 1/20*



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[peter@uwpmag.com](mailto:peter@uwpmag.com)

**Augusto Salgado**

Yours could be in UWP109

# Parting Shot 4

Recently I decided to make the trip from Greece to Sudan for a livaboard trip onboard M/Y Andromeda, with intention to do the Sudan ultimate route which include some of the best dive sites in Sudan like S.S Umbria wreck, Shaab Rumi, Sharan Annat South and many more.

I must say here that I am diving for ten years and the last two years I started trying underwater photography with DSLR and I love wide angle photography so I thought Sudan will be perfect for practice. Sudan is perfect for that, it has beautiful wrecks, lots of sharks, big groups of pelagic and pristine reefs. The dives are usually deep and with current so we can track the big pelagic species.

Although the first day was great with very good weather and the dives was relaxing and easy, the next three days was windy with rough sea, strong current and bad visibility, something that didn't help me a lot considering that I am new in underwater photography. And unfortunately it was the days that we were in the places that was best to see pelagic species, sharks ( reef sharks, hammerheads, silky etc.) we encounter for example a big group of hammerheads but it was deep and my nitrox didn't allow me to get close

to them! In another case we saw two big adult grey reef sharks but the visibility was really bad! The fourth day the weather was a bit better, we saw a lot of big groups of barracudas, sea turtles, and many other interesting and fascinating stuff and I made some photos that I was happy with, but I was disappointed because I didn't have any good shark photo that I will be happy with, at the moment I didn't know the present mother nature had for me!

Fifth day during our first dive and at the time of our safety stop, I was relaxing and put away my camera, I saw from distance a familiar siluet approaching us! A shark, a baby girl! She came straight to me, I barely had time to prepare my camera and although I burn a lot of good poses due to camera settings, I manage to calm (I was extremely excited) adjust the settings and make this photo! The little baby girls stayed with us for about ten minutes approaching and investigating everyone in our team!

The next days we had some really nice reef dives and one of the best wreck dives in red sea the S.S Umbria. The overall trip and dive experience of my trip to Sudan was great it is a must dive destination! And I must say a big thanks to our



© Skordas Stamatios

*Camera Canon 7D Mkii, Canon 17-40, ikelite housing and 2 DS 161 flash set to minimum, ISO 160, F stop 7.1, Exp. 1/160 sec, shutter priority.*

dive guide Sapry (I hope the spelling is correct if not Sorry my friend) that he was very good in pointing us the best life in the dives and trying always our group to be the first on the dive sites (a big must for example if you dive S.S Umbria and there are four more livaboard around and you like to make good photos) and keeping us safe!

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[peter@uwpmag.com](mailto:peter@uwpmag.com)

**Yours could be in UwP109**

**Stamatis Skordas**

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