

Inspiring People to Care About our Oceans Since 1995

DIVERS FOR THE ENVIRONMENT

WWW.EMIRATESDIVING.COM | MAGAZINE | MARCH 2019 | VOLUME 15 | ISSUE 1

BYRON BAY DOWN UNDER

DISCOVER THE HIDDEN
GEMS OF JULIAN ROCKS

BLUE WITH VOX CINEMAS • DIVE MENA EXPO • THE PARTING OF THE SEA • SUCCESS FOR SHARKS • AQUANAUTS TO ASTRONAUTS • ENTER DIGITAL ONLINE • EQUIPMENT REVIEWS

DIGITAL ONLINE

EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMPETITION

THE SUBMISSION ENTRY DEADLINE:

Sunday, 28th April 2019 at 11:59 PM (GST) emailed to photo@emiratesdiving.com

AWARDS & EXHIBITION OPENING NIGHT:

22nd May 2019 at The American University in Dubai (AUD)

WHAT CAPTURES YOUR IMAGINATION?



THE EVENT



DIGITAL ONLINE
جمعية الإمارات للغوص
EMIRATES DIVING ASSOCIATION
PHOTOGRAPHY AND FILM COMPETITION

AN EVENT BY



EDA
جمعية الإمارات للغوص
Emirates Diving Association

EXHIBITION HOST

AUD

AMERICAN
UNIVERSITY
IN DUBAI

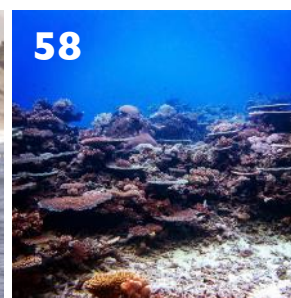
School of Architecture, Art and Design

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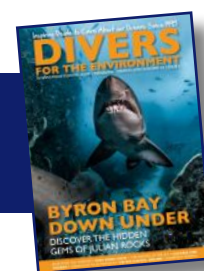
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DIVERS FOR THE ENVIRONMENT

Please note that EDA's magazine, 'Divers for the Environment' includes articles written by individuals whose opinions, whilst valid, may or may not represent that of EDA's. The magazine is a platform for individuals to voice their opinion on marine and diving related issues. You are welcome to suggest an article for the next issue released in June 2019. Send all articles, feedback or comments to: magazine@emiratesdiving.com

COVER

PHOTO BY SIMONE CAPRODOSSI
Discover the Hidden Gems of Julian Rocks, Byron Bay



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KIDS CORNER – FONT USED: **DYSLEXIE FONT**

Dyslexie font has developed a typeface especially for people with dyslexia called Dyslexie. People with dyslexia have problems distinguishing some letters. They sometimes turn, mirror and switch letters whilst reading. The Dyslexie typeface targets these problems by altering the shape of the letters so they are clearly different from any other letter. As well as this, the spaces between the letters are improved and capitals and punctuation are bolder so people with dyslexia don't read words or sentences together anymore. Representative research among many dyslexics has now shown that the font actually helps them with reading texts faster and with fewer errors.

EDITOR & DESIGNER

ALLY LANDES

Ally is EDA's Project Manager, Graphic Designer, Writer, Editor, Photographer & Videographer. She created and introduced 'Divers for the Environment' back in December 2004 as an educational tool to share information by professionals, conservationists, scientists and enthusiasts from all over the world, to better care for and protect our underwater world.



COVER STORY AUTHOR & PHOTOGRAPHER

SIMONE CAPRODOSSI

Simone is an award winning Italian underwater and travel photographer. He lived in Dubai for 12 years and has been a main feature contributor to the EDA Magazine and is one of EDA's Digital Online competition judges. Simone now resides in Australia where he owns and manages the Sundive dive centre in Byron Bay.
www.sundive.com.au | Instagram: @scaprodossi



THE QUARTERLY CONTRIBUTORS

Meet the regular magazine contributors who share their passions and interests with our readers. Want to contribute? Email: magazine@emiratesdiving.com

LEVENTE ROZSAHEGYI

Levente started photography back in 2001 and has travelled various parts of the world since 2005. He takes photos both under and above the water, sharing his experiences and highlighting environmental issues. His underwater photography has won him several international competition awards.
Instagram: @levente.photography



MARISA ENGELBRECHT

Marisa is South African born, and has lived in the UAE for 19 years. She started diving in 2014 and has never looked back. With a passion for photography, diving and travel, Marisa spreads knowledge through her writing and photography on her social media platforms on the importance of stepping up and looking after our incredible oceans and planet. Be the voice.
Instagram: @oceanangel_photography



LAUREN WARNELL

Lauren is a journalist, professional diver, underwater photographer and marine conservationist. She is based in Indonesia and travels to little-known remote locations to work on reef monitoring programmes each year.
Instagram: @laurenasunshine



PATRICK VAN HOESERLANDE

Diving opens up a whole new world. Being a writer-diver and co-editor of the Flemish divers magazine, Hippocampus, Patrick personally explores our underwater world and shares his experiences through his articles. You'll find a collection of them on www.webdiver.be.



EDA'S 24th YEAR IN THE YEAR OF TOLERANCE



IBRAHIM AL-ZU'BI
EDA Executive Director

I would like to welcome you all to the March issue of 'Divers for the Environment'. Tolerance is a virtue and an intrinsic part of Islamic culture. It is observed at all levels: individual, organisational and national. With more than 200 nationalities living peacefully and successfully in the UAE, the UAE society has been an undisputed example of being a tolerant and inclusive country. Now, the Federal Government is keen to promote acceptance and understanding as core values of the society. On the 15th December 2018, HH Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE and Ruler of Abu Dhabi, declared 2019 as the Year of Tolerance. The announcement aims to highlight the UAE as a global capital for tolerance, and its approach – since its establishment – to be a bridge of communication between people of different cultures in a respectful environment that rejects extremism and emphasises on the acceptance of others.

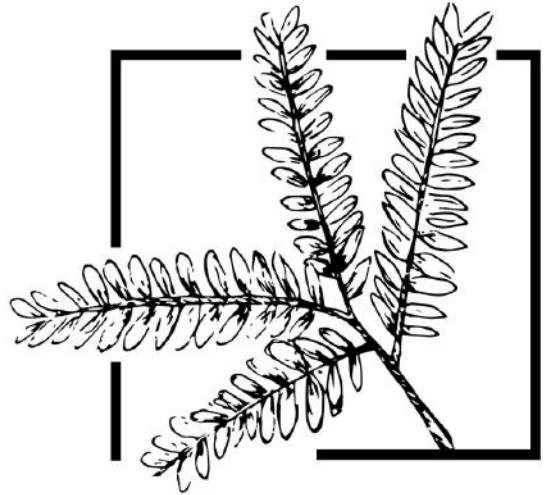
The Year of Tolerance will focus on five main pillars:

- To deepen the values of tolerance and co-existence among cultures by teaching the youths the values of tolerance.
- To solidify the UAE as the global capital for tolerance through a series of initiatives, projects and dialogues between various cultures and civilisations.
- To implement multiple cultural programmes and make contributions to build tolerant communities.
- To focus on legislative and policy-oriented objectives that contribute to mandating cultural and religious tolerance via dialogue.
- To promote tolerance through targeted media initiatives and projects.

The late Sheikh Zayed bin Sultan Al Nahyan inspired the last 24 years of tolerance, marine conservation and voluntarism, and he will continue to be our inspiration for years and generations to come. His years were spent protecting a national treasure so that others may enjoy them as well. That is what EDA stands for. By giving his blessing to establish this organisation back in February 1995, the late Sheikh Zayed bin Sultan Al Nahyan, not only placed conservation as a priority for us to uphold, but inspired us to bring about change ourselves. I want to take this opportunity to show my appreciation to all our members from all nationalities and our multicultural staff for the dedication, loyalty and enthusiasm that they've demonstrated throughout this journey. Of course, none of what we have accomplished so far would have been possible without the leadership and visionary thoughts from our Board of Directors. I'm confident that the next 24 years will hold even more achievements we can be proud of.

As this is our first issue of the year, I would like to take this opportunity to thank our sponsors, we are grateful for the financial support they have given EDA to enable us to continue our mission of conserving and protecting the UAE marine resources. We salute them for being environmentally responsible organisations and we hope that our partnership will last for a long time.

Dive MENA Expo 2019 – The Leading Diving Exhibition in the region will be late February this year in its temporary location at the Dubai Canal, Jumeirah, where the diving community of the UAE and the region meets alongside the Dubai International Boat Show to discuss



YEAR OF TOLERANCE

diving updates and share the latest gear in diving equipment. We are looking forward to seeing you all there.

I am looking forward to this year's Digital Online award ceremony – EDA's Underwater Photography and Film Competition – with lots of underwater photography and videography gurus participating and sending EDA amazing images of the varied marine life from all the places our members have dived. I want to thank the members of the jury and wish them luck in their tough job of judging all the photos and videos.

I also want to take this opportunity to thank our EDA members who continuously share their insightful diving experiences and underwater images with us. Your insights and articles are imperative in recommending when and where to go diving, as well as what to look out for on the trips. We hope your passion and enthusiasm continues and you continue to send us news and photos of your next diving adventures!

I do hope you enjoy reading this issue of 'Divers for the Environment'. We have a busy year of activities and events waiting for you. The EDA team is working tirelessly to have another successful year and we're looking forward to seeing you all at one of the next EDA events.

Happy reading and dive safe!

Ibrahim Al-Zu'bi

Ibrahim N. Al-Zu'bi

AN EDA MOVIE NIGHT WITH VOX CINEMAS BLUE – JOIN THE MOVEMENT

EDA and VOX Cinemas teamed up to screen the beautiful and passionate documentary 'BLUE', written and directed by Karina Holden, for EDA's first Movie Night of 2019 on the 6th of February in Mercato Mall. It was a great turnout. A big welcome to our new members who joined us to watch this film. We look forward to seeing you all at the next 3 movie nights of the year. Check our social media platforms regularly for updates.



FILM SYNOPSIS

Half of all marine life has been lost in the last 40 years. By 2050 there will be more plastic in the sea than fish.

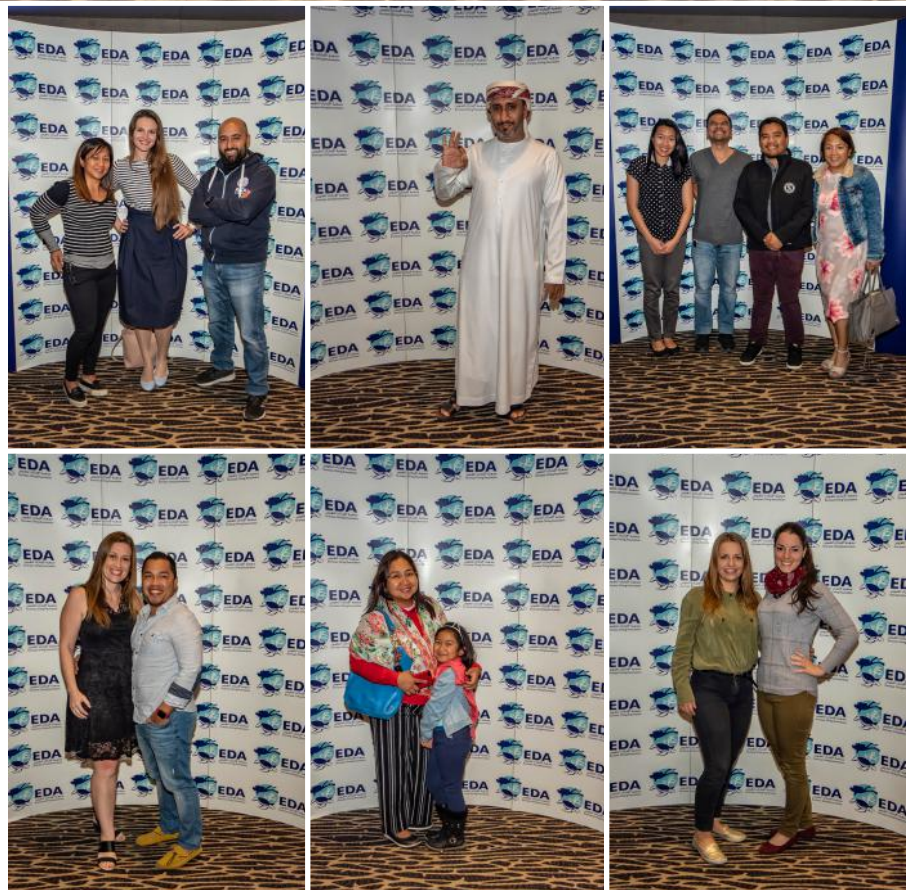
The way the ocean operates is different to how we thought of it 100 years ago. We can no longer think of it as a place of limitless resources, a dumping ground, immune to change or decline.

BLUE takes us on a provocative journey into the ocean realm, witnessing a critical moment in time when the marine world is on a precipice. Featuring passionate advocates for ocean preservation, BLUE takes us into their world where the story of our changing ocean is unfolding. We meet those who are defending habitats, campaigning for smarter fishing, combating marine pollution and fighting for the protection of keystone species.

This feature documentary comes at a time when we are making critical decisions that will decide the legacy we leave for generations to come.

BLUE shows us there is a way forward and the time to act is now.

www.bluethefilm.org





THE DIVE MENA EXPO

CO-LOCATED WITH THE DUBAI INTERNATIONAL BOAT SHOW

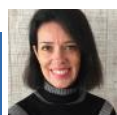
The Dive MENA Expo held on the 26 February - 2 March 2019, is co-located with the Dubai International Boat Show offering everything that a scuba diver can imagine – from the most advanced equipment on the market, to product showcases, demos and speaker presentations.



DIVE TRACKS

Scuba Diving is a strange and reverential experience – meet with our fabulous line up of speakers about all things diving – from marine life, underwater photography, local dive spots to marine conservation, adventure and more!

THE SPEAKERS AND SCHEDULE



CHRISTELLE HOLLER

Christelle was born in the South of France and has been living in French Polynesia for the past 20 years. She founded Tahiti Private Expeditions – leaders in VIP customised diving trips, and provides expert guides to visiting superyachts to the islands of Tahiti. Christelle has been involved in ocean conservation projects for many years, working closely with Oceana, Conservation International and The International SeaKeepers Society.



NICO GHERINICH

Well known in the diving industry as a technical diving instructor, underwater cameraman and diving officer of a world leading dive liveaboard fleet on Cocos Island and Malpelo, Nico is also a closed circuit rebreather diver, submarine pilot and has guided more than 50 superyachts on their cruises all around the Eastern Tropical Pacific.



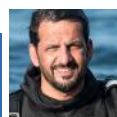
IMRAN AHMAD

Imran is Asia's most celebrated and internationally well-known underwater photographer. He has captured the magnificence of life both above and below the water's surface for over 20 years. His style is different from anything seen before. He is known for his experimental photography with light and motion. He is an Ocean Ambassador for Blancpain (Edition Fifty Fathoms), SEACAM (Austria), MARES (Italy), DAN Insurance RGB Lights (Japan), and a member of the Ocean Artist Society (USA).



ERNST VAN DER POLL

Ernst was born in South Africa and lived most of his life there next to the ocean, which has helped shape the person he is today. He moved to Dubai in 1999, where he spent 12 years of his life and started his career in the diving industry. As a PADI Course Director, he was the diving instructor to the Crown Prince of Dubai. Ernst runs his own PADI dive centre and swimming academy in the town of Las Catalinas in Costa Rica where he teaches adaptive diving for people with life-changing injuries.



ALI BIN THALITH

Ali is a professional documentary film photographer hailing from Dubai in the United Arab Emirates. He is also the current Secretary General of the Hamdan bin Mohammed bin Rashid Al Maktoum International Photography Award (HIPA). As an underwater photographer, he has participated in many underwater expeditions throughout Asia, notably in Indonesia's Raja Ampat Islands and Sipadan in Malaysia.



FRANCIS UY

Francis learnt to scuba dive in Mindanao, Philippines in 1998, fell in love and made his career move exploring the Caraga region to promote diving for different government agencies in the Philippines, such as the Department of Tourism and the Bureau of Fisheries & Aquatic Resources. He's worked as a travel photographer for a national newspaper and travel magazine and then moved to Mactan Island, Cebu as a PADI dive professional intensively having dived the Visayas region. He moved to Dubai 15 years ago and is considered one of the most experienced PADI Course Directors in the Middle East. Francis currently works as a Dive Safety Officer, underwater photographer and organises local and international dive trips, especially to his beloved country, the Philippines.

	28 FEBRUARY 2019	1 MARCH 2019	2 MARCH 2019
5pm	Christelle Holler – Tahiti Private Expeditions and Nico Gherinich – Sea Masters	Ernst van der Poll – Connect Ocean	Francis Uy – PADI Course Director
7pm	Imran Ahmad – Escape INC	Ali Bin Thalith – Secretary General HIPA Awards	

STRAP ON A TANK & BREATHE!



www.scubadiving.ae

Take your first underwater breath in our fabulous new 11 metre long dive pool. Lead by the Bermuda Diving Center team of PADI professionals, these trial sessions will introduce you to the joys of the underwater world. Discover training on basic scuba skills, dive gear and equipment set ups, and scuba dive sessions.

The Dive MENA Expo will open up a whole new world of discovery and adventure below the water's surface that can be enjoyed by everyone, young and old.

**EMIRATES DIVING ASSOCIATION
STAND NO: D-09**


Inspiring People to Care About our Oceans Since 1995!

EDA is a non-profit voluntary federal organisation accredited by UNEP as an International Environmental Organisation. Our mission is to conserve, protect and restore the UAE marine resources by understanding and promoting the marine environment and promote environmental diving. Divers can prove extremely utile in conserving the marine environment through observing, reporting & preventing environmental abuse.

Come on over to say hello to the EDA team and collect a copy of EDA's 2019 March magazine issue, 'Divers for the Environment'.

For more information about EDA, go to www.emiratesdiving.com

**DELMA MARINE
STAND NO: D-106**


Delma Marine was established in 1976 under the name of "Delma Industrial Supplies & Marine Services, Est." (DISMS), making it one of the oldest marine companies in the UAE.

During the Dive MENA Expo we're going to highlight the latest Beuchat products. Beuchat is an international and well reputed diving brand that was born in 1934 in Marseille, France. Beuchat has evolved for the diving market and is currently working with a huge range of products: scuba diving, snorkelling, free diving, spear fishing, triathlon wet suits and sports wear clothing. We'll also display the PETER Diving System, a brand born in Mallorca. Its innovation and simplicity makes it a revolutionary multi-user diving system that supplies air from the surface. You can maximize the PETER Diving versatility with many nautical applications such as yacht maintenance, emergency solutions and of course, on board entertainment for your guests.

**AL YOUSUF MOTORS
STAND NO: D-62**


AlYousuf Motors has been the exclusive distributor for some of the world's leading names in the automobile industry since 1953. During this time the company has strengthened immeasurably and grown into a solid enterprise that is renowned for its international brands, network of showrooms, comprehensive service and parts centres and above all, strong customer relationships.

Some of our brands include: Yamaha Motorcycles, ATV'S, OBM, Boats, Wave Runners, Golf Cars, MG Cars, Nolan, Alpinestars, TCX, Oxford, Two Brothers, Jobe, Riva, Phoenix Cars, DFSK, YEL.

The latest addition to the group's portfolio is Big Blue Marine Tours, offering customers fun, lifestyle & fishing and leisure boat trip services. As we move on into the future, our aim is to remain determined to pursue the expansion of AY Group by focusing on maintaining high standards for our organisations, partners and clients.

**GRAND STORES
STAND NO: D-124**


FIFISH – The Remotely Operated Underwater Vehicle from QYSEA is here! Equipped with two 2000-lumen lights and a 1" CMOS sensor that captures 4K video and 20 MP photos, FIFISH delivers brilliant imagery from as deep as 328'. This compact 19x13" vehicle has applications in recreation, commercial photography, underwater rescue, archaeological observation, driving instruction, marine inspection and much more. Mount your smart-phone or small tablet on the dual-joystick topside remote controller and drive the ROV at speeds up to 3 knots (5' per second) for up to 4.5 hours on a single charge. Along with recording video and photos, FIFISH can stream live video at 1080p via your phone and a free app. The vehicle's camera has a top ISO rating of 12800, an f/2.8 aperture and a very wide 162° field of view. FIFISH is distributed in the UAE by Grand Stores LLC.

**BERMUDA DIVING CENTER
STAND NO: D-58**


The Bermuda Diving Center was established in 2017 from young, creative ideas to sum up the beauty and fun of scuba diving by providing new and attractive methods, engaging different age groups and genders to the sport. Bermuda Diving Center is located on Al Wasl road in Dubai. The dive center and staff are all registered under PADI. We have special classrooms using high end technologies and multimedia devices for theory sessions and an in-house swimming pool to practice the skills.

Our dive center presents a wide range of scuba diving and freediving equipment for basic and advanced level divers. The qualified maintenance team are highly trained to fix and repair all equipment brands. The Bermuda tank refilling system is one of the most advanced, fastest and safest systems. We refill 30 tanks in 15 minutes flat.

www.scubadiving.ae

**AMIT
STAND NO: D-114**


مؤسسة عبد الله محمد إبراهيم للتجارة
Abdulla Moh'd Ibrahim Trading Est.

Established in 1981, AMIT (Abdulla Moh'd Ibrahim Trading Est.) is one of the most significant distributors of modern marine and diving equipment found in the UAE and other GCC countries, with an unparalleled quality of customer care and service to both individuals and organisations of the marine world.

With over 30 years of history and genuineness, we boast massive stock of the latest scuba diving equipment available with extensive selections of world-class brands which include: Atomic Aquatics, Yamaha, SEAC, Bare Dive and Zeagle, to name a few.

We dominate in catering the best range of dive equipment to the burgeoning demand of the diving industry with a full range of luxurious, competitive and economical rates on the market.

DIVERS DOWN UAE STAND NO: D-68



Divers Down UAE is the only PADI Career Development Centre in the UAE, GCC and Northern Africa, and meets the highest requirement for training PADI professionals. Located in Dubai and the East Coast, inside the 5 star Miramar Al Aqah Beach Resort and Spa, Divers Down UAE has a fleet of 3 boats which can accommodate any PADI courses and customer needs. We also train divers beyond recreational limits with PADI TEC and CCR.

Divers Down UAE is proud to be the Distributor or Dealer for some of the best recognised products and manufacturers in the world. These include – Dive Rite, Waterproof, TUSA, Shearwater, Deep Blu and Dive Alert, as well as representing others. The shops and the online shop are the largest and best equipped in the GCC.

Divers Down UAE offers a full workshop facility for all of your diving equipment. In their specialised Dive Lab, they can repair regulators, wetsuits, drysuits, and anything else that you have that is related to diving. With over 25 years of experience, their technicians can get you back in the water, with no delay.

www.diversdownuae.com

DELTA STAR STAND NO: D-20

SHARKBANZ REDUCE THE RISK

After three years of testing, design, development, head scratching, wiping-the-slate clean, more testing, and close encounters with our toothy amigos, we released the first version of Sharkbanz (VI) on January 1, 2015. Throughout the process, we were committed to four principles that make Sharkbanz Technology right for just about anyone: effective, simple, affordable, and stylish.

Our goal is to continue to build on our four principles to design products that maximize peace of mind and convenience.

EFFECTIVE – We regularly test Sharkbanz technology in real world environments to ensure maximum performance.

SIMPLE – We like to keep things “simple”, which is why our technology will continue to utilize easy-to-use and convenient shark deterrent methods.

AFFORDABLE – We want every beachgoer to experience peace of mind from Sharkbanz, which is why we will continue to work hard with our manufacturing and distribution partners to offer Sharkbanz for a fair, affordable price.

STYLISH – We believe you shouldn't have to sacrifice style for safety, which is why we strive to make Sharkbanz wearables that are both comfortable and fashion-forward.

www.deltastarco.com

CRESSI STAND NO: D-134



In 1938 two brothers, Nanni and Egidio Cressi handcrafted the first mask and spearfishing gun. Cressi has since produced scuba diving, snorkelling, spearfishing and swimming equipment besides a leisure line named Cressi by the Sea. Cressi already exists in the US, France and Spain, and continues to expand internationally, recently having opened in China, Thailand and Brazil. Cressi products are mostly produced in Italy.

Today we have the same passion as the two pioneers had. The Sea is our life.

MARINE TECH STAND NO: D-120



Seacraft group is specialised in revolutionary DPV – diver propulsion vehicle production. Seacraft scooters are lightweight, extremely powerful, and reliable at great depths. The integrated OLED graphic computer displays all the operating parameters which help maximise the drive system – a flagship feature of Seacraft scooters. External charging port, post-swirl stator, and double handed steering handle completes the most innovative product in this category available on the market.

www.seacraft.eu

ALI KHALIFA BIN THALITH STAND NO: D-125



Ali Khalifa bin Thalith is a professional photographer and documentary filmmaker from Dubai in the United Arab Emirates.

In Recent times, he gained recognition on an international level as a specialised underwater photographer. Bin Thalith holds diplomas in Photojournalism and Documentary Photography as well as

French language and literature from the London Academy and University of Montpellier respectively. He was awarded in 2010, with the Mohammed bin Rashid Al Maktoum Award for young projects in the category of marketing and promotions.

In 2014, Bin Thalith was awarded with the International Photographic Council (IPC) Professional Photographer Leadership Award for his career work in the field of photography. As a result, Bin Thalith became the first Emirati and Arab recipient of the prestigious accolade at the IPC Pro Luncheon at the United Nations in New York City.

In 2016, Bin Thalith launched his long anticipated debut book 'Truly, Madly, Deeply' featuring some of the best underwater photography from his 20+ year career. In this stunning collection of underwater photography, Bin Thalith underlined his passion for the sea by capturing some of the most beautiful and unheard of species living in the depths of the ocean. Described as "An incredible collection of underwater photography" by the Daily Mail, 'Truly, Madly, Deeply' received testimonials from photography mainstays such as Steve McCurry, Reza and Alex Mustard.

www.alibinthalith.com | @ali_bin_thalith

26 Feb - 2 March 2019 | 3pm - 9:30pm

PADI
STAND NO: D-60


The Way the World Learns to Dive®

PADI Instructors have safely guided divers below the surface for over 50 years.

Teaching the world's most popular dive curriculum transforms lives, and opens heart and minds to the hidden beauty of nature's creation, and it is our obligation to protect it.

We are PADI – the way the world learns to dive.

www.padi.com

DEEP TREKKER INC.
STAND NO: D-130


DeepTrekker Inc. was founded in 2010 with a mission to create portable, affordable, and easy to use harsh environment robotic inspection tools. 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 has developed 5 robot lines including two ROVs, two submersible crawler systems and subsurface surveillance cameras. With sales in over 80 countries, Deep Trekker robots can be found in industries ranging from aquaculture to recreation and underwater exploration, municipal contracting, defense, search and rescue, shipping, infrastructure and more.

SEA @ DEEP
STAND NO: D-10


Sea @ Deep is owned by Capt. Mohamed Khalifa Ahmed Bin Thaleth Alhemeiri, a passionate Emirati, captain, diver, artist, and businessman. Sea @ Deep is the first of UAE marine inspired jewellery and accessories designed to reflect your passion of the ocean's treasures. Using silver and gold parts with original marine rope, string or leather, your piece will be as authentic and unique as our original designs. Sharks, starfish, anchors, hooks, shackles and whales' tails are a few from our wonderful collection.

www.seaatdeep.com

"The Dubai International Boat Show is the highlight event of the year and one we always look forward to. We're very excited to unveil the rebranding of the 'Dubai Middle East Exhibition – DMEX' as the all-new 'Dubai MENA Expo', where we'll learn, be inspired, share ideas and source new equipment – creating opportunities for everyone involved while keeping the familiarity and success of DIBS' history. It will connect new strengths and interests from all corners of the world."

HE MR. ESSA AL GHURAIR – EMIRATES DIVING ASSOCIATION CHAIRMAN

Anything Marine, We Are It!

- Design
- Custom Building
- Repair & Refurbishment
- Testing & Inspection
- Certification
- Sales & Rental

Launch & Recovery System

Scuba Replacement Panel

Deck Decompression Chamber with 20ft. Container

2 Diver Panel

3 Diver Panel

Underwater Video System

Air/Gas Cascade
Underwater Camera & Lights

Breathing Air Compressors

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Email : ali@smartdives.com
sunil@smartdives.com

URL : www.smartdives.com

Property No. S-01 - Dubai

Al Qusais Industrial Area 4

Makani No. 39060 98602

Diver's Protective Personal Gear


ZAYED'S 100th ENVIRONMENTAL ANNIVERSARY

DUBAI VOLUNTARY DIVING TEAM & ZAYED INTERNATIONAL FOUNDATION FOR THE ENVIRONMENT

BY **ABDULLA MUHSEN – DUBAI VOLUNTARY DIVING TEAM**



ZAYED AND THE ENVIRONMENT

From his early years, Sheikh Zayed had a strong relationship with the desert and marine environment in Abu Dhabi, from which he understood the importance of sustainability, social and economic achievements. It became an integral part of his life and leadership. He was committed to preserving the environment for the future generations and his people.

WHAT IS ZAYED'S 100th ANNIVERSARY?

2018 was declared the "Year of Zayed" to mark 100 years since the birth of the country's Founding Father by His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE.

The Year of Zayed highlighted his role in establishing the Federation, and his local, regional and international achievements. It is a great national occasion where we proudly share memories of the life of our Founding Father, Sheikh Zayed bin Sultan Al Nahyan, and his gift to us of deeply rooted values, principles and traditions that have become part of our Emirati identity.

HH Sheikh Khalifa's directions aimed to achieve a number of objectives, including:

1. Highlighting Sheikh Zayed's role in establishing the Federation, his local, regional and international achievements.
2. To commemorate Sheikh Zayed's personality, principles and values on international level as a role model in leadership and as one of the most inspiring leaders in terms of vision, wisdom and patience.
3. To strengthen Sheikh Zayed's position as a

role model by example in the affection and love for his country

4. To commemorate Sheikh Zayed's legacy through future initiatives and projects aligned with his vision and values.

WHAT IS ZAYED'S 100th ENVIRONMENTAL ANNIVERSARY?

It was an environmental initiative launched by the Dubai Voluntary Diving Team in May 2018 on the occasion of "Zayed's 100th Anniversary". Its objective was to highlight the late Sheikh Zayed's role in our society and to commemorate his anniversary by making real life changes in preserving the environment and carrying out 100 dives to inspect and recover debris, and harmful fishing waste.

HOW DID THE IDEA START?

Since the Dubai Voluntary Diving Team is environmental, they always try to make sure the initiatives and ideas will have a positive impact on preserving the marine environment and establish a real change, or at least eliminate the negative impact on the marine environment, such as fishing waste and other harmful environmental practices caused by seagoers.

We conducted an electronic brainstorming session throughout the WhatsApp group of our team and came up with the "100 Dives Initiative" aimed at cleaning fishing waste from 50 different dive and fishing locations in the UAE. 2 dives were performed at each location between the start of the fishing season which started on the 15th of October 2018. The

first dive was held on the 1st of May and the second on the 31st of December.

A comprehensive project proposal was submitted to the concerned government authorities in order to gain their support for the initiative to go ahead.

INITIATIVE TEAM

The team consisted of five professional diving volunteers and the team leader set the tasks as follows:

1. Marked the target locations on the marine map and listed all related information such as depth, distance and the condition to expect at the location.
2. Estimated the financial costs such as fuel, dive tanks, food, water, boat maintenance, dive gear, as well as other related costs.
3. Listed the required tools and equipment necessary for cleaning/removing the debris.
4. Communicated and coordinated with the interested authorities to ensure the success of the initiative and overcome any unforeseen obstacles.
5. Created proposals to authorities that could financially support the initiative.

FINANCIAL AND MORAL SUPPORT

We contacted the Zayed International Foundation for the Environment as it's a non-profit organisation concerned in every aspect of the marine environment. The foundation did not hesitate to support the initiative and a partnership was agreed. His Excellency Major General Dr. Ahmed Bin Fahed signed this agreement on behalf of the Zayed International Foundation and Eng. Abdulla



Mohsin Ali Al Balooshi was the signatory from the Dubai Voluntary Diving Team.

The Ministry of Climate Change & Environment and the Emirates Diving Association were contacted to make sure they were aware of the initiative since these entities are outlined as interested parties in the diving and marine environment. They valued and appreciated the efforts of the team and continuously kept in touch to offer support.

Additional support came from Al Yousuf LLC – through Suzuki engines – who carried out free maintenance and fixed the team's boat engine throughout the year of 2018. This impact guaranteed continuous dive trips free of engine failures. We extend our thanks and gratitude to them for making this possible.

FIELD WORK

The dives were conducted during day or night. There were some very remote locations which included some dives down to 30 metres. A number of areas had heavy debris but due to the team's experience, professionalism and determination, the tasks became easier and they were successfully completed as planned.

After lifting the waste – which was mostly made up of fishing nets – the divers cleaned them, removed any hard objects such as rocks and dead fish bones, and released living creatures back to the sea. The nets were then cut and placed into bags and thrown into designated rubbish drums or handed over to concerned

authorities of waste management. The work was well organised throughout its phase and there were zero accidents or injuries.

We are proud that this initiative received the attention and appreciation from so many divers and authorities throughout the country. Additional honorary guests participated in the initiative from neighbourhood gulf countries of Saudi Arabia and Oman, and many others requested to participate, but due to difficulties in confirming dates, weather conditions on some occasions and delayed bookings, not everyone was always able to join. We value everyone's interest and their desire to volunteer their time to the marine environment. We thank you all.

Just recently, the Dubai Voluntary Diving Team won an award launched by HH Sheikh Khalifa Bin Mohammed Bin Khalid Al Nahyan for

101 Ideas Celebrating the 'Year of Zayed' in February 2019.

WASTE COLLECTED:

- Fishing nets and lines
- Plastic bags
- Plastic pieces
- Electronic devices and wires
- Plastic Boxes
- Glass bottles
- Metal cans
- Fishing cages
- Engines
- Boats



ACTIVITIES	PLAN	ACTUAL	RESULT
Number of Dives	100	101	101%
Number of Dive Sites	50	63	126%
Number of Volunteered Hours	300	345	113%
Total Distance Covered (km)	2,000	2,525	120%
Amount of Waste Collected (kg)	5,000	11,500	157%
Accidents & Injuries	0	0	100%
Maximum Depth (metres)	30	30	100%

Drop it youth

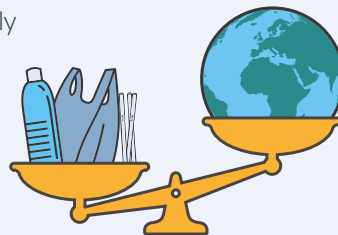
AN INITIATIVE BY GOMBOOK

OVER THE PAST **50 YEARS**, global plastics production has **INCREASED** from **15 MILLION TONNES** in 1964 to **311 MILLION TONNES** in 2014
- GULFNEWS

The amount of plastic produced is roughly

**THE SAME AS THE
ENTIRE WEIGHT
OF HUMANITY**

- THE GUARDIAN



DUBAI is producing almost
**2,800 TONNES
OF PLASTIC PER DAY**

- GULFNEWS

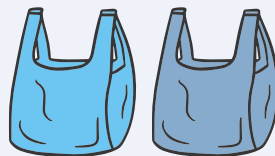
NEARLY **TWO MILLION** SINGLE-USE PLASTIC BAGS ARE DISTRIBUTED WORLDWIDE **EVERY MINUTE!**

- EARTH POLICY INSTITUTE

UAE USES **13 BILLION
PLASTIC BAGS ANNUALLY**

IN 2006 **<** IN 2008
39,150 TONNES **47,300 TONNES**

- KHALEEJ TIMES



IN 2007, **ABU DHABI** USED
**1,870,874 KG
OF PLASTIC BAGS**

- EAD

ONE MILLION PLASTIC BOTTLES ARE BOUGHT **EVERY MINUTE** AROUND THE WORLD

- THE GUARDIAN

Typical UAE resident uses

**450 PLASTIC
WATER BOTTLES**

on an average in **A SINGLE YEAR.**

- THE NATIONAL



THE UAE HAS THE
4TH HIGHEST LEVEL
OF BOTTLED WATER
CONSUMPTION
IN THE WORLD

- THE NATIONAL

EVERY MEAL YOU EAT could
contain, on average, **MORE THAN**

**100 MICROPLASTIC
PARTICLES**

- TREEHUGGER.COM



A study involving **MEN AND WOMEN** from
SEVEN DIFFERENT European countries
and Japan **FOUND MICROPLASTICS
IN THEIR POOP**

- NATIONAL GEOGRAPHIC

**MICROPLASTICS ARE
FOUND IN 90%
OF TABLE SALT**

- NATIONAL GEOGRAPHIC



Tests show **BILLIONS OF PEOPLE GLOBALLY**
are drinking **WATER CONTAMINATED** by

PLASTIC PARTICLES **WITH 83%**
of tap water samples found to be **POLLUTED**

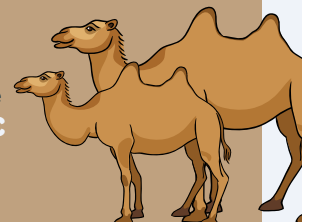
- THE GUARDIAN



DID YOU KNOW?

1 OUT OF 2 CAMELS in the
UAE are dead due to **PLASTIC
CONSUMPTION**

- ECOMENA



Plastic trash is
polluting the
land and oceans



It becomes
Microplastics in
the rain, soil and
atmosphere



It spreads into
our food and
drinking water



It ends up in
human bodies



THE DROP IT YOUTH CAMPAIGN

Goumbook, the leading social enterprise promoting sustainability and green living in the UAE, announces the launch of its second annual campaign. The nation-wide awareness campaign aimed at the young people of the UAE, is sponsored by HSBC with the knowledge and content support of the Moral Education programme.

This year, the Drop It Youth campaign coincides with the theme from World Environment Day 2018 – Beat Plastic Pollution. It is a call to action for all of us to come together to combat one of the great environmental challenges of our time. It is also a great motivation for our youths to be engaged in the fight against plastic pollution.

Julia Grifferty, Drop It Youth's lead ambassador, was at the Oceans Conference in Bali in October, 2018 to represent the DIY campaign and to show how the youths of the Middle East are making a difference in the fight against plastic pollution.

"Our health is at stake" said Tatiana Antonelli, MD and Founder of Goumbook. "Tests show billions of people globally, are drinking water contaminated by plastic particles".

This year's campaign will focus on solutions that have been achieved. "We are sharing the achievements and solutions achieved around the world raising awareness on the plastic pollution at the same time", said Mrs. Antonelli.

Becoming a Drop It Youth ambassador allows environmentally conscious teenagers to inspire sustainable living practices in

their schools, with the unique support and guidance of Goumbook's team of professional environmentalists, and their supporting partners at UN Global Compact, Moral Education Programme, KHDA, EAD, Eco-schools and Eedama. Students are invited to submit a 1-minute video through dropityouth@goumbook.com. These applications will be reviewed by a jury of education and sustainability specialists, who will select the most inspiring candidates.

Upon their confirmation as ambassadors, Goumbook will supply them with a plethora of awareness tools. These will allow the young participants to become environmental advocates, aiming to reduce waste in their community, and fight plastic pollution that is currently harming desert wildlife and marine species all over the world.

By requesting people around them to take online pledges on the Drop It Youth website, young ambassadors will be able to take stock of their immediate impact on plastic consumption and associated CO2 emissions. Pledges are structured in 5 categories and encourage people to take a stand against single use plastic cups, bottles, bags, straws, and to drink filtered tap water in an attempt to dramatically reduce their waste, carbon and water footprint.

"Tomorrow's leaders need to be equipped for tomorrow's challenges and our duty is to adequately prepare our children for the future they will inherit," said Tatiana Antonelli Abella. "As climate change is being felt across the globe

and its long term catastrophic impacts have never been so scientifically clear, environmental education is the key to a better future."

ABOUT DROP IT YOUTH – AN INITIATIVE BY GOUMBOOK

Drop It Youth is a Goumbook initiative, derived from the success of Drop It, an awareness campaign launched in the UAE in 2016 to unite individuals and the local business community in re-thinking their single-use plastic consumption by switching to filtered tap water, and therefore making an immediate positive environmental impact by reducing their plastic waste and carbon footprint.

www.dropit.ae

Through Drop It Youth, Goumbook aims to empower young individuals between the ages of 11 to 22 to campaign against single-use plastic pollution in their class, year group, school or larger community. Becoming a Drop It Youth Ambassador allows environmentally conscious teenagers to inspire sustainable living practices in their schools, with the unique support and guidance of professional environmentalists.

www.dropityouth.org

Goumbook, the organisation behind Drop It and Drop It Youth, is a social enterprise aimed at raising awareness on sustainability and green living. Born in the UAE in 2010, Goumbook's aim is to create a global community focused on environmental responsibility, uniting environmental experts, organisations, businesses, consumers and youths across borders and cultures.

www.goumbook.com

FREEDIVING REMINDER TO SELF

BY **BASSEL OUNAH** PHOTOGRAPHY **SSI SCUBA SCHOOL INTERNATIONAL**

Freediving is a magnificent activity which allows us to freely connect with the ocean by reaching deep below its surface. Like any other activity, there are procedures to ensure it is performed safely. Some may think that freediving is a solo sport because each person dives by himself, but it's a very social one, you cannot dive alone. There are accidents as in any sport, but it usually comes from the lack of knowledge and the safety to follow this sport.

YouTube has certainly become an educational platform, but it's not sufficient to learn the proper skills and techniques for sports. For example, we can't learn to ski by watching a video. Always invest in education, then buy the equipment. You can't buy a car and then do the driving license. It is the same with freediving; you need to learn how to avoid hyperventilation, carry the correct weight,



know how to use your buddy system and how to plan for your dive, carry out a rescue, what to do in case of a black out, and most importantly, how to avoid them.

All diving agencies deliver the bold message to never, ever dive alone. A freediver is not a super athlete on every dive. I've always asked myself before each dive session, how far will my body take me today? But it's really important to dive within your limits and not to push it. We need to have good recovery intervals between each dive, avoid forcing equalisation or strong deep turns, stretching and flexibility are important, and body position must take precedence. Make sure to have good quality equipment, and not get cold. Eat beforehand to fuel your body and always hydrate.

Freediving offers serious excitement and serious fun. It is one of the fastest growing water sports in the world today. Learn it properly and enjoy everything the ocean has to offer. Practice ensures you perform with confidence and your skills are honed to master the sport you love!

THE SARDINE RUN WITH TWO FIN EXPEDITIONS

BY **NATALIE HORE** PHOTOGRAPHY **MORNE HARDENBERG**



Imagine if you will, billions of sardines spawning and migrating off the cool waters along the east coast of South Africa, from May through to July, generating a feeding frenzy of diving cape gannets, hungry common and bottlenose dolphins, inquisitive humpback and bryde's whales, southern right whales and a huge array of harmless sharks such as dusky, copper, spinner, blacktip, ragged tooth and bull sharks if you are lucky. Even Cape fur seals and sailfish have been seen in this area during this time.

Welcome to the sardine run!

Fortunately for me, I no longer have to imagine it, I just need to cast my memory back to July 2018 when I had the once-in-a-lifetime experience on what is by far the best in-water experience I have ever had. Thank you to our tour group and the forces of the sea, I got to experience an eye-to-eye encounter with a humpback whale and her new-born calf, I snorkelled among hundreds of common and bottlenose dolphins, witnessed three bryde's whale demolish a sardine bait ball in thirty minutes and dived with around 300 spinner sharks on a static bait ball.

But it wasn't just the in-water activity that made this trip my ultimate experience, it was the crew, my fellow divers, the food (oh the food), the laughter, the talks around the fire and the care everyone had for one another.

In a small remote village, about a six hour drive from Durban into the Wild Coast of South Africa at a place called Port St Johns. This is where the magic is. The hot spot of

the migration route of the sardine run and the place of inner happiness. But even before you arrive at your accommodation, you get to experience the joys of travelling with your fellow passengers and one of the crew members. I honestly can not rave on enough about crew member Warren Hardenberg, expert driver of South African roads and a man with a heart of gold, a warm smile and joy oozing from every pore.

Once you arrive, your heart is warmed by such fantastic service and adventure, as well as excitement as your fellow travellers swap stories, that you forget that you are in the heart of winter and that your wake up call is 5am the next day. Your wetsuit will never dry properly, the weather will be unpredictable, you will bounce up and down for hours on end, cold on a rigid inflatable boat, looking for signs of bait ball action – but the pay offs are all very rewarding.

So much so, I am doing it all over again – but this time with friends. I was so excited by what I saw during the sardine run, that I have registered a dive travel business and put together a package so that friends and fellow water lovers can also experience the ultimate Ocean Safari. Believe it or not, most of the experiences can be done snorkelling, so you don't even need to be a certified diver to get involved!

I highly recommend experiencing this phenomenon. Should you wish further information, please feel free to email me at nats@riseup.net or check out Two Fin Expeditions on Facebook or Instagram.

DATE: 19-30 July 2019

COSTS: The costs ex-Dubai is AED 20,000 for return flights, one night accommodation in Durban, return shuttle from Durban Airport to Durban accommodation, return transfers from Durban airport (noon pickup/drop off) 9 days at sea (weather permitting) 10 nights accommodation at The Creek Lodge, awesome meals – dinners, boat lunch, continental breakfast and lots of snacks, daily transfers to launch site and scenic drives, dedicated aerial information, cylinders, fills and weight belt, experienced dive guides and skipper.

NOT INCLUDED:

- Dive insurance/travel insurance
- Dive gear (can be rented if needed)
- Alcoholic beverages

EQUIPMENT: Portable air compressor, 10lt dive tanks (DIN/INT), weight belts with 2-7 pound weights, and regulators, BCD's, fins, masks for rent on site.

DAILY ITINERARY:

- 6-6:30am Breakfast
- 6:30am transfer to boat
- 7am-2pm at sea searching for action (on non-sea days there will be land based activities planned)
- 3-4pm back at lodge
- 7pm dinner and fire

BOOKING: To secure your spot, a 50% deposit is required. Payment can be made by bank transfer or PayPal for international guests, and those in Dubai can also pay by cash or cheque. The balance of payment is due no later than two weeks prior to departure. If the final payment is not received by then, we reserve the right to cancel the reservation without notice.

CANCELLATION POLICY:

Six months or more notice prior to departure: 100% refund
180-120 days notice: 75% refund
119-60 days notice: 50% refund
59-30 days notice: 25% refund
29 days notice or less: No refund

FOR MORE INFORMATION, EMAIL:
nats@riseup.net

UNDERWATER ARCHAEOLOGY

BY **MOHAMED HELMY** – AL BOOM DIVING CLUB, PADI COURSE DIRECTOR,
UNDERWATER ARCHAEOLOGY DIVING INSTRUCTOR



Underwater archaeology is the systematic study of past human life, behaviours, activities and cultures using the physical remains (including sites, structures and artefacts) as well as other evidence found in the underwater environment. The sites may consist of the remains of shipwrecks, boats, other watercrafts or vessels, and aircrafts, as well as cultural material that was accidentally dropped, lost overboard, or deliberately deposited into a body of water. The term underwater archaeology simply refers to the environment in which the practice of archaeology is undertaken.

In order to practice a suitable standard of underwater archaeology, appropriate academic qualifications, training and experience is required. Technique alone does not suffice. Education in historical and archaeological theory, methodology and research practice needs to be combined with suitable qualifications and experience in working underwater.

Underwater archaeological activities must conform to all of the legislative and administrative requirements of the UAE's province within internal waters and the territorial seas. The aim is to integrate archaeological data and interpretation into the broader study of the human past, emphasising not only materials from submerged sites, but also from maritime activities.

Underwater archaeology is conducted in naturally occurring bodies of fresh or salt water such as oceans, seas, lakes, rivers, streams, swamps, marshes, caves, sinkholes, as well as bodies of water constructed by human beings such as reservoirs, dams, canals, and wells. The underwater environment provides the underwater archaeologist with both opportunities and challenges which can result in the long-term preservation of some cultural

materials, but also the rapid deterioration of certain cultural materials when the environmental conditions are changed.

There are a lot of shipwrecks lying on the seabed along the west and east coasts of the UAE – such as the Cement Barge, Zainab, Sheikh Mohamed's Barge, Mariam Express, Napton, and Inchcape 1, 2 and 10.

The Underwater Archaeology Diver Course is a PADI Distinctive Course. The course is an introduction to archeology diving to familiarise divers with the skills, knowledge, planning, organisation, procedures, techniques, problems, hazards and enjoyments of archaeological diving.

The purpose of the PADI Underwater Archaeology Diver Speciality Course is to teach students specific sets of skills that are useful to wreck diving activities and provide increased enjoyment when visiting submerged cultural resources. Students will gain basic information as well as mapping, sketching, and researching techniques.

The Underwater Archeology Diver training goals are:

- Introduce divers to underwater archaeology;
- Increase awareness of underwater cultural

heritage;

- Perform invaluable volunteer assistance to accredited archaeologists by assisting them during fieldwork;
- Introduce divers to the basic principles and techniques to understand, study, record and manage the underwater cultural heritage.

This course contains knowledge development, a confined water skill development session, land session practice, and 2 open water training dives. The course is open to PADI Open Water Divers, or qualifying prerequisites. The minimum age requirement is 15 years.

As technology improves resolution and depth ability, more and higher quality discoveries will be made. While fewer shipwrecks are being found, the scientific quality of shipwrecks is improving and sunken cities are being identified. What is left to be found?

We have an extensive wish list for discoveries that could change what we know about the past. We are currently in a golden age of underwater exploration. Arguably, in a hundred years from now, people will not be discussing the great land discoveries of the 19th and early 20th centuries such as Tutankhamen or Machu Picchu, but the fantastic underwater discoveries we will make in the next fifty years.



MORE TRAINING

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

Skubba had already completed a lot of training sessions in the swimming pool and he was becoming a better diver each time. He learnt a lot with Fred, and not once did they get bored. Every lesson was exciting and fun.

“Lesson”. The word reminded him of school, but these were not the kind of lessons he was used to. He wished school was as much fun as these diving lessons. After each session, the two friends thought they knew everything there was to know about diving, but soon after, they realised that there was still a lot more to learn.

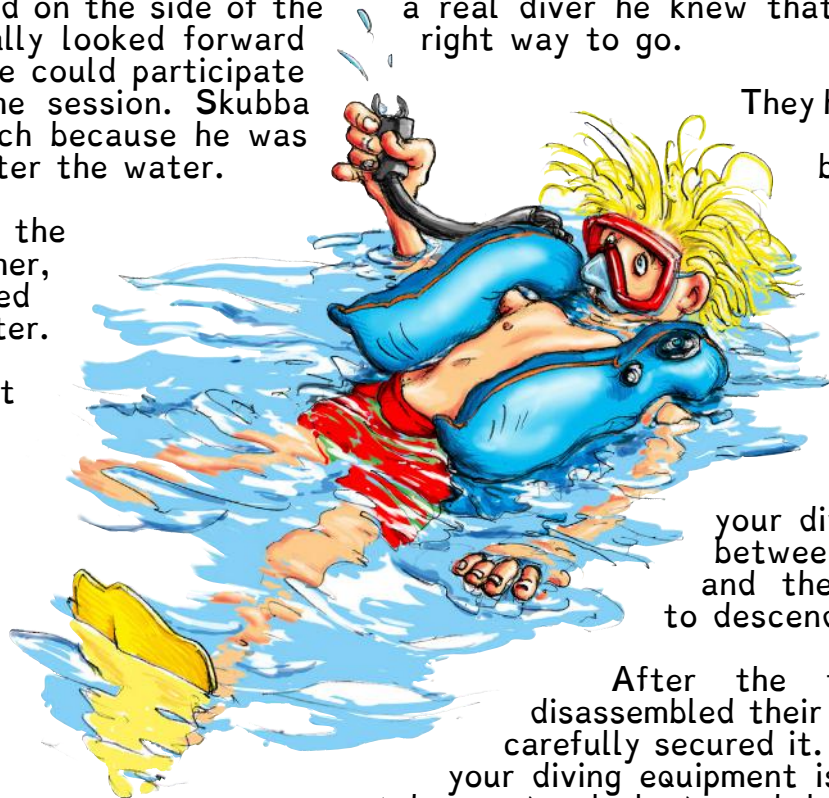
Pool trainings started with a little explanation about what they would learn in the next hour, and why they needed it for diving. Then they “dry” practiced it, which meant they repeated the exercise Nella demonstrated on the side of the pool. Fred especially looked forward to this, because he could participate in this part of the session. Skubba did not like it much because he was not allowed to enter the water.

When they passed the dry training together, Skubba was allowed to go into the water. He started with a little warm up first by swimming a bit and practicing some exercises they already knew, followed by repeating what they had done during the dry practice, this time in and underwater. And before he realised it, the training was over.

The training always ended with a water game. No session was without some playtime. Fred soon realised that these were not just games. Every game had something to do with what they had just learnt or practiced. By playing, they repeated what they had seen a few

minutes before. Skubba had not noticed that at first, but he was playing in the water while Fred was watching from the side of the pool.

What had they already mastered? They could completely assemble their own dive equipment. They did their buddy checks by checking their buddy’s dive equipment functioned correctly. They could see if something did not work well and they knew what everything was for. In the water, a BCD jacket is used to hover. Hovering was important, because during the dive Skubba did not want to crash to the bottom or stir up silt. There was no silt in the pool, but they had to learn how to hover for their explorations later on in open water. When Skubba went down, he added a little bit of air into the jacket. When he ascended, he let the air out. That may sound strange, but as a real diver he knew that this was the right way to go.



They had been shown how a balloon becomes bigger with the more air added to it, making it rise upwards. He could not allow this to happen with his BCD. A jacket is used to control your dive by hovering between the bottom and the surface, not to descend or rise.

After the training, they disassembled their equipment and carefully secured it. Taking care of your diving equipment is important. It does not only last much longer this way, but it also allows it to work well. And diving with equipment that works well is safer and much more fun.

Their pool training sessions had made real divers out of them. They now knew everything about diving. Right?

At least, that’s what they thought...

FIRST AID

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

Did they know everything about diving? Skubba might be a good diver and Fred has the knowledge, but they had certainly not seen everything yet. Next week they would learn first aid and CPR. CPR? That word did not make any sense. Was Nella mistaken? Or did that word have no meaning? A few months back they had been worrying about the term, "ABC material". They had come up with all kinds of combinations of words and possible meanings. None were correct, because "ABC" turned out not to be initials at all. ABC material just stood for basic material. Basic as ABC. How strange!

CPR did have a meaning. It was not like ABC. As usual it was Fred who had found the answer. Or was it the wrong answer? CPR, according to Fred, stood for Cardio Pulmonary Resuscitation. It sounded complicated and medical. Was diving dangerous? Skubba did not believe that diving was dangerous, and if it was, they were well trained to make it safe! Fred had to be wrong this time. It had to mean something else. If so, they strangely enough did not find another meaning for it.

Skubba was surprised when Nella confirmed the following week of their session that CPR had something to do with accidents. And yes, they were well trained, but you never knew when something bad would happen and then you had better know what to do. As divers you need to be prepared for anything. That is why all divers have to learn first aid and CPR.

They first learnt how to get help and call for an ambulance. Helping someone is good, but calling for professional help is better. Then they learnt how to treat a small cut or a simple wound, or what to do if a dive tank fell on your toe. Skubba never thought of those things before, but

now that he was made aware of them, he found it interesting.

After half an hour of first aid training, Nella brought out a tank. "Ah, we're going to dive now," Skubba said. "No, this is not a dive tank, but an oxygen cylinder," explained Nella.

And he could indeed now see the differences. That tank looked different than the one he used in the pool. Nella explained that oxygen is good for a lot of things and certainly for divers, so it was important that they knew what an oxygen tank looked like and how to assemble and use it. She invited them to each breathe a few times from the tank.

"It tastes like air," Fred said.

"It does taste the same as air, but it is no ordinary air," Nella told them. "You cannot dive with this tank and you have to be very careful with it."

Nella explained that oxygen was good to prevent things from getting worse, but the gas was also very flammable. They were not allowed to use oxygen by themselves, only adult divers could use it. Every diver was trained to use oxygen safely.

Nella then showed them how she would examine a person, not necessarily a diver, but someone who had fainted and possibly needed resuscitation. That was a difficult word, but Nella explained it meant, 'saving someone's life by keeping him or her alive'. You could prevent a person from dying by helping that person to breathe, and by keeping his or her blood pumping. They were to try the technique on a mannequin named, 'Little Annie'. A weird name, because that mannequin was not little. As such young divers, they would not be expected to be able to resuscitate a person, but it was fun to try it and useful to know how to do it. It was also important to know how to assist an adult performing CPR.



REEF CHECK MALAYSIA

PARTICIPATES IN NATIONWIDE COAST CLEAN-UP



Some of the participants in Desaru. Photo by Coca-Cola.



A beach clean-up in progress in Pulau Kalupuan. Photo by TRACC.



Tengku Zatashah leading one of the clean-ups in Selangor.

Clean Up Summary		Total	
People		4018	
Kilograms		7576.63	

Most Likely to Find Items	Total Items		Total Items
Cigarette Butts	20299	Beverage Bottles (Plastic)	30248
Food Wrappers (candy, chips, etc.)	7870	Beverage Bottles (Glass)	2897
Take Out/Away Containers (Plastic)	4418	Beverage Cans	3963
Take Out/Away Containers (Foam)	3728	Grocery Bags (Plastic)	12055
Bottle Caps (Plastic)	8782	Other Plastic Bags	524
Bottle Caps (Metal)	94	Paper Bags	143
Lids (Plastic)	2274	Cups, Plates (Paper)	211
Straws, Stirrers	8182	Cups, Plates (Plastic)	3401
Forks, Knives, Spoons	2634	Cups, Plates (Foam)	204

Fishing Gear		Packaging Materials	
Fishing Buoys, Pots & Traps	359	6-Pack Holders	56
Fishing Net & Pieces	290	Other Plastic/Foam Packaging	1474
Fishing Line (1 yard/meter = 1 piece)	35	Other Plastic Bottles (oil, bleach, etc.)	448
Rope (1 yard/meter = 1 piece)	179	Strapping Bands	123
Fishing Gear (Clean Swell)	3672	Tobacco Packaging/Wrap	118
		Other Packaging (Clean Swell)	2065

Other Items		Personal Hygiene	
Appliances (refrigerators, washers, etc.)	45	Condoms	6
Balloons	644	Diapers	372
Cigar Tips	73	Syringes	11
Cigarette Lighters	249	Tampons/Tampon Applicators	14
Construction Materials	111	Personal Hygiene (Clean Swell)	663
Fireworks	18		
Tires	10		
Toys	573		
Other Trash (Clean Swell)	14397		

		Tiny Trash Less Than 2.5 cm	
		Foam Pieces	1878
		Glass Pieces	93
		Plastic Pieces	24990

(*Data published based on reports received as of 5pm, 28th September 2018)

On September 22nd 2018, Reef Check Malaysia joined numerous partners across Malaysia to participate in the 32nd International Coastal Clean-up Day 2018. Nearly 4,000 volunteers joined the effort, which covered all of Malaysia's states. A star studded cast included Tengku Zatashah from Selangor, YB Yeo Bee Yin of the Ministry of Energy, Science, Technology, Environment and Climate Change, H.E. Victoria Treadell, British High Commissioner, as well as many celebrities.

International Coastal Clean-up Day is the world's biggest annual volunteer effort to protect the oceans. Every year, millions of people around the world gather to collect marine debris along beaches and record the information on the types of trash collected which gives insight into ways to tackle the ever growing problem.

In previous years, Reef Check Malaysia conducted clean-ups in conjunction with International Coastal Clean-up on Tioman and Mantanani Islands, but on a much smaller scale than this year. In conjunction with the 3rd International Year of the Reef 2018, Reef Check Malaysia planned for a clean-up on a much wider scale. Reef Check Malaysia's Theresa Ng, who coordinated the event, commented, "The Body Shop is the custodian for the International Coastal Clean-up in Malaysia, and we approached them to offer our help to arrange a national-scale event to coincide with the International Year of the Reef and to gather data for our campaign to reduce

marine debris. Teams were self-organised and we provided briefing materials on how to conduct clean-ups and collect data. The effort has been tremendous and we would like to thank the thousands of people who have taken part."

Baki Zainal, who organised a series of events on Tioman Island, including both beach and underwater clean-ups said, "It was good to see that there are many who are eco-conscious and understand the importance of such clean-ups. We have got to keep this up so that one day more and more people will realise what damage these plastic materials are doing to our waters."

Meanwhile, Tengku Zatashah, who led a clean-up effort in Selangor, pointed out the need to change attitudes and habits. "I'm thrilled by the massive turnout of volunteers coming to the Selangor Beach Clean-up and elsewhere in the country for the International Coastal Clean-up. The amount of trash and plastic pollution we picked up is mind-boggling. The point of a clean-up is not the act itself, but the awareness we create, that pollution clogs up our oceans and kills our marine wildlife. It's our daily habits that need to change. We can't blame others, we must look unto ourselves. We must #sayno2plastic, #stopsingleuseplastic, #reducewaste, and #reusereducerecycle. I hope that after this huge beach clean-up in Selangor, the hundreds of volunteers will go back and spread the word to their communities that

we must do more to change our daily lifestyle. Thank you to everyone who came to show their support. This is just the start."

These beach clean-ups are part of Reef Check Malaysia's long-term campaign to reduce marine debris, specifically plastic waste. Reef Check Malaysia has teamed up with Coca-Cola and other industry players to try to find real, lasting solutions. Julian Hyde, General Manager of Reef Check Malaysia provided the context, "Marine debris is one of those things where everyone knows there's a problem, but no-one really knows what to do about it. So we approached some of the big players in the industry and Coca-Cola responded positively. Now here we are, 12 months later, working with a wide group of stakeholders including the brands, waste management companies, recyclers and the government – all working hard to find out just where the problems lie, and find real, lasting solutions – so that hopefully in the future we won't have to do any more beach clean-ups. That's our goal: no more beach clean-ups in 10 years."

The clean-up was conducted at 84 locations around Malaysia. Nearly 7,500 kg (16,534 lbs) of trash was removed from beaches. The most common items collected were plastic bottles, cigarette butts and plastic bags. Hyde added, "Plastic has all sorts of harmful effects on the marine environment, from smothering corals to killing sea turtles. We are the cause; we all need to take responsibility."

ISRS ISSUES UPDATED

CONSENSUS STATEMENT ON CLIMATE CHANGE

BY **INTERNATIONAL SOCIETY FOR REEF STUDIES (ISRS)** WWW.CORALREEFS.ORG



2018 ISRS Consensus Statement on Coral Bleaching Climate Change. Photo by XL Catlin Seaview Survey.

In 2015, for the United Nations Climate Change Conference COP 21 held in Paris, France, the International Society for Reef Studies (ISRS) developed a Consensus Policy Statement on Climate Change concerning the effect of global warming on coral reefs. In preparation for COP 24 of the UN Framework Convention on Climate Change, Poland in December 2018, ISRS has issued an updated statement. The statement makes the following points and calls on nations to implement the Paris Agreement and take the necessary action, by 2030, to keep global warming to a maximum of 1.5°C above the pre-industrial period.

Even if carbon dioxide increase is capped at this level, warming and acidification will still cause widespread destruction of coral reef ecosystems, but some should persist. Coral reefs are among the most biologically diverse ecosystems on the planet. They provide goods and services worth at least US\$11.9 trillion per year and support (through such activities as fisheries and tourism) at least 500 million people worldwide. Potent anti-cancer drugs have been derived from coral reef organisms and healthy coral reefs could save millions of lives.

Coral reefs, however, are being eliminated from the planet rapidly by climate change. In particular, increasing sea temperatures have already caused widespread coral bleaching and mortality. In addition, elevated carbon dioxide levels are causing ocean acidification that may further accelerate coral reef loss.

Over recent decades, over 50% of living coral, worldwide, has been lost due to a combination of local factors and global climate change. In 2016-17 bleaching alone caused

the loss of half the shallow water corals on a 700 km stretch of the Great Barrier Reef and substantial damage elsewhere. Recovery from such events is a decades-long process. With more frequent bleaching events, reefs now have little time to rebuild in between.

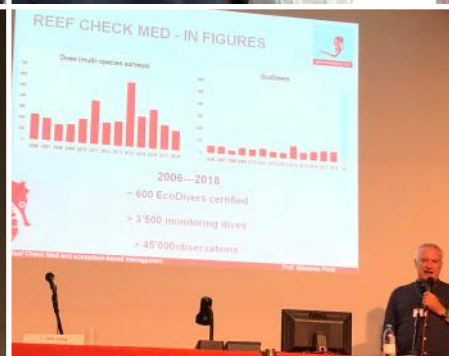
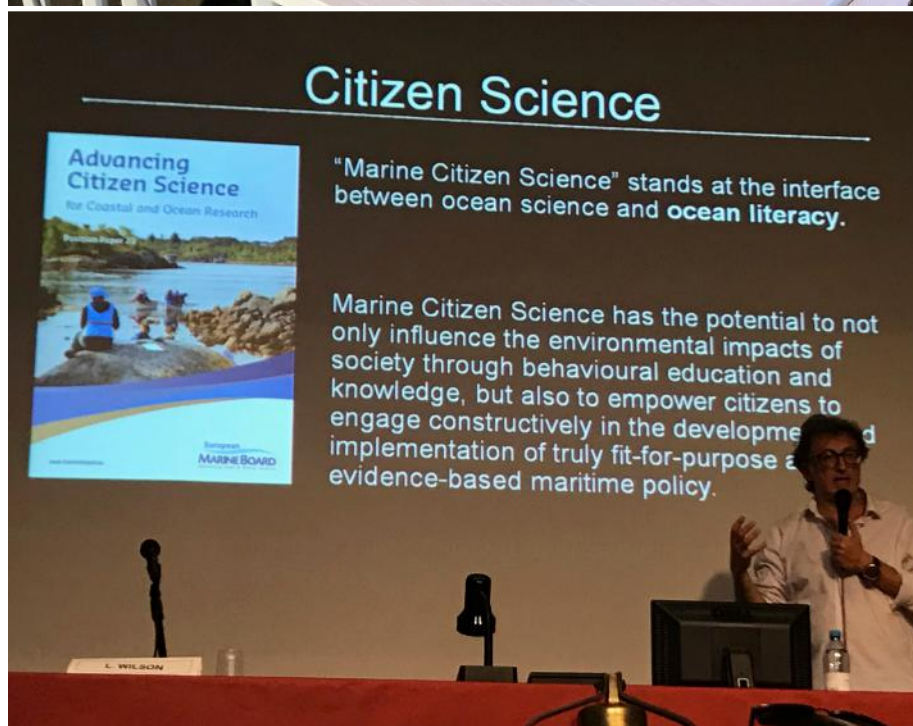
As a result of all the world's reef ecosystem destruction, a quarter of all marine species are at risk, while the associated economic losses will expose hundreds of millions of people to decreasing food securities and increased poverty.



2018 ISRS Consensus Statement on Coral Bleaching Climate Change. Photo by Naline Thongtham.

REEF CHECK MEMBERS CONVENE AT THE FIRST INTERNATIONAL SCUBA DIVING SUSTAINABILITY WORKSHOP

BY **DANIA TRESPALACIOS, REEF CHECK TROPICAL PROGRAMME DIRECTOR**



On October 19-21, Reef Check Italy hosted the first International Scuba Diving Sustainability Workshop in Genoa's Galata Museum of the Sea. The workshop brought together members of the academic, marine management, education, and business communities to discuss the current state of scuba diving, the current and future role of citizen science divers, and the results of the European Green Bubbles project, which is exploring the environmental, economic and social dimensions of sustainable recreational diving.

During the Workshop, Dr. Carlo Cerrano and Dr. Massimo Ponti, President and Vice Presidents of RC Italy, each presented on the current state of RC Mediterranean, including the need for citizen science divers and how Reef Check data is used in management in the Mediterranean.



Dania Trespalacios, RC Worldwide Tropical Programme Director, and Julian Hyde, RC Malaysia General Manager, shared stories from the field where Reef Check data is used for management, and where Reef Check EcoDivers are engaged in marine conservation. Examples ranged from MPA management in the Dominican Republic and Lionfish Containment in Grenada to the use of Reef Check data by government management agencies in California, USA and Jamaica, to management and conservation projects in Malaysia. Dr. Georg Heiss and Dr. Moshira Hassan, of RC Germany and RC Egypt, presented on the many lessons learned after 20 years, and the challenges that lay ahead for RC Egypt.

The Workshop included the opportunity to participate in a Reef Check Mediterranean

protocol training and dive, led by Dr. Carlo Cerrano and RC Med Trainer Eliana Ferretti. During their dives at Portofino Marine Protected Area, participants spotted beautiful gorgonians and a few red corals!

The Workshop was a great opportunity for members of the Reef Check family to connect, share ideas and experiences, and



make progress on good work, including updating Reef Check training materials and standards. Although Mediterranean marine habitats are very different from tropical coral reefs, the two regions share the same challenges of maintaining a scientifically robust monitoring protocol, engaging citizen scientists in a meaningful way, and ultimately achieving marine conservation in the water.

CALLING ALL DIVERS

COMPETITION PRIZE TO EMPOWER YOU TO TAKE REEF CONSERVATION ACTION

BY **BIOSPHERE EXPEDITIONS**

Biosphere Expeditions, in partnership with the Marine Conservation Society (MCS) and the Reef Check Foundation, is offering a free place on a citizen science reef conservation expedition. The winner of this unique competition opportunity can choose from either a project to the Musandam (Oman) or the Maldives and must be qualified to a minimum as PADI Open Water or equivalent.

Applicants can enter from dry land via a 100-word short essay or a one-minute video, outlining why they should be the winner. The winner will have to be prepared to muck in on a hands-on conservation project, not a luxury dive holiday.

Dr. Matthias Hammer, Executive Director of Biosphere Expeditions, says, "This competition follows the very good response we had from several hundred entrants from last year's competition. We are proud to have our partners MCS and Reef Check on board again too and encourage all those who want to use their diving skills for reef conservation to apply".

Nicola Greaves, Head of Marketing at the MCS, says "Our partnership with Biosphere and Reef Check is now in its seventh year, and with them, we have helped significantly enhance reef conservation and understanding among local communities in the Musandam and the Maldives. This competition is an excellent opportunity for one lucky person to get real hands-on experience of reef conservation in some of the world's most beautiful yet fragile ecosystems".

Dania Trespalacios, Tropical Programme Director at the Reef Check Foundation, adds that "by training citizen scientists as Reef Check EcoDivers, Biosphere Expeditions inspires divers to become ocean stewards. And by completing Reef Check surveys, Biosphere Expeditions provides important data on the status of coral reefs, which may be used to better manage and conserve these special ecosystems".

THIS IS YOUR CHANCE:

WIN A PLACE

ON A **SCUBA DIVING EXPEDITION**
TO CONSERVE CORAL REEFS
IN OMAN OR THE MALDIVES
(you can choose between these projects)

More information & application form
www.biosphere-expeditions.org/competition

You have to be a qualified diver (minimum PADI Open Water or equivalent). You also have to be prepared to muck in on a hands-on conservation project, not a luxury dive holiday. If this is you, then tell us who you are, why we should take you on and what you think you can contribute.

Kelsea K., last year's winner says, "I've learnt so much and could not be happier with the expedition. You come for the holiday and you stay for the science. It was amazing".

To take part, visit www.biosphere-expeditions.org/competition for further details.

FEATURE CREATURE

BLACKTIP REEF SHARK (*CARCHARHINUS MELANOPTERUS*)

FEATURE **IUCN RED LIST 2009** PHOTOGRAPHY **PHILIPPE LECOMTE**



RED LIST CATEGORY & CRITERIA:

NEAR THREATENED

SCIENTIFIC NAME: *Carcharhinus melanopterus*

COMMON NAME: Blacktip Reef Shark

SYNONYM(S):

Carcharias melanopterus Quoy & Gaimard, 1824
Carcharias commersoni (Blainville, 1816)
Carcharias elegans Ehrenberg, 1871
Carcharias marianensis Engelhardt, 1912
Carcharias playfairii Günther, 1870
Hypoprion playfairii (Günther, 1870)
Squalus carcharias minor Forsskål, 1775
Squalus commersonii Blainville, 1816
Squalus ustus Duméril, 1824

JUSTIFICATION: This assessment is based on the information published in the 2005 shark status survey (Fowler et al. 2005).

The Blacktip Reef Shark (*Carcharhinus melanopterus*) is a common and wide-ranging species, regularly caught by inshore fisheries. Globally, populations are not considered to be in immediate danger of significant depletion. However, this species is currently fished, and due to small litter sizes and long gestation periods, is vulnerable to depletion.

Previously published Red List assessments: 2000 – Lower Risk/near threatened (LR/Nt)

RANGE DESCRIPTION: Blacktip Reef Shark is a common tropical Indo-West Pacific and Central Pacific species with a range extending from Thailand to China, Japan, the Philippines, New Caledonia and northern Australia (Compagno 1984). Blacktip Reef Sharks have been reported from many Pacific Islands including: the Marshall Islands (Bonham 1960), the Solomon Islands (Blaber and Milton 1990) the Gilbert Islands, the Society Islands south to the Tuamotu Archipelago (Randall and Helfman 1973) and also the Hawaiian Islands (Randall and Helfman 1973, Compagno 1984, Taylor and Wisner 1989). The species is also present in South Africa, Mauritius, Seychelles and Madagascar to the Red Sea, Pakistan, India, Sri Lanka, Andaman and the Maldiv Islands (Compagno 1984). This shark has also penetrated the eastern Mediterranean Sea, probably via the Suez Canal from the Red Sea. The Blacktip Reef Shark is commonly found in shallow waters on and near coral reefs (Randall and Helfman 1973, Compagno 1984, Last and Stevens 1994). This species is often

seen in water only a few metres deep and is occasionally present in brackish waters (Last and Stevens 1994).

COUNTRIES OCCURRENCE: NATIVE:

Australia (Northern Territory); China; Djibouti; Eritrea; India; Japan; Kenya; Madagascar; Maldives; Marshall Islands; Mauritius; Mozambique; New Caledonia; Pakistan; Philippines; Seychelles; Solomon Islands; Somalia; South Africa; Sri Lanka; Tanzania, United Republic of; Thailand

FAO MARINE FISHING AREAS: NATIVE:

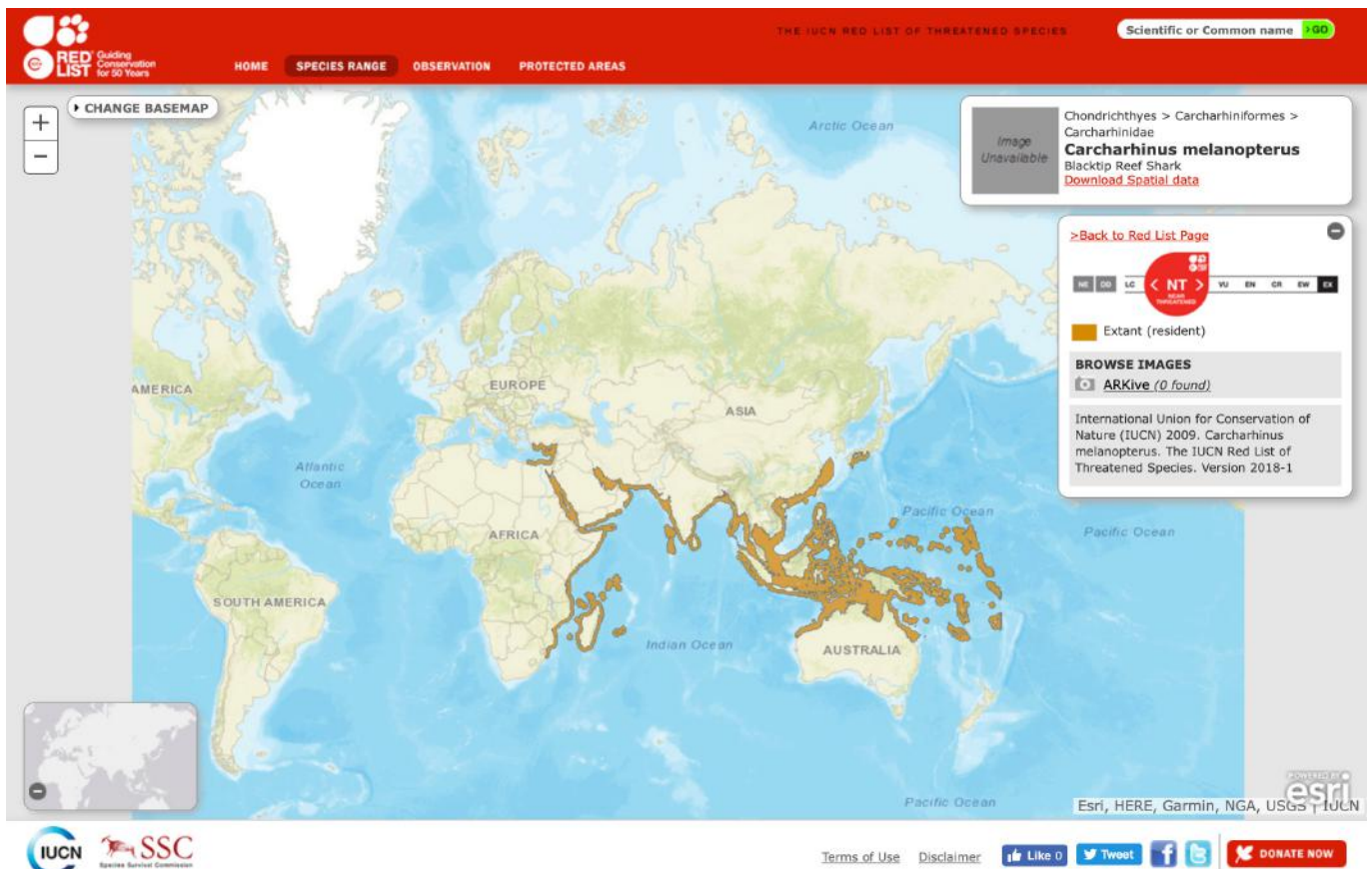
Indian Ocean – western; Indian Ocean – eastern; Mediterranean and Black Sea; Pacific – eastern central; Pacific – northwest; Pacific – western central

POPULATION: Common in tropical and subtropical waters.

CURRENT POPULATION TREND: Decreasing

POPULATION SEVERELY FRAGMENTED: No

HABITAT AND ECOLOGY: Most authors agree that Blacktip Reef Sharks range from 30-



50 cm at birth. Adults reach total lengths of up to 180 cm and mature between 90-110 cm (Compagno 1984, Stevens 1984, Last and Stevens 1994).

Stomach contents show the primary item of prey to be teleost fishes (Lyle 1987, Stevens 1984, Last and Stevens 1994). Prey items also include crustaceans, cephalopods and other molluscs (Stevens 1984, Lyle 1987, Last and Stevens 1994). Interestingly, the species is also reported to have consumed terrestrial and sea snakes (Lyle 1987, Lyle and Timms 1987). Lyle (1987) also reported that predation upon other elasmobranchs was rare.

Information on reproductive biology is limited and conflicting. Blacktip Reef Sharks are viviparous with a yolk sac placenta and give birth to 2-4 pups (usually four) (Compagno 1984, Lyle 1987, Last and Stevens 1994). In northern Australia mating probably occurs in January and February, with parturition occurring in November (Lyle 1987). This cycle would allow an 8-9-month gestation period, however, Compagno (1984b), Melouk (1957) and Randall and Helfman (1973) list the gestation period for this species as being possibly 16 months. Observations of Blacktip Reef Sharks at the Aldabra Atoll (Indian Ocean) showed mating to occur in October-November and parturition the following October. These animals would therefore undergo a 10-11 month gestation period (Stevens 1984b). Stevens (1984b) also noted that individuals in this area generally breed every other year, but that this may be due to competition for food in the area because of its high shark population.

SYSTEMS: Marine

USE AND TRADE: Not a target species, but regularly caught by inshore fisheries in India and Thailand. Used fresh and dry salted for human consumption and for its liver-oil, but of little commercial importance.

MAJOR THREAT(S): The Blacktip Reef Shark is not a target of major fisheries, but is regularly caught by inshore fisheries in India and Thailand (Compagno 1984b). It is rarely taken by northern Australian gillnet fisheries because of its shallow habitat (Last and Stevens 1994).

Although this species is used fresh and dry salted for human consumption and for its liver-oil (Last

and Stevens 1994) it is considered to be of little commercial importance (Lyle 1987). Data concerning the take of this species in artisanal fisheries is scarce, but due to its inshore, shallow water habitat it is likely to be a target of such activities. However, it is common in tropical and subtropical waters and not, therefore, considered to be in any immediate danger of serious population depletion worldwide.

CONSERVATION ACTIONS: There are currently no conservation or management plans in effect for this species.

CITATION: Heupel, M. 2009. *Carcharhinus melanopterus*. The IUCN Red List of Threatened Species 2009. www.iucnredlist.org





THE PARTING OF THE SEA

AN INSTALLATION MADE FROM 168,000 USED PLASTIC STRAWS

FEATURE AND PHOTOGRAPHY **VON WONG** - WWW.VONWONG.COM

It's just one straw, said eight billion people.



#STRAWPOCALYPSE



'The Parting of the Plastic Sea' is attempting to break the Guinness World Record for the largest art installation made from 168,000 drinking straws recovered off the streets of Vietnam. The project was created to raise awareness on the impact plastic waste has on the environment and to encourage the public to reduce consumption of single-use plastics. Artist Von Wong, non-profit organisation Zero Waste Saigon, Starbucks Vietnam and leading green developer Keppel Land, have partnered to showcase 'The Parting of the Plastic Sea' at the atrium of the Estella Place retail mall in District 2 of Ho Chi Minh City.

IT'S JUST 1 STRAW, SAID 8 BILLION PEOPLE

Sounds like a cliché – but these little things really do add up. Straws are virtually impossible to recycle in most places around the world because of how light and small they are. They're also one of the easiest products to turn down at a bar, cafe or restaurant.

With a truckload of plastic flowing into the ocean every 60 seconds, it's easy to feel overwhelmed – but I've always believed that it's less about what we can't do, and more about what we can do – even if it's something as small as saying, "No straw please".

For my latest project, I wanted to encourage people to turn down their next straw by creating a 'strawpocalypse'. Something so large that if anyone walked by, they couldn't ignore it. But first, I was going to need straws. A lot of them. At just \$10 for 100,000 straws, it would have been super convenient to buy a ton of them and figure something out – but that was clearly not an option.

Zero Waste Saigon stepped in and offered to help, and with the help of Starbucks Vietnam and hundreds of volunteers, we spent over 6 months gathering a total of 168,000 straws to bring this project to life.

THE RESULT

An 8 metre long, 3.3 metre tall art installation representing the Parting of the Plastic Sea.

THE PROJECT

It took us almost two weeks of work to clean, organise and prepare our straws to build it.

The entire project began with a Facebook conversation between Julia from Zero Waste Saigon who reached out to me and asked if I would collaborate with them if they helped me collect all the trash I needed. Starbucks Vietnam later came on board as a sponsor,

and all that remained was to figure out how to transform our idea from concept to reality.

Straws were organised by colour, to represent different parts of the wave. Green/blue/black for the base of the wave, white for the froth on top, orange/yellow for the sand and all other transparent ones as transition points in the structure.

With the help of our volunteers, we also collected used plastic bags for our installation. The plan was to use clear plastic bags to not only act as support for our straws but also to act as a diffuser for the LED lighting of our structure.

Every day, dozens of new volunteers streamed in to give thousands of discarded straws a second life. A little assembly-line was set up and first-hand volunteers would teach newer volunteers how to stick our straws into various different patterns to mimic the direction of the water flow.

Meanwhile, we worked with a local builder to convert our idea into reality. Although we had designed the idea with the help of Nick Moser, a technical builder in San Francisco and Stefan Suknjaja, an escape room designer



in Serbia – we still had to figure out where and how to build things in Vietnam. Luckily Fosha Zyang, a local set designer stepped in to help us out.

My hope was to create the parting of the sea to reveal the plastics hiding within. The plastic problem is either out of sight, out of mind – or so omnipresent that it becomes invisible. I wanted to use art to tackle both angles – by creating something beautiful and unique out of an environmental tragedy.

We arranged the straws like strokes of a paintbrush, trying our best to follow the curves of the lights and waves. The whole time, we all slaved away without knowing for sure, whether or not things would look good – but as the pieces slowly fell into place, we all finally breathed a sigh of relief as the waves of plastic started coming to life.

Our final touch was to add a “sun” in-between the two waves, built by connecting a couple of LED panels together with galvanised wire.

Our installation was given a home in the atrium of Estella Place, offering a 360° view of the installation. While it was great for foot traffic and awareness – it also meant a lot of

distractions, so we decided to build a white “sky” of plastics, complete with an orange sun.

Although this installation is made from straws, it isn’t just about straws. It’s about taking a first step towards paying attention to the plastic epidemic threatening the oceans we rely on.

If things do not change by the year 2050, there could be more plastic than fish in the sea. While statistics like that can appear daunting and impossible to fight against, it all starts with small simple actions.

FAQ

Q: What will happen to the straws after the exhibition ends?

A: At the moment we’re trying to find a forever home for our installation. If you know a museum, corporation or institution that’s interested in moving it, please let us know in the form at the end of the page at: www.Thestrawpocalypse.com.

Q: How were the straws collected?

A: The straws were collected by volunteer clean-up groups all over Vietnam, coordinated by Zero Waste Saigon.

Starbucks Vietnam also set up a number of collection points and asked their employees to pick them out from the everyday trash and retrieve any straws that were potentially usable.

Q: Why would a company like Starbucks want to partner with you? Aren’t they part of the problem?

A: Starbucks is one of the few places in Vietnam that offer in-store cups and mugs. They’re also one of the few establishments that don’t offer a straw, but rather wait for a customer to ask. With their global initiative to remove straws from all of their stores by 2020, Starbucks is trying their best to tackle the plastic challenge head-on.

From the 25th of January to the 24th of March 2019, visitors are encouraged to visit the Estella Place and share their experience of the installation on social media accompanied by the hashtag **#strawpocalypse**. In addition, members of the public are encouraged to pledge their support and make a commitment to tell others “No straw, please”.

For more details, visit:
www.TheStrawpocalypse.com







Monterey Bay, California: A female Orca breaching after successfully hunting a seal. We first saw them breaching in the distance after their first kill, and then watched them round up the seals again in what looked like a teaching session for the baby Orca. Once they finished, they passed by the boat and their vocalization was just incredible, clearly audible from the surface.

THE IRONY OF MY LOVE

FEATURE AND PHOTOGRAPHY **MARISA ENGELBRECHT**

As the underwater world opened up around me and I was getting more dives in, gaining more and new experiences from it, it suddenly dawned on me how horrible it was to confine marine mammals, and other ocean dwellers to concrete and glass.





Seal Island, False Bay, Cape Town, South Africa: Seals being free and doing their more natural tricks, surfing massive crashing waves and frolicking around.

I always had a great love for the ocean. Who wouldn't? The fresh air, salt in your hair and on your skin, the sunshine and relaxation are all associated with it by most. And of course when you scuba dive, the incredible peace that settles when it is only you and your bubbles, and the world becomes magical.

When I was six years old, my brother and I fell sick with chicken pox and were taken out of school. For me the best part of it all was my parents taking us to Durban, South Africa, going to Sea World, now known as Ushaka Marine World. It was the start of a lifelong passionate love affair that few people understood. I fell head over heels in love with Gambit, Misty, Kelpie and Kela the dolphins performing on that day. The animals in the tanks behind the thick glass held my attention for hours. Fish, seahorses, jellyfish, turtles and rays. Ragged tooth sharks gliding past with their skew, crooked teeth and oh the excitement and thrill every time they came past you, with your nose pressed up against the window staring in at them. It was surreal.

I went to Sea World every chance I had, many times by myself as nobody in my family or any

of my friends shared this passion with me. In-between the dolphin shows I would go back to the shark tank. My dream was to become a dolphin trainer. I played with imaginary dolphins in the backyard daily, playing loud music from my father's old vinyl records, classical music that Sea World used in their shows, bringing back vivid and clear memories of dark fascinating bodies gliding through clear blue water so effortlessly. I kept every newspaper article about the dolphins, pictures in magazines, and I still have every postcard Sea World sold at that time – childhood memories I will always cherish. The sharks fascinated me, but not at the same level as the dolphins and orcas did. I watched *Jaws 3* over and over; much to the frustration of my parents as it was always my choice at the VHS rental shop. Rent two, get one free, and I argued mine was free so it didn't count that I had already seen it 10 times or more. There were dolphins in it, and the deal breaker for me was the moment the poor baby Great White Shark died in the small tank which resonated something deep within me. The VHS tape that I used to record anything dolphin and orca related shown on television – I still have – although now almost unwatchable due to the tape stretching from

over use, but a sentimental piece based on a huge love.

When I was 18, I convinced my Dad I wanted to do a diving course as several of my friends had done it, and a friend of a friend was an instructor. I did not enjoy the course at all though and never completed my qualifying dives. I felt claustrophobic underwater and today I know it had a lot to do with the teaching skills and arrogance and attitude of the people who taught me. The wetsuit my Dad bought me stayed in my closet for years. I always touched and smelled it, thinking how lucky qualified scuba divers were. Somewhere in my early twenties, I read a great factual book about sharks and another love affair began to grow.

When you meet people from all over the world, your horizons expand, you learn more. Your knowledge grows and your experiences become your life's lessons.

A scuba diving course was given to me as a present 20 years after the first try and with a lot of apprehension, I went to do it. This time it was completely different. I had great instructors and I enjoyed it tremendously. My



False Bay, Cape Town, South Africa: Conditions were perfect on this morning and a massive school of dolphins joined us, playing around on the glass-like ocean surface. Watching them jump out of the water in the wild is more exciting than watching them perform in a small confined pool.



1. Sodwana Bay, South Africa: There are plenty of these groupers around the dive sites and they are very friendly. To see these giants swim around the glass tanks in Ushaka was fascinating as a kid, but diving alongside them in open water, is far better.



2. Hopkins Island, Australia: Getting in the water with sea lions is so much fun. 3. Durban, South Africa: The day my passion ignited. My brother and I in front of the old SeaWorld.

life changed. Suddenly I was in a very happy place. But just like that, my beliefs, passions and dreams were challenged too.

As the underwater world opened up around me and I was getting more dives in, gaining more and new experiences from it, it suddenly dawned on me how horrible it was to confine marine mammals, and other ocean dwellers to concrete and glass. The documentary *Blackfish* was released after the awfully tragic death of Sea World trainer Dawn Brancheau in Orlando by the gigantic male Orca, Tilikum. It was without much resistance that my perspectives changed completely. David Kirby wrote a book with all the inside information as an ex-trainer at Sea World, and you realise that these animals have a superior intelligence level we do not quite understand. My changed view does not only apply to dolphinariums and aquariums, but also zoos and safari parks that constrain animals. When you see dolphins bludgeoned to death in Japan for the sake of capturing some for life in captivity, everything in you screams that this is just wrong on so many levels.

Social media opened the world further with

horrific images of animals in captivity suffering from sores or gashes, with frustrated animals banging their heads against metal rails and attacking each other severely. The positive side of social media together with the GoPro sensation taking over the world, is that a lot more videos from nature become available from the most remote places, to the most crowded places, capturing incredible natural behaviours. Orcas hunting with deliberation, precision, teaching their young skills make you wonder exactly how intelligent these animals actually are. Documented rape and assault by bottlenose dolphins on each other is brutal to watch. Dolphins helping fishermen catch fish in a *Blue Planet* segment, and fish building astonishing shelters and patterned nests, is fascinating to see. There were two recent videos released, one of a dolphin deliberately knocking a SUP paddler off his board, and another mid air changing course and knocking another dolphin senseless out of its way – shows an animal with deliberation and intent.

We have also been privileged to experience these animals in the wild several times now. We have seen how Orcas round up and hunt seals in Monterey Bay; humpback whales blocking

almost every direction the dive boats try to go to avoid them and migrating down from Mozambique to Antarctica; dolphins joining long boat trips out to Guadalupe in Mexico; beaked whales breathing and breaching in the dark of night near our liveaboard; turtles swimming freely with us at Dibia Beach; sharks breaching the surface when hunting seals; seals teasing lazy sharks, and so much more. All showcasing the natural balance of nature.

Hearing a whale take a breath is like hearing your own soul, it is one of the most amazing sounds in the world. On our last trip to Sodwana and Aliwal Shoal in South Africa, the boat captains all mentioned the ocean was like whale soup, they were literally everywhere. All the divers mentioned how amazing it is to hear them when diving. It took me a while to realise what I was hearing, until I was giving my neck some brutal workouts, trying to keep an eye out for macro subjects to photograph on the reef, yet keeping an eye out for those massive bodies passing overhead, hearing they were coming in closer and closer.

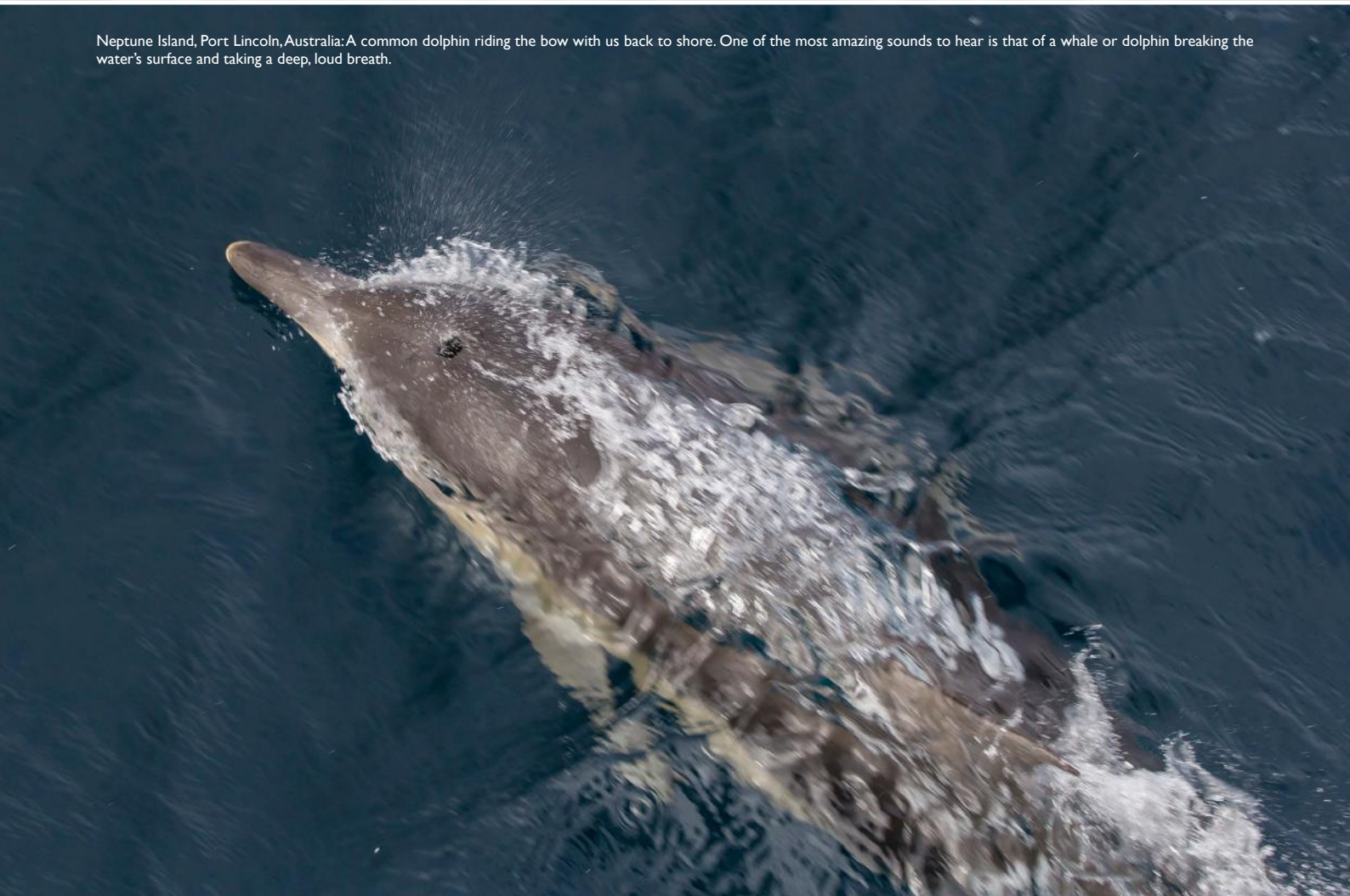
I must admit that I do think about the irony of all this I mentioned above a lot. My love for the

FEATURES

Monterey Bay, California: Humpback tails.



Neptune Island, Port Lincoln, Australia: A common dolphin riding the bow with us back to shore. One of the most amazing sounds to hear is that of a whale or dolphin breaking the water's surface and taking a deep, loud breath.



sea and all its creatures may never have grown had it not been for my experiences in all these locations. I did not grow up on the coast, I did not have opportunities to go out on boats and experience the sea and everything I now know from it. My family loved sea side holidays, many were taken along the coast of Ballito or Umhlanga in South Africa, and I would stare at the waves for hours, waiting for the surfing dolphins, searching rock pools for something interesting or fascinated by the divers going out at Sodwana Bay, wondering what that deep blue looked like and how it would feel under the ocean's surface.

I look at family and friends with children and realise its not always feasible or the best idea to take them out in the open ocean where encounters are not always guaranteed. There can be boredom and disappointment, and even sea sickness can settle in very quickly. There is some purpose to this, as much as I am not a supporter of places that confine and capture animals, it is quite a predicament when you truly desire that children become aware of how important our oceans are from a young age, to establish a love and understanding for it, to grow and nurture a love for the planet and all its creatures.

I do know there are some facilities that do incredible rehabilitation work with injured, orphaned or stranded animals, giving them a second chance at life, and I respect and admire those involved for a truly good cause and outcome. But those who are in it for money alone and neglect the most important aspect, which is respect for the animals, should not be supported.

Documentaries such as those done by Blue Planet and Planet Earth do insane work to bring the underwater world and remote world into our living rooms and to our children, and for that we should be incredibly thankful. The hours dedicated by the cameramen are mind-blowing. Sensation does exist and currently some mainstream documentaries and films do a great job of bringing all the teeth, guts and glory to us too, and it takes some research and knowledge from parents I believe, to keep the sensation out and the facts in.

Getting my head underwater as much as I can now, to experience marine life in its natural environment, takes me to the best and happiest places in the world.

Thank you Gambit, Kelpie, Kela, Frodo, Fraya, Misty and Sandy. You made my dreams. You created my passions. May those of you who never saw the beautiful open ocean, rest well and finally swim free.

Here is to continuously finding and supporting better ways to showcase and encourage a love amongst the new generations, for our oceans and its incredible life which is such a crucial part of a healthy and sustainable world.

Boulders Beach, Cape Town, South Africa: Instead of watching penguins confined by glass and concrete, it is so much more peaceful to be in the wild with them. I sat on the rocks for hours as they casually strolled by from their nests to the ocean and back.



Newport Beach, Los Angeles, California: The coastline is alive with underwater creatures such as this common dolphin and the only role aquariums and dolphinariums there should play, is rescue, rehabilitate and release.

Dibba Rock, Dibba, United Arab Emirates: A mask and snorkel is all that is required to see turtles swim freely right on our own doorstep of the UAE's coastline on the East Coast.



MY BUDDY

THE MACRO-BIOLOGY DIVER

FEATURE **PATRICK VAN HOESERLANDE**

When I saw my buddy concentrated in his work, I understood that a good film is created through teamwork. A cameraman is focused on what is happening in front of his lens and thus loses all awareness of the environment around him. The buddy ensures safe dive operations and facilitates the filming. The buddy must have as much patience as the person holding the camera.





Photo by Ivo Madder



Photo by Werner Graf



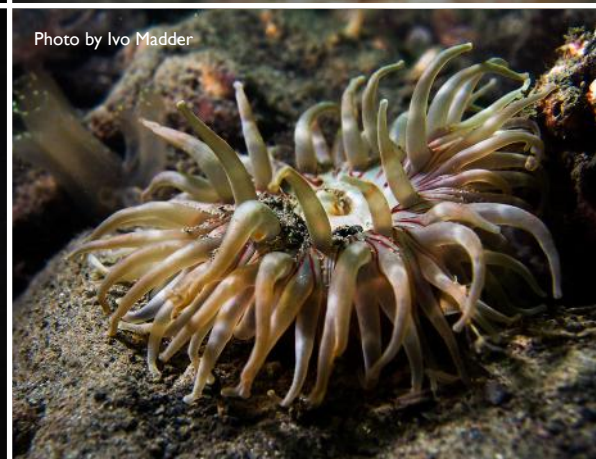
Photo by Werner Graf



Photo by Werner Graf



Photo by Ivo Madder



Due to unforeseen circumstances I was able to extend my stay on the Costa Brava. The pleasant outcome due to my late arrival back from this extended dive trip was that I did not have to unload or clean out my dive equipment. Why? I had a rendezvous booked for the next day at the 'Oesterdam' dive site, also known as the 'Bergse Diepsluis' to meet up with my next dive buddy.

When I arrived at the location, I saw my buddy's recreational van and trailer. I found Paul and his wife Maria sat comfortably in two folding chairs enjoying the warm morning sun. Both exuded rest, but still waters run deep and that is certainly true when it concerns these two divers.

It was quiet in the parking lot and because the tide hardly has any influence on the local dive conditions, there was no reason to hurry into the water. We had plenty of time to talk about our favourite subject – diving. My two interlocutors are a well-oiled dive team that focus on filming how certain animals behave underwater. I noticed a slight preference for cephalopods, especially when they talked

about an adventure they'd had in Australia. They want to capture the natural behaviour of animals: how they hunt, how they reproduce, etc., and they do excellent work because they have already produced several films on seahorses, cuttlefish, sea slugs, and the mussel quarries in the Oosterschelde. A number of their films have been sold and some Dutch television channels have their telephone number on stand-by. That's pretty impressive for a team that only started filming in 2002.

I was hoping to kill two birds with one stone by combining one trip with a pair of buddies, but Maria forfeited the dive. I had to take over her role and watch over Paul as his guardian angel. I did not give up that easily however, and after a weak promise of a rain check, I added her to my list of potential buddies. I got out of my comfortable chair and moved over towards the dive box to give it an inspection.

Paul's dive box is much, much larger than mine. His bin has two wheels and is pulled by the small RV. The large volume accommodates several dive tanks, two complete sets of dive equipment, a compressor, and folding chairs.

There were only dry suits hanging in the trailer. I suspected this was because videographers dive for long periods and very slowly, so they get cold quickly. Paul's answer however was that he simply abandoned diving in a wet suit long ago.

They are currently busy shooting a film about the reproduction of various animal species found in the Oosterschelde, and that is by sheer luck, the subject of our video dive. The briefing covers the necessary safety procedures, but the rest is left to happy encounters.

Our heads were barely underwater when we hit the jackpot. Three fish attracted Paul's attention and he pressed the record button. A lot of shooting and 20 minutes later, he had taken the shots he had wanted. The fish turned out to be bad actors, completely neglecting any directions given and only the patience of the cameraman ensured that the scenes were recorded correctly. We continued to search at low depth for other willing actors.

While we descended slowly with many stops along the way, I received a biology lesson. In

Photo by Ivo Madder

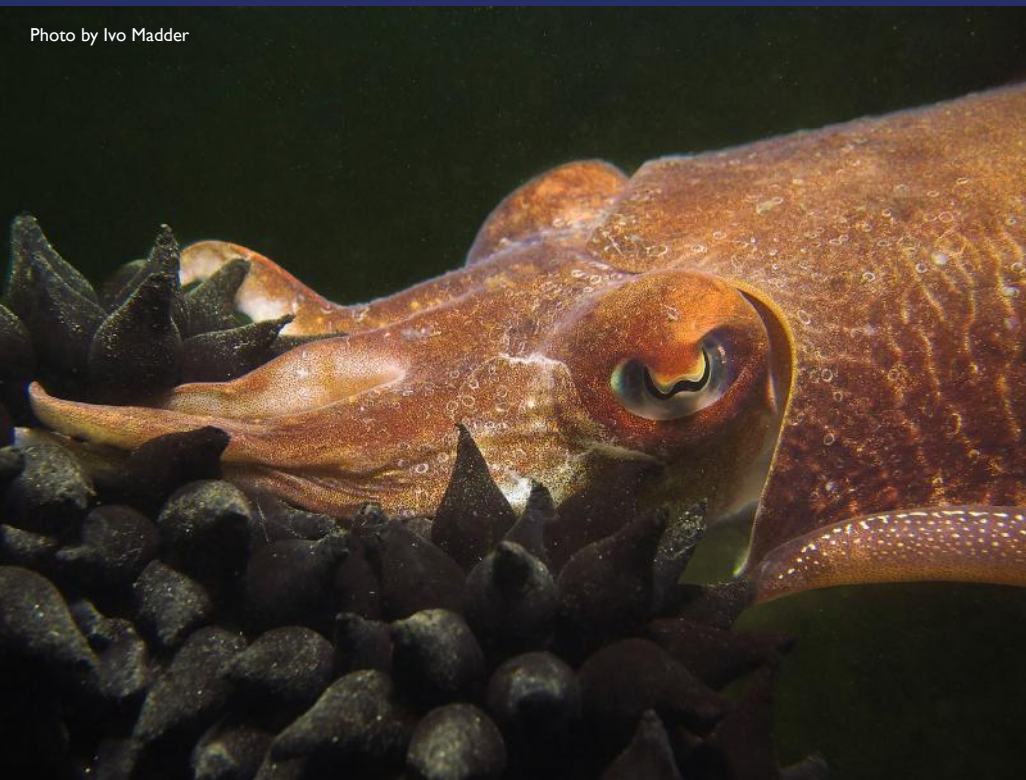


Photo by Ivo Madder



Photo by Ivo Madder



a diver's sign language, Paul gave me some interesting facts. When he set his camera to run again, I circled around him in search of potential players. I came into the company of a sea bass. Was he observing us? The dividing line between actor and spectator was fading.

I got enough time to see my buddy at work. For a layman, not much seems to happen, but I can imagine that adjusting the light, choosing the right perspective, the right position – is not sinecure. All this while the actors do what they want with no intention to follow any scenario at all. Filming, checking, adjusting and re-filming.

When I saw my buddy concentrated in his work, I understood that a good film is created through teamwork. A cameraman is focused on what is happening in front of his lens and thus loses all awareness of the environment around him. The buddy ensures safe dive operations and facilitates the filming. The buddy must have as much patience as the person holding the camera.

Despite the hundreds of hours spent shooting,

scenes for which most other divers would not normally stop for, my buddy the videographer is charmed by it all. The distance we travelled together in our hour's dive is easily bridged by pleasure divers in the first 5 minutes of a 'normal' dive, and yet I have seen and learnt more in this dive than all my others put together.

Thank you Paul for taking me on this very interesting video exploration dive and I apologise for my inexperience as your buddy.

I drove out of the parking lot of the Oesterdam and passed through countless Dutch people enjoying the sun. I mentally checked macro-biology videographer off my list of buddies and looked up my next buddy's speciality. Also interesting and another experience I look forward to.

LET'S CONNECT

Do you know someone who has a special approach to diving and wants me as his or her buddy? Or are you such a diver?

Contact me via email and let's connect:
patrick.vanhoeserlande@nelos.be



Diver: Paul Engels
First Dive: 1992
Total Dives: 2,700

Club: KTWV, Belgium
Certification: 1 Star Instructor

Other Certifications: Nitrox
Special Equipment: Canon XA25 with a Gates underwater housing.
Favourite Dive Site Local Waters: Oosterschelde
Favourite Dive Site Abroad: The whole world.
Preferred Type of Dive: A quiet dive with little current.

Most Spectacular Dive: Gigantic whale sharks and hammerhead sharks on the Galapagos, as well as my encounter with giant octopus in Canada or the pygmy squids in Indonesia.

SUCCESS FOR SHARKS!

INCREDIBLE NUMBERS OF REEF SHARKS FOUND IN PHILIPPINE MARINE PROTECTED AREA

FEATURE AND PHOTOGRAPHY WWW.LAMAVE.ORG

Incredibly high numbers of reef sharks have been found in Tubbataha Reefs Natural Park (TRNP), Philippines. The numbers are higher than most other marine protected areas (MPAs) around the world and highlight the importance of large, well-managed marine protected areas like TRNP for the conservation of reef-associated sharks and rays.







ABOVE: Whitetip reef sharks in TRNP. Photo by Gonzalo Araujo | LAMAVE. **OPPOSITE PAGE: 1.** Jessica Labaja, Segundo Conales Jr and Ryan Murray conduct an UVS in TRNP. Photo by Steve De Neef | LAMAVE. **2.** An aerial shot of the South Atoll in TRNP, which is located approximately 170 km east of Puerto Princesa. Photo by Simon Pierce | LAMAVE. **3.** The rangers of Tubbataha Reefs. The rangers who protect the park are composed of members of the Tubbataha Management Office, Philippines Navy, Philippines Coastguard and members of the Local Government Unit of Cagayancil. Photo by Sally Snow | LAMAVE.

Scientists from Large Marine Vertebrates Research Institute Philippines (LAMAVE), Tubbataha Management Office (TMO) and Marine Megafauna Foundation (MMF) have found incredibly high numbers of reef sharks in Tubbataha Reefs Natural Park (TRNP), Philippines. The numbers are higher than most other marine protected areas (MPAs) around the world and highlight the importance of large, well-managed marine protected areas like TRNP for the conservation of reef-associated sharks and rays. These results provide hope for shark conservation in the Coral Triangle, where many populations are in a state of decline.

Dubbed the 'Amazon of the seas' the Philippines is regarded as the world epicentre for marine biodiversity. Approximately 200 species of sharks and rays exist in the country's waters, ranking it amongst the highest in the world in terms of diversity. This diversity also means it has an incredible amount to lose from the pressures facing the world's oceans: habitat destruction, over fishing, plastic pollution, and irresponsible tourism.

Fortunately, this study by LAMAVE, TMO and MMF shows that well-managed and enforced marine protected areas like Tubbataha Reefs Natural Park can be lifelines for species like reef sharks that are rapidly disappearing from

coastlines around the world. Tubbataha Reefs Natural Park was declared a UNESCO World Heritage Site in 1993 and is the largest no-take marine protected area in the Philippines covering an area of 1000 km².

While preliminary assessments for sharks in TRNP in 2005 and 2010 demonstrated high abundances of whitetip reef sharks, the goal of this study was to conduct a comprehensive assessment of all shark and ray species in the park using a combination of Underwater Visual Surveys (UVS) and Baited Remote Underwater Video Surveys (BRUVS). Underwater visual surveys were conducted by a team of scuba divers in various sites around the park in 2015 and 2016. Two spotters and one recorder dived along the reef at a constant depth of 15 m recording shark sightings over a known distance. Contrastingly, the Baited Remote Underwater Video Surveys (BRUVS) allowed the team to assess the abundance and diversity of sharks and rays at a wider range of depths from 1-100 m. The BRUV surveys also contributed to the worldwide assessment of sharks under the Global Fin Print Project.

Both UVS and BRUVS reported some of the highest abundances of grey reef sharks and whitetip reef sharks known worldwide. In fact, reef shark densities found during UVS were

three times higher than in no take zones (off limits to fishing) in the Great Barrier Reef (Australia) and nearly twice those found in Cocos Keeling, Australia. In total, the surveys documented 15 species of sharks and rays within the park including, but not limited to: tiger sharks, whale sharks, tawny nurse sharks, grey reef sharks, whitetip sharks, silky sharks, scalloped hammerheads and spotted eagle rays.

The team believes there are a number of reasons why reef sharks are doing so well. The park is incredibly well managed and enforced, an attribute to the fantastic staff of the Tubbataha Management Office and the Rangers of Tubbataha Reefs. Secondly, the park has been protected since the 1980s enabling multiple generations of sharks to mature and reproduce without fishing pressure (reef sharks become sexually mature around 10 years of age). Finally, the size of the park (1000 km²) and its isolation from human populated areas has allowed the marine habitat to thrive in a natural state. There are clearly lessons to be learnt from the success of Tubbataha Reefs Natural Park that can be applied to the development of future marine protected areas. The team hopes that this exciting news highlights the success of the park for reef sharks and will provide hope and inspiration to others in the fight to protect the oceans.



ABOUT LAMAVE

Large Marine Vertebrates Research Institute Philippines (LAMAVE) is the largest independent non-profit non-governmental organisation dedicated to the conservation of marine megafauna and their habitats in the Philippines. LAMAVE strives for conservation through scientific research, policy and education.

www.lamave.org

ABOUT THE TUBBATAHA REEFS NATURAL PARK

Tubbataha Reefs Natural Park is the largest marine protected area in the Philippines. It was declared a UNESCO World Heritage Site in 1993. The park is managed and protected by the Tubbataha Protected Area Management Board, the Tubbataha Management Office and the Marine Park Rangers.

www.tubbatahareefs.org

ABOUT THE MARINE MEGAFAUNA FOUNDATION

The Marine Megafauna Foundation was created in 2009 to research, protect and conserve the populations of threatened marine megafauna around the world. "Megafauna are large marine species such as sharks, rays, marine mammals and sea turtles.

www.marinemegafaunafoundation.org



75 YEARS OF SPORT DIVING

HOW DOES A SINGLE STAGE REGULATOR WORK?

FEATURE **PATRICK VAN HOESERLANDE**

The Mistral single-stage regulator is for most of us, a bit like a Ford T – we may have heard of it, or read about it, but very few have dived with it.



The legendary Mistral regulator. Photo by Dirk Deraedt.

The Mistral single-stage regulator is for most of us, a bit like a Ford T – we may have heard of it, or read about it, but very few have dived with it. I hear some people think they have dived with a single-stage Mistral! That was also my reaction before I immersed myself in the matter to write this article. Until recently, I believed a single-stage regulator (figure 1) was tantamount to a big round thing attached with two hoses, connected to a mouthpiece. Thanks to the absence of annoying air bubbles that escape from the mouthpiece into my field of view, my diving experience with such a device was surprisingly quiet. I was ignorant then.

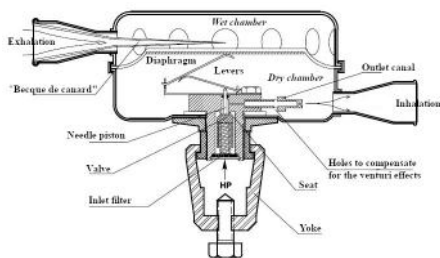


Figure 1: A single stage regulator.

Through my research, I discovered that there was a model very similar to the one used by Jean-Jacques Cousteau, later baptised the "Mistral", that was in fact a two-stage regulator. Yes, they both look a lot alike and resemble my above-mentioned visualisation of a "single-stage", but that large shiny thing on the back can also include two stages, as shown in figure 2. The second stage is unlike the modern version, not integrated in the mouthpiece but tucked away under the large lid. There is no connection for medium pressure, they felt no need for it at the time, and thus only the technical specifications or a complete dismantling of the regulator can reveal the number of stages: one or two? I'm not sure of the number of stages I dived with years ago.

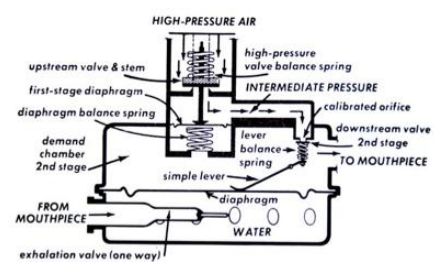


Figure 2: A two-stage regulator in one casing.

You can recognise a single stage regulator by the typical 'whoosh' sound it makes when diving with it. This distinctive sound is produced by the venturi, but I have not yet confirmed this myself. It is on my to-do list for the next article in which I – as a two-stage diver – will try out the old model and share the experience with you.

Before diving with the regulator, I wanted to technically analyse the device and understand its operation. I sought to go deeper than the

normal dive course and transcend the few lines you normally find on the topic, to a less vulgarised explanation. First, here's a general description of the regulator because general knowledge of the modus of operation is the basis for better, more detailed understanding, and not everyone likes physics. Right?

If you think that using the internet for its specialised sites and Wikipedia to catch up on technical explanations is a piece of cake, then you are heading for disappointment. Dozens of sites later – different pictures, drawings, pdf-files – I could not find an explanation on how the regulator worked. The first problem that I struggled with when I looked at the diagrams, was the exact function of the exhalation valve – 'becque de canard' or duckbill – situated in the exhaust part of the casing. I did not immediately see how it could close the unique stage when exhaling. I was obliged to analyse a technical cross-section to draw up the formulas when I desperately asked colleague-diver, Dirk Deraedt for support. He had found extensive work on regulators and other dive equipment in French. I should have done my research in French considering the nationality of the duo, Cousteau-Gagnan.

In any case, the book he had found was 'Principes des détendeurs de plongée 2006' by Henri Le Bris and it was the starting point I was looking for. This is a fantastic reference and I used it to write this article. If you are interested in the nitty-gritty details of your dive equipment and you understand French, I strongly recommend reading it. It is free and available online.

THE POPULAR EXPLANATION

As promised, I will start with a simple explanation that forms a good basis for understanding the more detailed description that follows. Before we start, I first want to highlight a few peripheral parameters that support the study. As a diver, we know that the length of a snorkel is limited, among other things, by the relatively weak power of our chest muscles. During our evolution as mammals, we did not need to develop strong upper body muscles because they are not needed for life in an atmospheric environment. Although this makes sense in a Darwinism way, the result is that we can barely overcome pressure differences of a few dozen centimetres of water pressure, or a few hundredths of a bar. If we compare that with the pressure in a scuba tank, we get a good idea of the big change between the input (hectobars) and the discharge pressure (centibars) of a single-stage regulator.

In Cousteau's dive tank, due to limited technical possibilities and physiological limits of the time, there was barely 150 bar in his tank and thus a single-stage regulator was enough to make scuba diving possible. If he would have had a 300 bar composite tank on his back, we would most probably have

to wait for the birth of sport diving to invent the modern two-stage regulator. A single-stage is not able to safely overcome the large adiabatic cooling caused by such a high pressure drop.

We can use the simplified representation of the regulator in figure 3 to explain its operation. This regulator was the most widely used of the two types, as illustrated in figure 4, and is also the type of the Aqua-Lung regulator. "Aqua-Lung" was the name given to the original design as patented by Emile Gagnan and Jacques Cousteau in 1943. Today the name "Aqualung" sounds a bit old-fashioned and we prefer the use of the term "SCUBA".

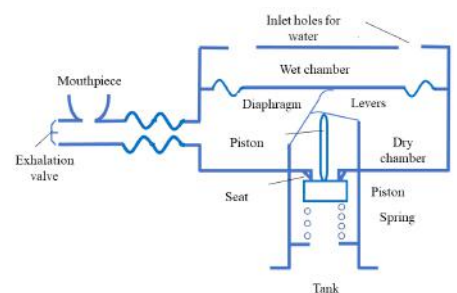


Figure 3: The components of a single-stage regulator.

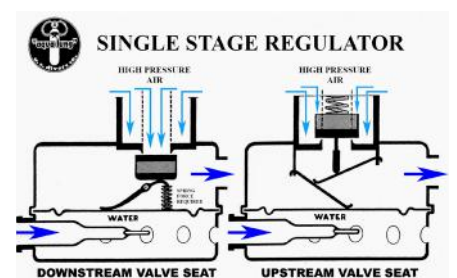


Figure 4: Different types of regulators according to the position of the piston.

Let us study the drawing of figure 3. At rest, the high pressure in the dive tank pushes the piston against the seat, preventing air from flowing into the dry chamber of the regulator. This means that the force of the spring, together with the force exerted on the valve, is at least, in balance with the force of the water pressure on the diaphragm and transmitted by the levers.

If the diver inhales, the pressure in the dry room drops, resulting in the diaphragm lowering. If the force (via the levers) on the valve is large enough, it will open and air from the tank will enter the dry chamber. This will continue to flow until the equilibrium is restored. That is when the diver stops breathing and the pressure is reestablished.

On expiration, the air flows to the exhalation valve following the path of the least resistance. This valve is a duckbill shaped rubber piece in the wet room. The air bubbles escape easily through the large holes of the wet room and do not affect the movement of the diaphragm. When the diver stops breathing, the regulator is ready for the next cycle.

Of course, there is another phenomenon that can disturb the balance of forces, and that is a change in depth. Imagine that our diver is descending deeper. This increases the pressure in the wet room, that is, after all, in direct contact with the surrounding water, causing the diaphragm to move downwards. If the change in depth is large enough, the piston will move too and let air through. The amount of air will be just enough to restore the balance. The air pressure in the dry room will then be equal to the new ambient water pressure.

The value of the high pressure in the tank also plays a major role. After all, the equilibrium is dependent on this pressure and thus a drop in pressure in the tank will decrease pressure difference necessary to move the piston.

For the sake of leaving no stone unturned, I must mention that this pressure difference also reduces with increasing depth. There are combinations of pressure in the tank and dive depth where the tank simply empties itself. This also means that the shallower you dive, the harder it is to breathe. In fact, a single stage regulator is set to operate ideally for a certain depth (along with a certain pressure in the tank).

THE TECHNICAL EXPLANATION

The above explanation is enough for an initiation course, but not for a specialised article on this topic. The following information will focus on the detailed operation and for that we will have to use some formulas. These are based on the laws of diving physics that I assume you are familiar with as a reader. If not, then this is a good time to open your course book on that chapter and to keep it at hand in case you need it. We will limit ourselves to the static operation of the regulator because the dynamic study would take us too far into the details and yields little extra insight.

For our study, we use a simplified, theoretical model that is close to reality. Figure 5 contains the necessary number of physical characteristics of the regulator.

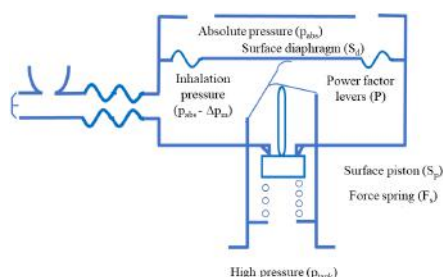


Figure 5: The physical characteristics of a single-stage regulator.

The force by which the piston presses against its seat consists of:

- The force of the spring: F_s
- The high pressure (p_{tank}) pushing against the surface of the piston (S_p): $p_{\text{tank}} \times S_p$
- The pressure in the dry chamber ($p_{\text{abs}} - \Delta p_m$, with Δp_m the pressure drop during

inhalation) against the surface of the diaphragm (S_d) transmitted and augmented by the levers (P): $(p_{\text{abs}} - \Delta p_m) \times P \times S_d$

The force that pushes the piston away from its seat is the combination of:

- The pressure in the dry chamber against the surface of the piston (S_p with the assumption that the surfaces on both sides of the piston are equal): $(p_{\text{abs}} - \Delta p_m) \times S_p$
- The absolute pressure in the wet chamber (p_{abs}) against the surface of the diaphragm (S_d with the assumption that the surfaces on both sides of the diaphragm are equal) transmitted and augmented by the levers: $p_{\text{abs}} \times P \times S_d$

At equilibrium the two opposing forces must be equal:

$$(p_{\text{abs}} - \Delta p_m) \times S_p + p_{\text{abs}} \times P \times S_d = F_s + p_{\text{tank}} \times S_p + (p_{\text{abs}} - \Delta p_m) \times P \times S_d$$

Further work leads to:

$$p_{\text{abs}} \times S_p - \Delta p_m \times S_p + p_{\text{abs}} \times P \times S_d = F_s + p_{\text{tank}} \times S_p + p_{\text{abs}} \times P \times S_d - \Delta p_m \times P \times S_d$$

$$\Delta p_m \times P \times S_d - \Delta p_m \times S_p = F_s + p_{\text{tank}} \times S_p - p_{\text{abs}} \times S_p + p_{\text{abs}} \times P \times S_d - p_{\text{abs}} \times P \times S_d$$

$$\Delta p_m \times (P \times S_d - S_p) = F_s + (p_{\text{tank}} - p_{\text{abs}}) \times S_p$$

$$\Delta p_m = \frac{F_s + (p_{\text{tank}} - p_{\text{abs}}) \times S_p}{(P \times S_d - S_p)}$$

Usually S_p is negligible in relation to $P \times S_d$ and the same is true for p_{abs} compared to p_{tank} . If we take this into account, we obtain:

$$\Delta p_m = \frac{F_s + p_{\text{tank}} \times S_p}{S_d} \times \frac{1}{P}$$

With Δp_m , the pressure difference required by inhalation in order to unlock the piston, or in short, the pressure drop for inhalation.

WHAT CAN WE CONCLUDE FROM THIS FORMULA?

- The inhalation pressure drop decreases with a decrease in tank pressure. This means that the regulator must be correctly adjusted to prevent the tank from fusing when the high pressure due to air consumption becomes very low.
- The inhalation pressure drop is inversely proportional to the surface of the diaphragm. This explains the big dimension of this membrane.
- The ambient or absolute pressure, as long as it is negligible with respect to the cylinder pressure, has no influence on the inhalation pressure drop. This is not the case at great depth with an almost empty tank.
- When the high pressure decreases, the inhalation effort decreases (necessary inhalation pressure drop decreases).

Numerical example:

$S_p = 0.04 \text{ cm}^2$; $F_s = 20 \text{ N}$; $P = 40$; $S_d = 65 \text{ cm}^2$ and $p_{\text{tank}} = 150 \text{ bar}$.

Then you get $\Delta p_m = 3.08 \text{ mbar}$ (3.08 cm water).

DIVING ON PAPER

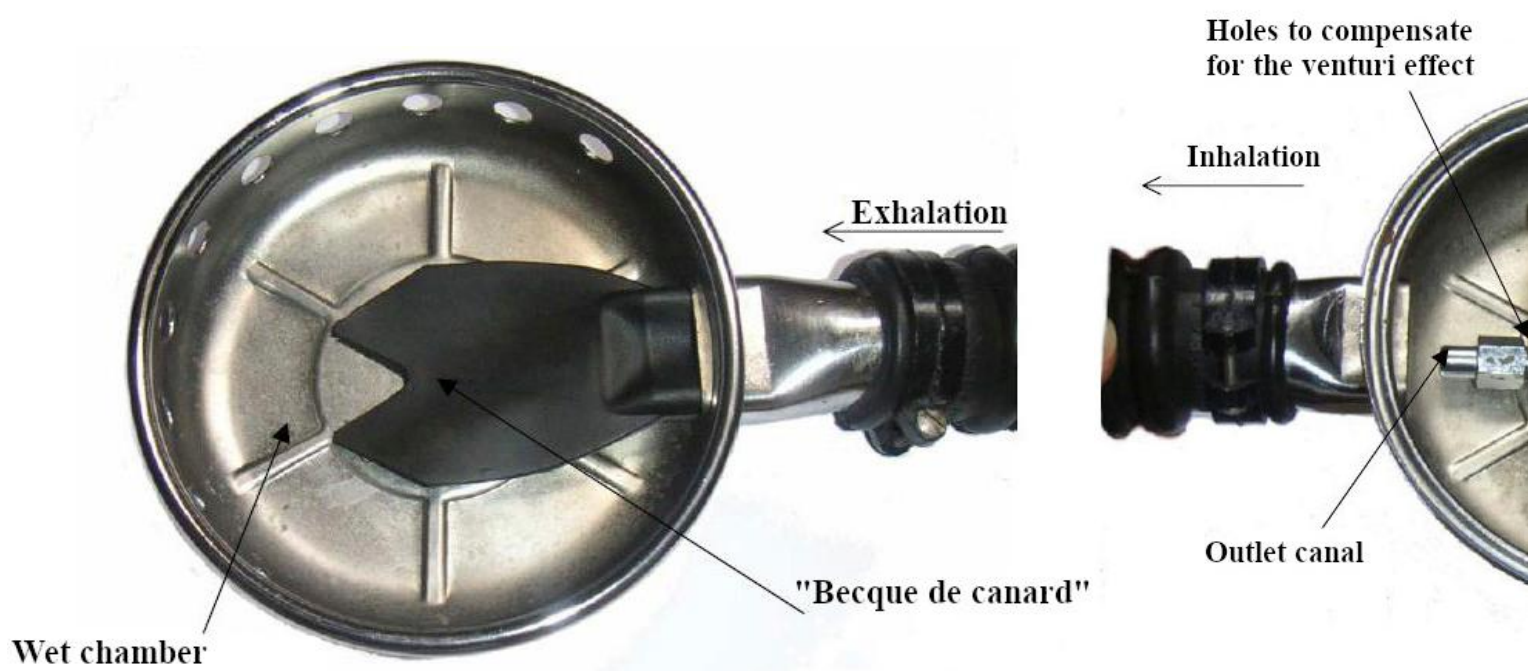
Now that we have a better understanding of the operation and its consequences, there are a few interesting things about a single-stage regulator. To be completely honest, what is stated below is in most cases also true for all regulators mounted on a diver's tank regardless of the number of stages. Sometimes single and two-stage regulators are lumped together, while they involve two different approaches. However, as most single-stage devices are equipped with an inhalation and exhalation hose, this confusion is not illogical.

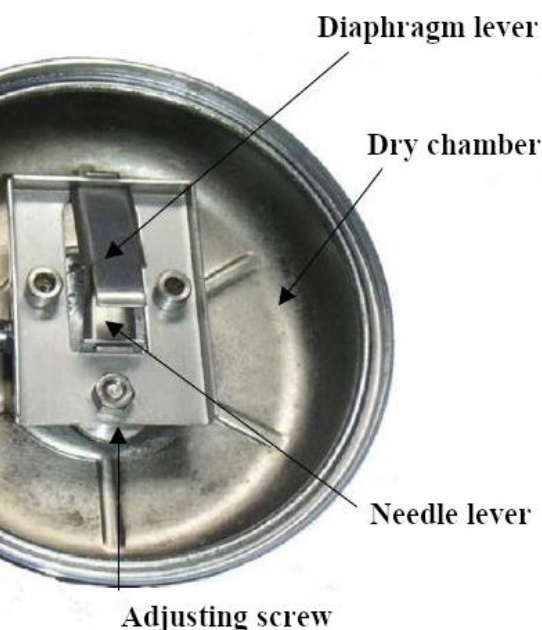
Why a second hose? The first Aqua-Lung prototypes just had one hose, but Cousteau soon discovered that the regulator went into free flow when the mouth piece was held higher than the regulator. No surprise when you look at the result of the example above. The solution of adding an exhalation hose connected to the wet chamber ensures that the pressure at the outlet is equal to the ambient pressure at the level of the regulator. This extra tube did not appear to be the perfect solution because air simply wants to rise, but it was better, and when the regulator went into free flow, the air escaped through the wet room instead of bubbling before the diver's eyes. The latter is an advantage of the back mounted regulator with twin hoses; bubbles are ventilated at the back and do not disturb the diver's visual field of view. Also, the bubbles stay clear of the ears, making it less noisy. The real 'monde du silence' – silent world – as Jean-Jacques described it.

The double hoses solution does however come with its disadvantage. Due to the low pressure in the hoses, their diameter must be big enough to allow a flow sufficient enough for normal breathing. The resulting large volume of air in the two hoses have the tendency to pull the mouthpiece up. If you are going to dive with a single-stage, then you should add a bit more weight than diving with your modern regulator. If you should lose the mouthpiece, it will go up and constantly flow. Of course, this effect can be reduced by adding weight to the casing when designing the mouthpiece. The large hoses also provide extra resistance in the water when you swim or encounter a current. Due to the resistance, it pulls on the mouthpiece. It's clear that if the mouthpiece is not properly clamped between your teeth, then chances are you will lose it.

As previously mentioned, a single-stage regulator does not work well when there is high pressure in the tank. A large pressure drop can cause problems by the sudden cooling of the air (allegedly Cousteau did a dive with a Mistral mounted on a 330 bar dive tank) but this formula will also make breathing very difficult.

Another disadvantage is that no intermediate pressure is available. There is no means to attach a second regulator. If you want to do this, you need an extra tank.





Because you do not have a back-up regulator, you must, in the case of an emergency, share your air with your one and only mouthpiece. Due to the sensitivity to free flow, this must be done in a very disciplined manner. You could opt to rotate your mouthpiece resulting in the folding of both hoses in order to prevent air from escaping. The two hoses also make it difficult to pass the mouthpiece to your buddy and the absence of a purge valve means that discharging water is far from child's play. An alternating breath as you rise to the surface together with your buddy, requires dexterity and a lot of practice.

The final disadvantage is that the respiratory comfort strongly depends on the position of the mouthpiece in regards to the regulator's fixture. A variation of a few centimetres has a big effect on the comfort. The effect is greater than that of a modern two-stage regulator and completely the opposite as figure 6 nicely shows. However, the greater breathing effort could have a positive effect on air consumption. The robust design and simplicity of the regulator ensures that the single-stage breathing apparatus is a very reliable device.

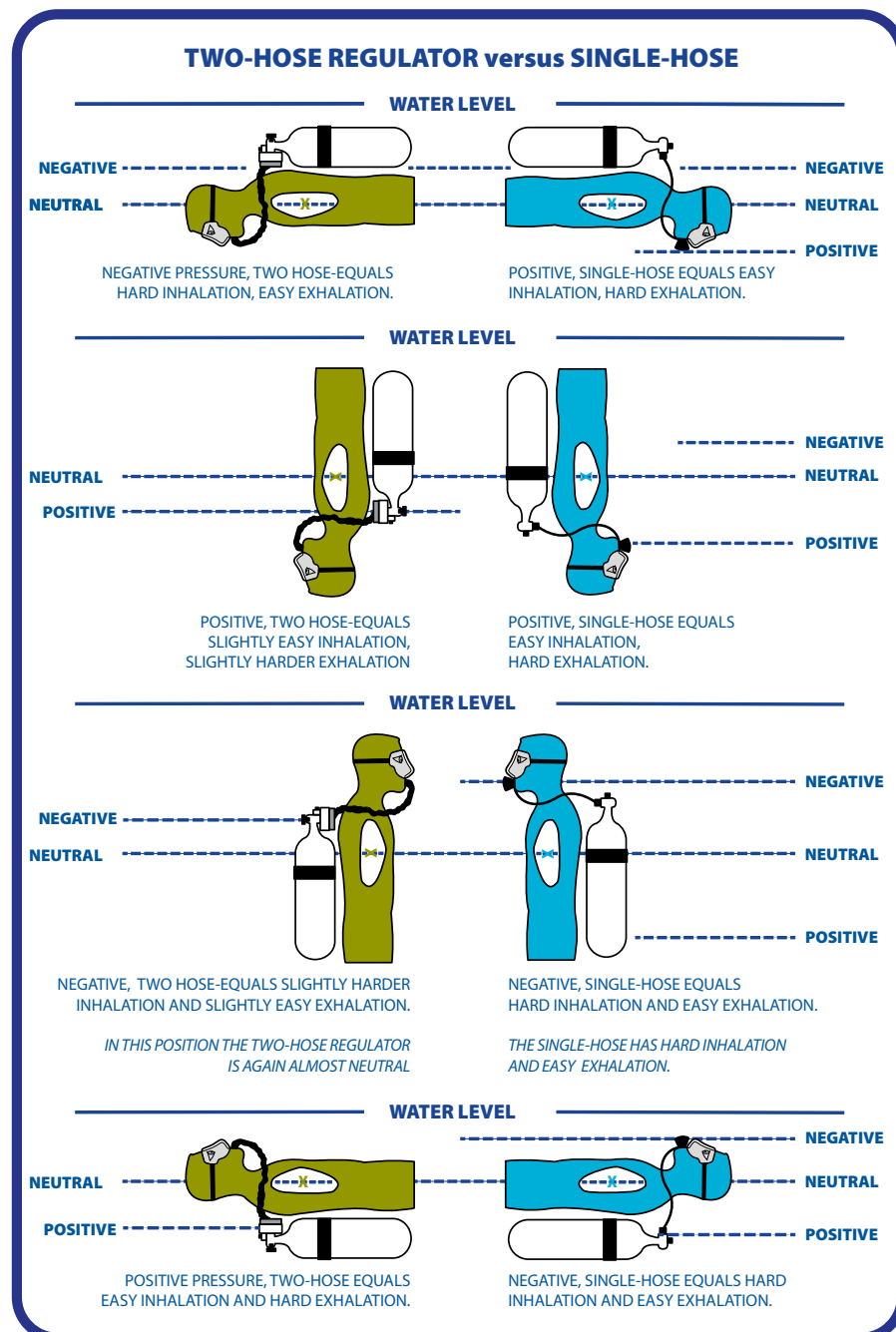


Figure 6: Breathing comfort in function of the position of the diver.

Equipped with the above theoretical analysis, we are prepared for the real thing: a dive with a single-stage regulator. It was not easy to lay my hands on a working specimen, and it took some time to find one. Wondering how the dry, technical analysis will correspond to the underwater experience? Then read part 3 of this series in the upcoming June issue.

FROM AQUANAUTS TO ASTRONAUTS

FEATURE **GIUSEPPE DI TURSI**

An interesting tour from underwater habitats to space – passing through a revolutionary research project where diving plays a key role to better understand how the human body reacts to extreme environments.



Photo by Karl Shreeves/NASA 2017. Aquanauts beginning the NEEMO 21 research mission.





NASA Analogs 2017. The NEEMO 22 aquanauts during their research work inside the Aquarius habitat.

Whenever you hear about diving, you will most likely link it to the ocean and the enchanting life hidden beneath its surface. This extremely fascinating underwater world is the main reason humans started diving to begin with.

Do you remember when you were promised to experience the feeling of weightlessness in your open water diving course? Well, some guys take weightlessness very seriously. When I was a kid, I remember watching space missions on TV and there was one in particular. Wearing astronaut-like suits, this bizarre category of divers jump into large indoor pools and play around with massive Lego blocks underwater. It took a degree in aerospace engineering and becoming a scuba instructor for me to be convinced that the playground depicted in my childhood's mind was actually a full scale mock-up of the International Space Station (ISS) modules and payloads and the divers were not taking part in an underwater costume parade, but were actual astronauts.

We are at the NASA Neutral Buoyancy Laboratory in Houston, United States, a training facility where a large indoor pool of water simulates a microgravity environment. This is home for the new generation of space travellers who are preparing for upcoming missions. The uplift of the water counteracts the pull of gravity and astronauts can get themselves accustomed to perform simulated

extravehicular activities (EVA) in outer space-like conditions. Even though there are a few downsides related to drag and a lack of gravity within the spacesuits, water still remains the most favourable and cost-effective tool together with parabolic flights, making this training possible.

Generally, there are four divers assigned to each astronaut: two safety divers and two other divers with cameras, while instructors monitor the action from a control room. Usually, they roughly spend six hours working nonstop while divers split into different shifts and teams as they breathe nitrox blends allowing for the bottom time required. This is not the only facility of its kind, they can also be found in China, Japan, Russia and Europe through their respective space programmes.

Regardless of the novice idea of making astronauts dive in order to replicate space-like circumstances, do they really have something in common with the diving community? The answer is yes, most definitely. Both space and the ocean are hostile environments and both categories exemplify the human spirit of exploration, but this is just the tip of the iceberg.

Saturation diving, also called SAT diving, is the closest example on Earth to astronauts, both from a technological and a physiopathological point of view. Saturation diving does not

necessarily have to do with extreme depths, even if this is what we are normally used to seeing. Spending a remarkable time being submerged underwater as shallow as 10 metres while breathing a gas mixture at pressure, is also considered saturation diving. This takes our discussion to one of the most intriguing breakthroughs in human environmental adaptability, as well as the lifetime dream of many of you reading this article, of living underwater. So far, there are far more people who have continuously lived in space than those who have lived beneath the sea's surface for any significant amount of time.

I now want to take you to Florida where a few miles off from Key Largo lies one of the most famous underwater habitats owned by the National Oceanic and Atmospheric Administration (NOAA) called Aquarius. This is a true undersea laboratory dedicated to marine science, physiological research and education. Located down at 18 metres, it is used by NASA through the NASA Extreme Environment Mission Operations (NEEMO) programme to get new generation spacemen a thorough start in learning about technologies and procedures that could help to fulfil duties on-board the International Space Station. This is different from recreational scuba diving as coming up to the surface is not an option, and the so-called aquanauts undergo specific training with a greater emphasis on



Photo by NASA of Aquarius.

safety empowering them to problem-solve individually, or in a team.

Developing the correct approach in such confined quarters with limited available resources – especially when it comes to medical supplies – gives valuable experience and a first insight into manned space flight life. Considerable planning of support equipment and personnel has to be taken into account, as well as practice of emergency procedures along with dealing and being coordinated by off-site managers.

Some of the challenges are similarly addressed such as dehumidification, heat control, odour removal, food storage, and waste management. Physiologically speaking, bone related pathologies are one of the most dominant similarities, with density loss due to shedding calcium in space and bone aseptic necrosis due to dissolved inert gas in saturation dives. Together with bone pathologies, “oxygen ear”, a pressure imbalance between the outer and middle ear due to oxygen metabolism by the surrounding tissues, is what astronauts and divers have in common as a consequence of breathing oxygen-rich mixtures.

Narrowing the analysis to diving and talking about breathing, the atmosphere in the saturation chamber is an exotic compound of three gas mixtures (trimix) of helium,

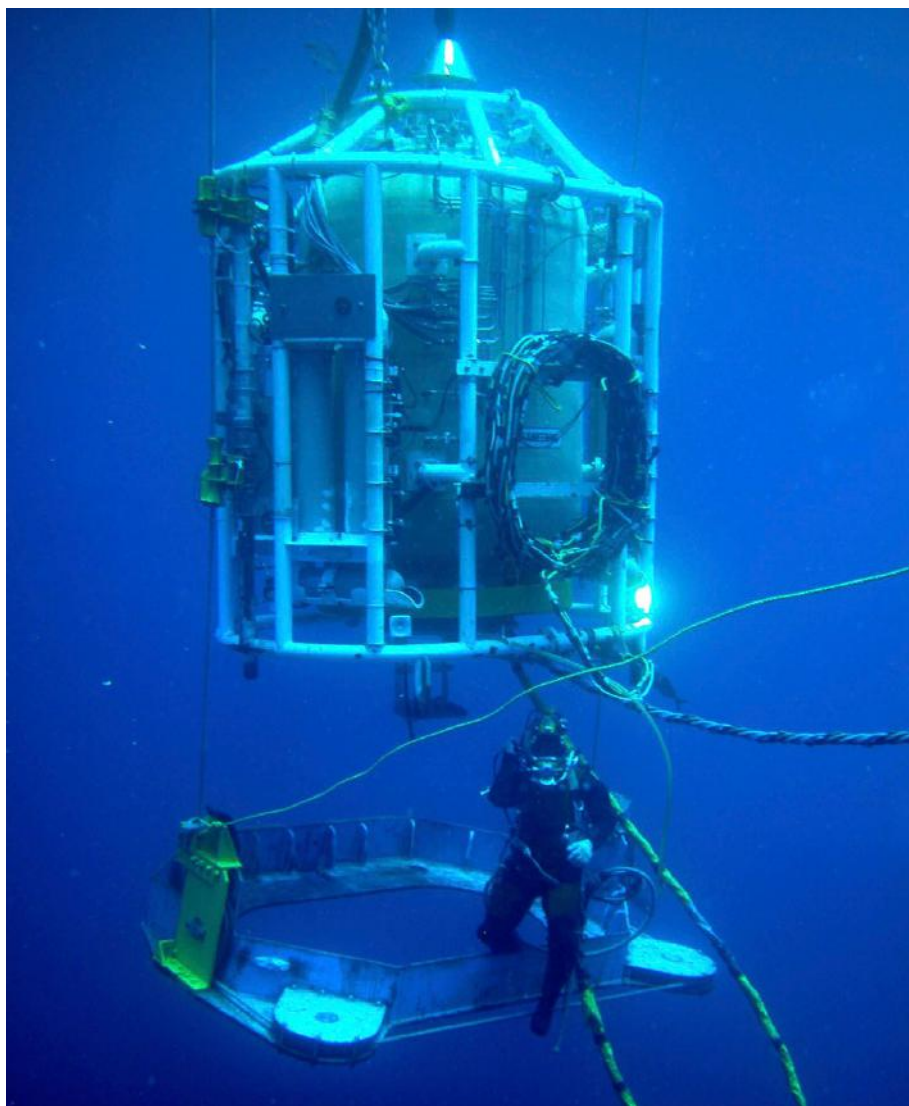
oxygen and nitrogen where the helium is used to neutralize the potential narcotic effects of nitrogen, even though its high thermal conductivity and the communication problems it causes must also be taken into consideration. Once the breathing gas has been chosen, the next step is how to scrub the build-up of carbon dioxide, the end point of oxygen metabolism which is highly soluble in tissues. CO₂ is a narcotic gas and it is capable of affecting performances either at low or high concentrations. Given the severe consequences, plenty of methods have been suggested for removing the gas from closed environments.

In technical diving, for example, a rebreather uses soda-lime as a scrubber where CO₂ is separated through chemical reaction, but, although it is tailored for these designs, it is not applicable in our case where, rather than having a pulsating flow with a somewhat high concentration of CO₂, a constant flow of gas with a fairly low CO₂ concentration is what most likely happens. Here is another resemblance to the ISS, where it adopts a more effective way using a two or four-bed molecular sieve system that removes CO₂ from a wet gas stream forced to pass through an integrated absorption bed, and then filtered.

Moving on, SAT divers usually stay in surface chambers at “storage” pressure, shallower

than the one corresponding to the depth they need to work in for their mission, and then transferred to the site by capsules. While at work, divers need high oxygen content in the breathing media to balance the amount of inert gas, but on the other hand, this cannot exceed a certain threshold in order to avoid the onset of oxygen toxicity illnesses. Upon completion of the operations, all divers then need to go through decompression stages, normally accomplished in the form of a controlled ascent rate.

In space, astronauts may also face risks of decompression sickness (DCS) when performing space walks. It would be the same as overfilling a dry suit for diving purposes. An EVA suit is pressurised at almost a third of normal sea-level pressure, otherwise it would be too rigid for the wearer to move. Lowering of pressure results in a reduction of the total amount of oxygen in the breathing space, consequently, prior to any space walk, astronauts must rebreathe oxygen to increase the ppO₂ levels required to sustain life. If not performed, the transfer of dissolved nitrogen from the tissues to the astronaut's bloodstream could cause the astronaut to become “bent”. Additionally, tests have shown that even slightly higher metabolic rates, as the one of an astronaut working while moving against a pressurised suit, can positively contribute to nitrogen elimination. Therefore, a very



1. Oceaneering ®. Saturation diver locks out of a three-man diving bell. **2.** Y-40 ® Photo by Marco Mancini of SkiScubaSpace's first underwater blood draw on scuba divers. **3.** Y-40 ® Photo by Nico Cardin of the first underwater blood draw on freedivers at -42m. **4.** Photo by Alberto Balbi/DAN Europe of the SkiScubaSpace project.

specific exercise prescription made of pairing high-intensity with low-intensity exertion, can enhance nitrogen bubble reduction. Given its probabilistic nature and individual reaction, DCS cannot be predicted or prevented with absolute certainty, and still persists as one of the major concerns in both fields.

Moreover, SAT divers – through surface-supplied umbilical equipment – use a hot-water suit to protect themselves against the cold. In space, without an atmosphere to filter the sunlight, relevant excursions of temperatures must be expected and a spacesuit has the added function to insulate the wearer with an active cooling and heating system which also protects them from small meteoroids. EVA suits are more comparable to high-tech rebreathers which technical divers use as a self-reliant oxygen supply for breathing, but also maintains a pressure around the body to keep fluids in their liquid state.

These are just some of the similitudes, and nowadays, although a lot has been achieved, there are still loads of grey areas that need to be filled up with more solid research, especially on the physiological side of things.

In 2016, a team of Italian scientists from DAN Europe and ALTEC SpA, led respectively by Dr. Cialoni and Dr. Benassai, launched a joint programme called 'SkiScubaSpace' to study the effects on humans during extreme skiing at high-altitudes, underwater diving, flying, and being in space.

Bringing gravitational physiology to space medicine, diving physiology to hyper/hypobaric medicine, sports medicine to ergonomics, disability to extreme human performance together with the underwater world representing the hub of a unique research trilogy constitutes a synergy where all the involved scientific communities will undoubtedly benefit. One of the main challenges remains to make use of medical equipment underwater and at high pressure on diving individuals in order to monitor real-time parameters. That is why SkiScubaSpace aims to create a comparison between similar environmental conditions and different types of performances in order to closely monitor what would be hard to monitor underwater. This is being achieved with a group of highly-skilled skiers descending from very high mountains and then having the same

individuals perform underwater dives under the same conditions, both with a breathing apparatus and in apnoea. These experiments are carried out in simulated zero gravity environments such as parabolic flights, ALTEC's Neutral Buoyancy pool and in the Y-40 pool, a 40 metre deep pool which, thanks to its depth, allows a study of the human body underwater in a unique medical consulting room, set up by a team of DAN Europe experts, featuring all the equipment that is needed to perform scientific and medical tests during the dive, and in all the other research areas.

Cardiac and vascular ultra sounds, dopplers, ECGs, blood pressure tests and even some blood samples are among the investigations that DAN Europe executes in its Diving Safety Laboratory (DSL) directly in the concerned extreme environments. One of the most relevant exams is the flow-mediated dilation (FMD) whose purpose is to measure the dilation of an artery when blood flow increases in that artery under physical stress. The primary cause is release of nitric oxide by endothelial cells, the cells lining the interior surface of blood vessels. Nitric oxide covers an important role in regards to how the body

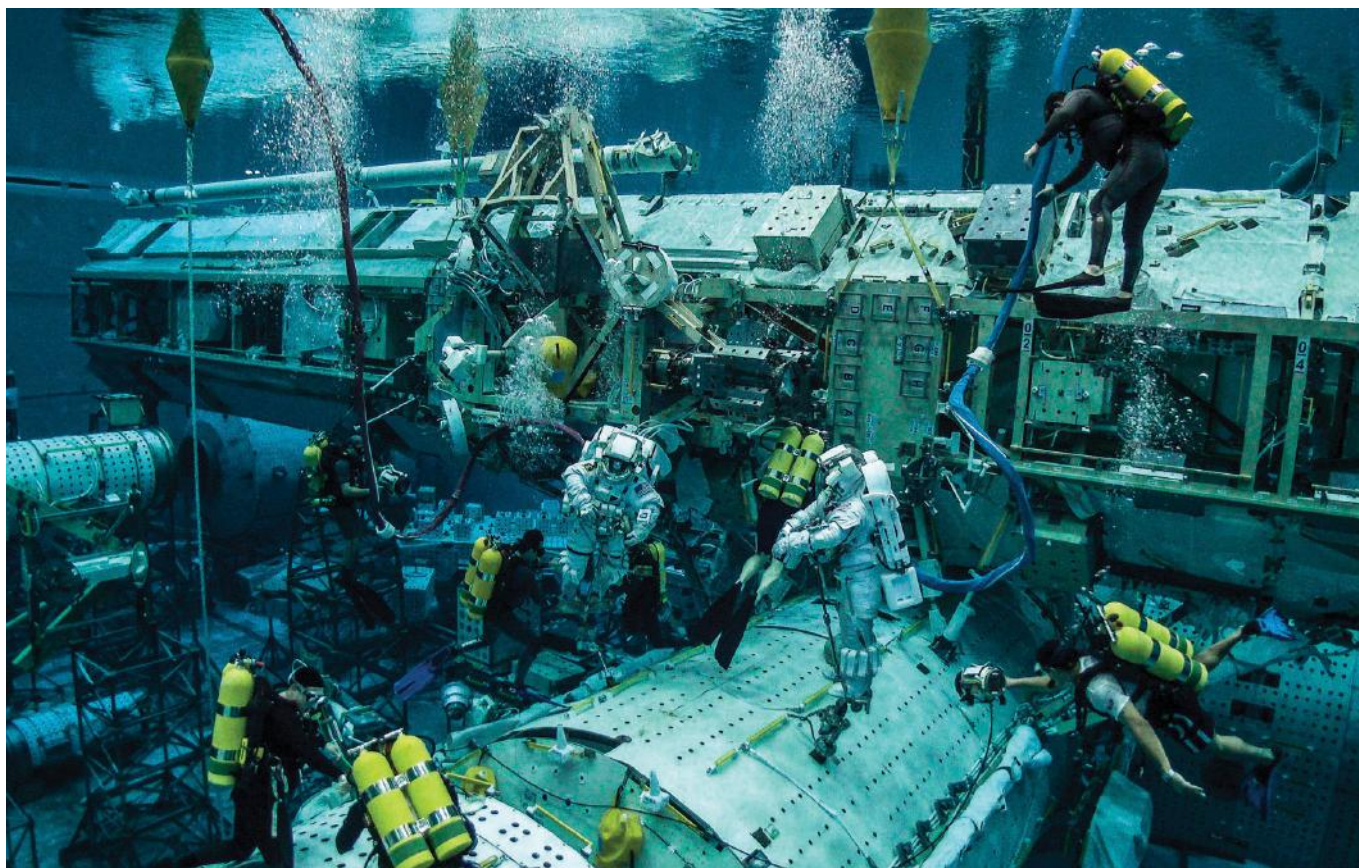


Photo by Jonathan Bird of NASA's Neutral Buoyancy Lab.

manages to cope with the stress of physical activity by relaxing and widening the vessel wall, and allowing for more blood to pass through, which more or less becomes capable of handling the hydraulic pressure induced by the exertion.

There are many well-known physiological and physiopathological effects related to the exposure to altitude and depth affecting tissues, organs and systems at various levels (musculoskeletal, nervous, cardiocirculatory, respiratory, digestive, urinary, lymphatic and immune systems, as well as their possible interactions), but many are still unclear which SkiScubaSpace – by opening other planned areas in aviation, rehabilitation, extreme and Paralympic sports – will be able to give definitive explanations.

In the context of further investigating psychophysiological aspects of diving in order to foster research in other fields, it is necessary to cite the ongoing efforts being made by a team of scientists from Università degli Studi di Padova (Italy) under the guidance of professor Gerardo Bosco. The study aims to evaluate the partial pressure of arterial blood gases, acidity and lactate in breath-hold divers performing a submersion at -40m. Blood samples have been collected through an arterial cannula positioned in the radial artery of the non-dominant limb 10 minutes prior to submersion at a 40m depth and within 2 minutes after a diver surfaces and resumes normal ventilation. The data will be helpful in answering the unsolved questions

concerning respiratory difficulties in kids and elderly individuals. Freediving leads to a range of similar physiological changes such as blood shifting and mammalian reflex. Finding out the limits in the decrease of oxygen's partial pressure or in the increase in carbon dioxide under these circumstances will help to adjust current therapies.

This article is a short bibliographical collection of resources and reflections. Credit needs to be given to the scientists that constantly put their know-how and efforts at the service of discovery, proving that diving is multidisciplinary and still sets aside, day by day surprises. Whether it is your hobby or your business, you are a scientist or you want to push your personal boundaries, the power of diving goes beyond and demonstrates it is an essential part of scientific research to understand other phenomena. Exploration that inspires further exploration, is an intricate journey of boundless human thirst, reaching towards the unknown.

If becoming an astronaut is within your plans, the prevailing opinion seems to be that aquatic adaptability is a prerequisite to success – so as a diver, you are one step ahead. Good luck!

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GIUSEPPE DI TURSI



Nationality: Italian

Age: 28

First Dive: 2013

Total Dives: 280

Certification: PADI OWSI

Specialities: Night, Nitrox, Wreck, Deep, Search and Recovery

Favourite Local Dive Site: Octopus Rock, Musandam

Favourite Dive Site Abroad: Komodo National Park



DIVING THE DIVINE TRADITION AND TABU IN FIJI

FEATURE AND PHOTOGRAPHY **LAUREN WARNELL**

While Natewa Bay isn't famous for a flagship species – like the Bull Sharks of Beqa for example – this little known bay hosts pristine reefs which have been protected by local communities for decades and offers the type of diving one rarely encounters elsewhere.





Fiji is well known for its exciting shark diving and abundance of soft coral's, but on the island of Vanua Levu we discovered something that was arguably even more breath-taking. Natewa Bay – the largest bay in the south pacific – holds some truly spectacular diving.

TRADITION AND TABU

At 80 km long, 15 km wide and with a surface area of over 1,000 square km, Natewa Bay is the largest bay in the South Pacific, and, being located in Fiji, the local communities that live along its shores have ownership over the coastal areas within the bay. These so-called Qoliqoli areas consist of beaches, lagoons and reefs and are passed down from generation to generation. Traditionally, when the chief of a village dies, a portion of the community's fishing ground within this area is set aside as a

no-take zone, or tabu (pronounced 'tam-boo') as a token of respect for the chief.

The Tabu can last from 100 days to several years and, as one might expect, upon lifting the Tabu, local spear fishermen report an increased harvest – with some believing the abundance and size of the catch after the Tabu is lifted is directly related to the Chief's supernatural powers.

It is the original community-led marine conservation.

PIONEERING EXPLORATION

While the idea has been extended elsewhere in Fiji, often in partnership with NGOs, in Natewa Bay these traditional tabu's are still in place. So in July 2018 we ventured out to see what sort of impact such a tradition has on local reefs.

When we landed at a small remote camp close to Dawa village on the bay, a Tabu on a nearby reef called 'Cakaukaloo' which roughly translates to "Gods Reef", had been lifted around one year earlier after five years as a no-take zone. To amplify what may have already been quite an extraordinary underwater labyrinth, we were the first group to be given permission to dive on the reef.

The excitement was palpable as we took the short 15-minute boat ride along the shores of the Bay to Cakaukaloo. After four weeks of camping in the area and wondering how divine the reef would be, this was our chance to feel like real explorers. Maybe we would see lots of sharks? Or an abundance of reef fish? The corals would probably be "quite nice".

But nothing could prepare us for what we saw



when we rolled back. The incredible diversity and abundance of hard corals, reef fish and pelagics was so astounding it almost blew us back out of the water.

From around 5 m there were table corals as far as the eye could see, some the size of dining tables, different species of soft corals in every colour of the rainbow and such an abundance of reef fish it was hard to know where to look first. Schooling barracudas and reef sharks swam by the sloping reef, while juvenile harlequin sweet lips danced around the coral and nudibranches slid along the substrate. Clutching my camera I froze – how does one even choose what to look at!

Not only was there an incredible sense of excitement around the idea of being pioneer

divers in the area, there was also an inspired confidence that when reefs are protected the right way the results can be quite astounding. To know there are places left with apparently pristine reefs gave some hope after years of working in marine conservation and seeing some less positive results.

MACRO MAGIC

While Cakaukaloo was the highlight of our visit to Natewa Bay, it was not to overshadow the other gems in the area. During our two-month visit, at least half of our time was spent shore diving where we found some remarkable muck diving with species including halimeda ghost pipefish, juvenile clown frogfish and decorator crabs to name a few. Meanwhile, two resident pods of spinner dolphins, turtles, rays and even the occasional whale was sighted. There was a sense that you could bump into just

about anything as the area has seen so little exploration in the past.

Thus, while Natewa Bay isn't famous for a flagship species – like the Bull Sharks of Beqa for example – this little known bay hosts pristine reefs which have been protected by local communities for decades and offers the type of diving one rarely encounters elsewhere. However, there is only one dive operator with permission to dive these reefs. Matthew Norman and Sara Carlson of Ocean Ventures Fiji have spent the past two years making visits to the local villages and asking permission from village chiefs to dive within their Qoliqolis. With minimal diver impact and traditional tabu's, this area will hopefully continue to flourish for years to come and remain a positive reminder of how some of the world's reefs can continue to thrive.



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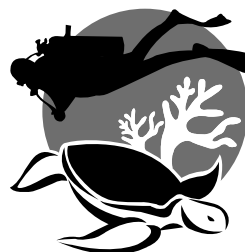
EDA'S UNDERWATER PHOTOGRAPHY
AND FILM COMPETITION 2019

HOW TO TAKE PART

Register online as an EDA Member to take part in Digital Online and get the chance to win some amazing prizes. Membership gives you access to all of EDA's other events and activities.

SUBMISSION DEADLINE

Sunday 28th April 2019 @ 11:59 pm (GST)



DIGITAL ONLINE

جمعية الإمارات للغوص

EMIRATES DIVING ASSOCIATION
PHOTOGRAPHY AND FILM COMPETITION

DIGITAL ONLINE 2019

EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMPETITION

SUBMISSIONS OPEN: SUNDAY, 6th JANUARY 2019 | SUBMISSIONS CLOSE: SUNDAY, 28th APRIL 2019 @ 11:59 PM (GST)

DIGITAL ONLINE'S MAIN OBJECTIVES ARE:

- To develop the human interaction with the underwater environment and highlight the beauty of its flora and fauna.
- To gather information on the number of underwater photographers in the UAE (both professional and amateur).
- To discover new promising underwater photographers in the UAE.

Digital Online is open to all photographers and videographers of all skill levels with a valid EDA Membership status. EDA membership must be renewed if expired or acquired in order to take part.

EVENT BY EDA



EXHIBITION HOST



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PRINT WORKS

PRIZE SPONSORS



DIGITAL ONLINE 2009-2019

Digital Online will be celebrating its 10th Anniversary! The competition was realised in 2009 as there were no other underwater photography competitions existing in the UAE at the time. Digital Online was introduced by EDA for resident photographers to develop a relationship and human interaction amongst those unfamiliar with the underwater world environment. The competition holds both local and international marine life categories to offer variety between our local and international diving enthusiasts.

The film category was introduced as an extension to the competition in 2012 to

share our underwater world through motion pictures and deliver a better understanding of the habitats and surroundings.

The event, now going into its 10th year, sees the continuous and steady growth of new underwater photographers taking part and joining our regular yearly participants. The enthusiasm and passion strives on, and the drive to bring our underwater world's conservation to the forefront increases over time. The purpose of Digital Online is to keep our underwater world visible by displaying its hidden beauties and to exemplify its importance to all life on Earth through the powers of its ecosystems.

The event has attained equal success with the non-divers who come to support the participating photographers and videographers at the Awards and Exhibition Opening Night. Whether it's through discussion or articles brought to our readers through our free quarterly magazine, Divers for the Environment, the inspiration the event brings is a success in its own right.

COMPETITION CLAUSE

EDA does not disclose photographers' names during the judging process. The competition is run fairly and without prejudice, professionally adhering to all of Digital Online's rules and guidelines throughout.



DIGITAL ONLINE
جمعية الإمارات للغوص
EMIRATES DIVING ASSOCIATION
PHOTOGRAPHY AND FILM COMPETITION



Digital Online 2018's Exhibition Opening and Awards Night at the American University in Dubai (AUD).

THE DIGITAL ONLINE RULES AND GUIDELINES 2019

RULES AND GUIDELINES

- Digital Online is open to all photographers and videographers of all skill levels with a valid EDA membership status. EDA membership must be renewed if expired in order to take part.
- Each competitor can only win one prize or prize package.
- Winners will choose their own prize.
- Participants are obligated to follow environmental conservation regulations and to respect the underwater world during the process of taking their stills and video. Be advised that any damage to the underwater world, including the disruption of the natural habitat of the marine life, provocation through touching, displacing, feeding or annoying, is prohibited and will disqualify the images or the photographer/videographer.
- By entering the competition, entrants declare that they own copyright of the submitted photographs and films and it entails an automatic acceptance of all the rules. EDA reserves the right to publish images in the 'Divers for the Environment' magazine, EDA's social media pages and on the EDA website. Images will also be used in any future promotional material for EDA events and competitions royalty free, but copyright remains with the photographer. Use of images or video will require no additional written or verbal permission from the photographer or videographer.
- Images (photos or videos) must not have already been submitted to previous Digital Online Competitions.
- Photos and videos must be taken underwater unless specified in a category description.
- Manipulation is restricted to colour correction, brightness, contrast, sharpening

and cropping. The Digital Online judges reserve the right to examine untouched images if requested.

- Removing backscatter is allowed to an extent, this does not include the removal of subjects such as fish or divers or cutting and pasting sections of images from one to another.
- The winners will be announced and their work displayed at the exhibition opening and award night on the 22nd of May 2019 at the American University in Dubai. Participants who do not make it to the evening of the event will be asked to collect their prize from the EDA offices.
- Sponsors' prizes will be announced in the March 2019 magazine issue.
- We pledge to run this photography and video competition ethically and with integrity. Our judges have volunteered their time to help. The photographers' details remain hidden to the judges during the judging process.
- All judge's decisions are final.

REGISTRATION AND UPLOADING ENTRIES

- Submissions can be entered from Sunday, 6th January 2019.
- The entry deadline is Sunday, 28th April 2019, at 11:59pm (GST – Gulf Standard Time).
- The participant must be a valid EDA member. Submit entries via email to photo@emiratesdiving.com with the requested category detail information.
- File names should include photographer's name and the category:
 - Name-Macro.jpg
 - Name-WA.jpg
 - Name-UAE.jpg
 - Name-BW.jpg
 - Name-Compact.jpg

- Photo entries must be saved in jpeg format and should be sized between 2000 and 6000 pixels in the longest dimension. Please limit your images to a maximum file size of 5MB. Images will be viewed on a monitor and should be in the Adobe RGB 1998 or sRGB colour space.
- Video submissions must be in mp4 format with the Videographer's name as the file name.
- The preferred method of entry is electronically, however, if this method is not possible due to slow internet connection, you are able to submit via DVD, memory card or stick. Please note, media will not be returned.
- You will receive an email to confirm your registration and photo/video upload. If you do not receive one within 24 hours, your email may not have come through and you may need to try again.

Good luck to everyone taking part in Digital Online 2019. Dive safely and have fun!

*NOTE: HOW PRIZES ARE AWARDED

Once the judging is complete, the winners will be able to choose a prize available to them on the list they will receive via email. Digital Online Judges award a 3-way point system to each photograph/video consisting of Technique, Composition and Impact which is added to give the photograph's or video's total grand score.

Best of show with the highest points will get first choice. 1st place winners by highest score will choose a prize before all other winners, 2nd place winners before 3rd place winners, etc. Please note, each individual can only win one prize or prize package.

PHOTOGRAPHY CATEGORIES

Photographers may enter one photo per category.

Details to include with each photo submission:

- Photographer's Name
- Category
- Location
- Story Behind the Shot
- Camera Gear
- Settings

1. MACRO (DSLR/MILC ONLY)

Definition: Photographs taken with close-up equipment, portraying underwater flora and/or fauna. The photographer may not crop the original more than 20%. The original image may be requested.

2. WIDE ANGLE (DSLR/MILC & COMPACT)

Definition: Photographs taken with a wide-angle lens (or adapters that provide an equal field-of-view), with or without human presence, portraying the natural beauty of the underwater environment.

3. BEST OF THE UAE (DSLR/MILC & COMPACT)

Definition: Any underwater subject taken in the UAE and the Musandam.

4. BLACK & WHITE (DSLR/MILC & COMPACT)

Definition: Black & white photography is timeless and elegant. Focus on tonal contrast, shapes and textures and the composition of the shot.

5. COMPACT CAMERA (COMPACT ONLY)

Definition: Point & shoot photographers only.

VIDEO CATEGORY

Videographers may enter one film.

TITLE: CHASING TALES

Definition: Looking for films of all genres – documentaries, narratives, shorts and animation films. Film subject must focus on all aspects of our underwater world including but not limited to, ocean exploration, wildlife, environmental, conservation and oceanography.

- All film genres will be accepted.
- Content must focus or relate to the ocean.
- Non-English films must have subtitles.
- If music is used, it must be from a public domain or royalty-free.
- Film length should be 5 minutes or less, including credits.
- Winning films will be chosen on the basis of creativity and the ability to tell a story that leaves the audience better informed and/or moved about the ocean.

THE SPONSORS AND PRIZES

Digital Online's 15 Prize Sponsors are giving this year's winners 32 prizes to choose from!

NOTE: Participants are only able to win one prize each. Entrants with multiple winning entries will be given priority in the points awarded.



1. **SCANDI DIVERS** | www.scandidivers.com
Destination Package – 5 night accommodation in Puerto Galera, Philippines.
Included: All meals and 10 dives. Valid until 30 June 2020.
2. **FUN SUN DIVE TRAVEL** | www.funsundivetravel.com
Destination Package – 5 night accommodation for 2 pax at Fun & Sun in Dauin, Negros Island, Philippines.
Included: Airport transfers (Dumaguete Airport), 4 days of diving (usually 3 dives daily at Dauin Costal and Apo Island, free Wi-Fi, coffee, tea, water and breakfast.
Not included: Lunches and dinners, marine park fees if applicable, airfare/seafare to Dumaguete Airport/Port (via Manila or Cebu). Valid until May 2020.
3. **BFC TRAVEL MANAGEMENT** | www.bfctravels.com
Destination Package – 4 days/3 nights in Terengganu, Malaysia.
Includes accommodation, breakfast, diving (2 days), airport transfers and transportation between dives for one person.
4. **SUNDIVE BYRON BAY** | www.sundive.com.au
3 days diving package for one person (up to 3 dives per day) at Julian Rocks Marine Park, Australia.
Not included: Flights or accommodation. Worth AED 2,000. Valid until 15 December 2019.
5. **AL MARSA MUSANDAM** | www.almarsamusandam.com
2 Night Liveaboard Dhow Cruise to Sheesa in the Musandam.
Included: All meals, water, coffee, tea and soft drinks, snorkelling, kayaks, fishing lines and bait, on board PADI Instructor/Divemaster.
Not included: Equipment and dive tax. Valid until December 2019.
6. **GRAND STORES** (2 Prizes) | www.grandstores.com
Rollei Actioncam 525 Silver
 - WiFi Action Camcorder with 4k Video Resolution with 25 fps
 - 160° Super Wide Angle Lens
 - Integrated WiFi with up to 10 metres range
 - Incl. 900 mAh lithium-ion battery
 - Incl. Underwater / Protective Case for depths up to 40 m
 - Remote Control for Wireless Shootings up to 10 metres
 - Battery Runtime of up to 50 minutes (without WiFi)
7. **AL MAHARA DIVING CENTER** (2 Prizes) | www.divemahara.com
 1. 2 dives (tank and weights included) on an Abu Dhabi coral reef site for 2 divers.
 2. Bamboo Shark Diving Course (worth AED 1,200) for a certified diver.
8. **LE MERIDIEN AL AQAH BEACH RESORT & SPA** (4 Prizes)
 1. One Club Room night including breakfast and one hour massage.

2. A 50% discount voucher on room rates.
3. Family day pass, including access to the rope course activity centre.
4. Family day pass, including access to the rope course activity centre.
9. **MTM MARINE LLC** (12 Prizes) | <http://bit.ly/MTMMarine>
Mask Selection:
 1. MA411052-GRK/GRK
 2. MASK X-Vision Ultra LS
 3. MA411058-LM/BK
 4. MASK Sealhouette
 5. MA411056-LM/BK
 6. Mask Juno**Dive Computer Set:**
 1. MA414169-BK/BK
 2. Dive Computer Quad Air
 3. MA414311 Instrument with Pressure Tank Module**Regulator Set:**
 1. MA416134 Regulator Abyss 22
 2. MA416526 Regulator Octopus Prestige
 3. MA414417 Mission I
10. **THE PALMS DIVE CENTER** | www.thepalmsdivecenter.wordpress.com
2 dives for 2 pax with free nitrox upgrade (must be Nitrox certified) for dives deeper than 18 metres. Includes 40% discount on room rates and 40% discount on food and beverages at the Radisson Blu Fujairah.
11. **DIVERS DOWN** | www.diversdownuae.com
6 Dives Package on East Coast including equipment.
12. **SANDY BEACH DIVE CENTRE** (2 Prizes) | www.divesandybeach.com
Double tank dive trip with or without equipment, including tanks and weights.
13. **FREESTYLE DIVERS** | www.freestyledivers.me
DPV (Diver Propulsion Vehicle) Course for two people. The one day course will take place in Dibba and will include the theory, the equipment, the boat trip and the certification cards.
14. **AL BOOM DIVING** | www.alboomdiving.com
2 dives on East Coast (Fujairah) with full equipment for 2 people.
Value: AED 840. Valid until 22 November 2019.
15. **EMIRATES DIVING ASSOCIATION** | www.emiratesdiving.com
A beautiful landscape hardcover photography book: The Best of Digital Online – EDA's Underwater Photography and Film Competition.

THE DIGITAL ONLINE JUDGES

DAVID DILEY | SCARLET VIEW MEDIA

Film-maker, Underwater Cinematographer and Digital Colourist



David Diley is a multi-award winning Film-maker, Underwater Cinematographer and Digital Colourist from the UK best known for his work with sharks and large marine megafauna as well as his multi-award winning feature documentary, "Of Shark and Man". His profile

has increased rapidly thanks to his work on a wide variety of projects for film and television, alongside his commercial work for a number of household brands.

David is the owner of Scarlet View Media, a high end boutique Production House in the north of England, and is a Panasonic Professional Ambassador and Angelbird Media Creative.

WEBSITE: www.scarletviewmedia.com

FACEBOOK: @daviddileyfilmmaker

STEVE WOODS | GILI SHARK FOUNDATION

Underwater Photojournalist



Steve Woods is an underwater photojournalist working in and around Indonesia as a conservation photographer. He founded the Gili Shark Foundation in Lombok, Indonesia and works for various other marine conservation organisations either on location or shooting/donating imagery to them.

Steve's commercial clients have ranged from Suunto, The Guardian, The Times, filming Americas Next Top Model underwater, Rough Guides, SCUBA Diver magazine, Dive magazine, as well as various other national and international publications. He has also contributed to a number of marine conservation documentaries focusing on Sharks and Manta Rays.

WEBSITE: www.stevewoodsunderwater.com

FACEBOOK: @SteveWoodsPhotographer

JANA MURRAY | SERAPH PRODUCTION

Underwater Filmmaker



Jana Murray is a writer, director and underwater filmmaker from Winchester in the UK. Previously based in Dubai, where she co-founded production company Seraph Production, she has been filming underwater since 2003. She has shot documentaries entirely underwater as well as

sequences for television, short films, commercials and digital videos.

Jana is also a professional photographer and works as a Publishing Editor and Writer for the Royal Photographic Society. She is passionate about sharing her knowledge of diving and underwater filming, writing blogs and magazine articles and presenting underwater filming and photography workshops in the UK.

WEBSITE: www.seraphproduction.com/underwater-filming

LINKEDIN: www.linkedin.com/in/janamurrayseraph/

SIMONE CAPRODOSSI | SUNDIVE BYRON BAY

Underwater Photographer



Simone is an Italian underwater photographer, awarded in several prestigious competitions and published internationally. After over 10 years of corporate life in Dubai, he recently moved to Australia where he now co-owns and manages Sundive Byron Bay, a Padi 5 Star Dive Centre offering

dives at the amazing Julian Rocks in Byron Bay. After travelling to and photographing many unique diving destinations worldwide, he also runs expeditions with Sundive to help others experience and photograph his favourite ones such as the Sardine Run and Djibouti. Simone was the Overall Winner of Digital Online for two consecutive years until he became a judge for the competition and has been a main feature contributor to the EDA magazine, 'Divers for the Environment'.

INSTAGRAM: @scaprodossi

FACEBOOK: @SimoneCaprodossiPhotography

FRANCIS UY

PADI Course Director



Francis used to be a travel photographer back in 1998 with the Philippine Daily Inquirer and North Wind travel magazine. He also worked with various government agencies in their underwater photo documentation and research projects.

He currently resides in Dubai and continues with his underwater photography passion. He has done various stints with major organisations in Dubai such as EishEldor MBC Action & Emirates Diving Association (EDA) amongst a few others. He also partners with expatriates and mermaids for their underwater fashion shoots.

INSTAGRAM: @francisuyfoto

ALLY LANDES | EMIRATES DIVING ASSOCIATION

Project Manager, Editor, Graphic Designer, Photographer & Videographer



Ally has worked with EDA since December 2004 when she created and introduced the quarterly magazine, 'Divers for the Environment' as magazine Producer, Editor and Designer.

She branded and helped foresee the development of Digital Online – EDA's Underwater Photography and Film Competition from its launch in 2009 and has since managed the event. Ally keeps busy within her fields of passion, developing EDA's brand and managing all the EDA events, social media and FAM trips.

WEBSITE: www.emiratesdiving.com

FACEBOOK: Emirates Diving Association

SONY A7RIII

UNDERWATER PHOTOGRAPHY SETUP & REVIEW

FEATURE AND PHOTOGRAPHY **SIMON J PIERCE** | WWW.SIMONJPIERCE.COM

I've been able to use my Sony A7rIII camera underwater in the Galapagos, Madagascar and Tanzania since September. I've got opinions. And a blog. So here we are.







Tiny red frogfish at Mafia Island Marine Park, Tanzania.

I've been able to use my Sony A7rIII camera underwater in the Galapagos, Madagascar and Tanzania since September. I've got opinions. And a blog. So here we are.

The camera works as a system with my Nauticam NA-A7RIII housing, so I'll add notes on all the various components.

THIS IS MY FULL SETUP:

- Sony A7rIII camera.
- Spare Sony battery.
- Nauticam NA-A7RIII housing.
- Nauticam M16 vacuum valve II. Best thing ever. Definitely get this. Allows you to check that the housing is properly sealed.
- 100 mm Zen fisheye dome port on Nauticam 120-100 port adapter. The Canon housings have a 120 mm port opening, while the Sony has 100 mm, so the adapter is required to use the Canon fisheye lens (below).
- Canon 8-15 mm fisheye lens on a Metabones V adapter. Again, to use the Canon lens on the Sony camera, an adapter is needed here too. You need to unscrew the tripod mount on the Metabones adapter before it'll fit in the housing.
- Nauticam C815-Z zoom gear for the Canon fisheye. This isn't required, unless you're planning to use the full circular (8

mm) fisheye – I just leave the lens on 15 mm.

- Nauticam N100 macro port 105 for the Sony 90 mm macro lens.
- Sony 90 mm macro lens.
- Nauticam SE90-F focus gear for the Sony 90 mm macro lens. This is helpful for manual focus – see details below. You could get by without this, but you'll find the lens frustrating to use. I think it's worth buying.
- Nauticam M14 Nikonos 5-pin bulkhead with universal hotshoe connection and Sea & Sea Dual Nikonos Sync Cable. Urgh. These cables and connectors are required to use my YS-D2 strobes with the Sony camera. It's a significant pain if you're switching between no-strobe and yes-strobe work regularly, as I am when I'm interspersing snorkelling with diving. The system does work fine; it's just annoying having to crack open and modify the housing to use the strobes. My previous camera worked with fibre optic cables that attached externally, quickly and easily, and with no need to open the M14 port on the housing. I miss that.
- 2x Sea & Sea YS-D2 strobes. The link is to the current, slightly upgraded J version. I like these strobes a lot, but if you're starting this system from scratch I'd buy strobes that will work with fibre optic sync cords

– see above. I use the 120° diffusers on the strobes.

- Panasonic Eneloop rechargeable AA batteries and charger. I get through 3+ regular dives with these.
- Ultralight strobe arms (2x each of 8 in and 5 inch arms, I think) and 6x clamps. Another long arm (in place of the 5 inch) would be useful for some wide angle shots, but this works alright.
- 8x Stix Jumbo Floats when set up for macro (with strobes) to get near-neutral buoyancy. I probably need to add a couple more when using the fisheye with strobes.
- 128 GB Sony SDXC UHS-II memory cards (and a USB card reader). You'll want a UHS-II card to get the full speed from the main card slot (the lower one on the camera). I bought the 128 GB card to minimise the need for card swaps, and I'm glad I did.

Note that I got a discount on the Nauticam equipment via a sponsorship arrangement with Nauticam USA, as they wanted to support our research and conservation activities. I've tried not to let that affect this review, but I really like the housing anyway – this is my third Nauticam housing, and they've all been brilliant. My previous two, from 2012 and 2015, are fully functional and still in use with my friends Jodi and Clare. If you're diving



Peacock mantis shrimp on a coral reef in Mafia Island Marine Park, Tanzania.

regularly, Nauticam are worth the extra cost over polycarbonate housings.

If the list feels overwhelming, well, that's how I felt too. It's best to check your specific needs for underwater photography with the team at Reef Photo. They were super helpful in ensuring I was buying exactly what I needed, and that all the various components would work together.

It's also important to note that this system is massive overkill for most photographers. It's also painfully expensive – as in, it's the largest purchase I've ever made. I'll post some additional recommendations at different (= lower) price points soon.

WHY DID I CHOOSE THE SONY A7RIII?

Until mid-2018, I was using an Olympus OM-D E-M1 underwater, and whenever I travelled. A Nikon D7200 was my specialist wildlife photography camera.

These are both great cameras. However, as I've become more serious with my photography, there were a few issues I was running into. The video is poor on the E-M1, and the 16 MP sensor didn't give me a lot of scope for printing photos large. The micro 4/3 sensors also have some limitations for wildlife photography,

especially in poor light, as does the autofocus. The newer E-M1 mkII is an expensive camera, and I couldn't justify the cost of upgrading (as I'd need a new housing, too) for a marginal gain. The quality telephoto lenses are costly, too.

Meanwhile, the Nikon was an improvement for wildlife, but travelling with two systems takes up too much space. I also liked to compose through my LCD a lot with the Olympus, especially for ground-level shots, and the Nikon doesn't have a flip-out LCD – and the live view autofocus is hopeless.

Enter Sony. The A7RIII, a full-frame sensor camera with excellent image quality, video, autofocus and low-light performance, was announced at the same price as the E-M1 mkII.

How interesting.

Friends of mine had tried – and complained about – the 2nd-generation Sony cameras, as they had problems with battery life and overheating. Those issues have been solved in this third generation.

I was equally captivated by the Nikon D850. The lens selection was far better than that available for Sony cameras, and the autofocus and resolution both sounded fantastic.

Weatherproofing and ergonomics were both well-reviewed, too.

If I was just shooting wildlife on land, I'd probably have bought a D850. However, I think mirrorless cameras have some significant advantages for underwater use:

- The housings are smaller, and cheaper: The Nauticam housing for the Nikon D850 retails at \$3800, and weighs 3.07 kg. The NA-A7RIII housing (which fits both the A7RIII or A7III cameras) is \$2850, and 2.42 kg.
- Underwater, I prefer to compose via the LCD than the viewfinder. It's a larger screen, and with the slight tilt it's easy to see from a low camera angle. Lots of people use a viewfinder attachment for DSLRs, but they're an expensive add-on, and I often shoot one-handed while freediving and swimming fast. You can use the LCD on a DSLR, too, but they use a completely different (and worse) focusing system.

However, I think people coming from using DSLRs underwater are used to a different style of shooting. Not worse, but different. I've always used mirrorless, so I'm used to shooting with them.

Note that, while it was the A7III that got me

interested in Sony as a system, obviously I ended up buying the A7RIII. Why? I thought the extra resolution would be useful (24 MP on the A7III vs 42.4 MP on the A7RIII), and it is, although it comes at a premium. Otherwise, they're very similar cameras.

Is the A7RIII & Nauticam housing a good underwater photography setup?

Hells yes. It's an excellent system.

MY FAVOURITE FEATURES ARE:

- The battery life. It's a big improvement over my past mirrorless cameras. It shows the actual percentage remaining, which is helpful. My previous camera, an Olympus OM-D E-M1, only displayed three bars to indicate battery life. It would die immediately after dropping to two bars. The Sony is far, far better. I can easily get through three dives, or several days of whale sharking, with minimal neuroses.
- The sensor is incredible. The resolution is amazing, as is the dynamic range. The high ISO performance is a vast improvement too.
- I really like using focus peaking for macro. (See below.)
- The housing is just generally fantastic. Ergonomics are great.
- There's easy access to the video function, which is really nice sometimes, although I accidentally switch it on sporadically. However, see below for a rant on video settings...

THINGS I'M LESS FOND OF:

(I'm nitpicking, to some extent, but whatevs)

- The lack of a native fisheye lens. The best option – a Canon 8-15 mm on a Metabones V adapter – adds a lot of bulk and weight to what would otherwise be a compact setup. It's much larger than my previous Olympus OM-D E-M1 system. To be fair, the extra weight makes freediving a bit easier though. The Canon lens does work fine on the Sony camera. The 100 mm Zen port is designed to allow the shade to be removed to enable full circular fisheye shots, which is hypothetically useful, but the external O-ring system on the port is a total pain. I've wrapped the whole thing in electrical tape and just treat the system as a regular 15 mm fisheye lens.
- The Sony 90 mm lens is veeeery slow to focus, and hunts a lot. That said, it's easy to assign a convenient button to AF/MF and use manual focus with peaking (more on that below, in the macro setup section).
- The inexplicable decision to have the video button adopt the current still settings, rather than my predefined video settings. Why, Sony, why?
- The camera doesn't work with a flash trigger with my Sea & Sea YS-D2 strobes. I have to use a hard-wired setup instead of my much-loved optical sync cables (see above). Total ballache.

- The files are huge. ~80 MB and over for uncompressed raw files, or accept lossy compression for smaller files. Be prepared to upgrade your hard drives. That may seem like an unfair criticism – after all, it's a high-resolution 42 MP camera – but the lossless compression on the 45 MP Nikon D850 results in ~52 MB files. Keep up, Sony.
- There are two SD card slots, but only one is an SDXC II slot (the lower one). Using the top slot dramatically slows buffer clearance time, so don't use it except in case of emergency. You're locked out of some camera functionality while the buffer is processing.
- The camera doesn't white balance well for underwater wide-angle video, apparently (I haven't tried yet). There's a workaround though. See all the details here, and a more detailed tutorial here.
- My strobes don't sync at 1/250 sec. They're supposed to. There's a black band across the top of the photo if I try it. That's a pain if you want black backgrounds on macro. And who doesn't love black backgrounds on macro?

SETTING UP THE A7RIII

The downside of a fully-featured, highly customisable camera?

So. Many. Options.

I've got some standard settings, which I'll get into now, but I'll customise certain buttons for ease of use if I'm shooting macro or wide angle for consecutive dives. See my notes on that in the relevant setup guides below. This is also my primary wildlife photography camera, so some of the features I want quick access on land to are less useful underwater, but I'll list them here anyway.

MY BUTTONS ARE SETUP AS FOLLOWS:

- **C1:** 'Silent Shooting' on / off. I don't use this underwater, although it could be useful – the strobes won't fire in silent (electronic shutter) mode, so it should allow you to switch quickly between regular strobe shots and silhouettes (when you don't want the strobes to fire).
- **C2:** Full-frame / crop-frame ('APS-C S35 / Full Frm Sel.'). This is effectively a 1.5x digital zoom (you're shooting at 18 MP in crop-frame mode). That provides a 'zoomed-in' look for macro, or makes my fisheye lens look more like a regular wide angle. Potentially useful, although I haven't used it yet. You can also just crop the full-frame shot, there's no difference. However, the 1.5x mode also makes the subject look bigger in the viewfinder, which is cool. I use this feature a lot for wildlife photography, particularly with small birds. Note, though, that when the buffer is emptying you can't switch back to full-frame – I've been caught out by this on several occasions.
- **C3:** 'Flash Mode'. I like being able to switch between regular fill-flash and rear-sync

flash for low-light motion-blur photos.

- **C4:** 'White Balance'. I thought I might want to set custom white balance for video. I haven't yet, but it's ready if I do.

OTHER SETUP NOTES:

- I use back-button focus (using the AF-ON button) on land, but shutter-linked autofocus underwater. Makes it easier to shoot one-handed.
- Turn off the 'setting effect' when shooting with strobes, as otherwise (for macro especially) the LCD will just look black.
- I've mapped the button in the middle of the control dial to autofocus mode.
- Pressing the focus joystick returns the focus point to the central position ('Focus Standard').
- I've got the down button on the control dial set to the autofocus / manual focus toggle ('AF / MF Ctrl Toggle'), as it's useful for macro photography.
- I usually have Auto Review set to 2 sec for underwater photography.
- I set the display to just show me basic information. I've got zebra stripes set to let me know (on review) if I've over-exposed part of the image.
- I'm always shooting in raw.
- If you've got the EVF / LCD set to auto switch, which I always do (it's the default), you don't have to worry about it underwater. The Nauticam tray holds the LCD at an angle, which automatically turns off the eye-detect-switch. You'll have to switch manually between the EVF and LCD if you do want to change.

Once you've got the buttons customised to your satisfaction, you won't need to go into the menus often – which is good, as they're confusing.

SETTING UP THE A7RIII FOR WIDE ANGLE PHOTOGRAPHY (NATURAL LIGHT)

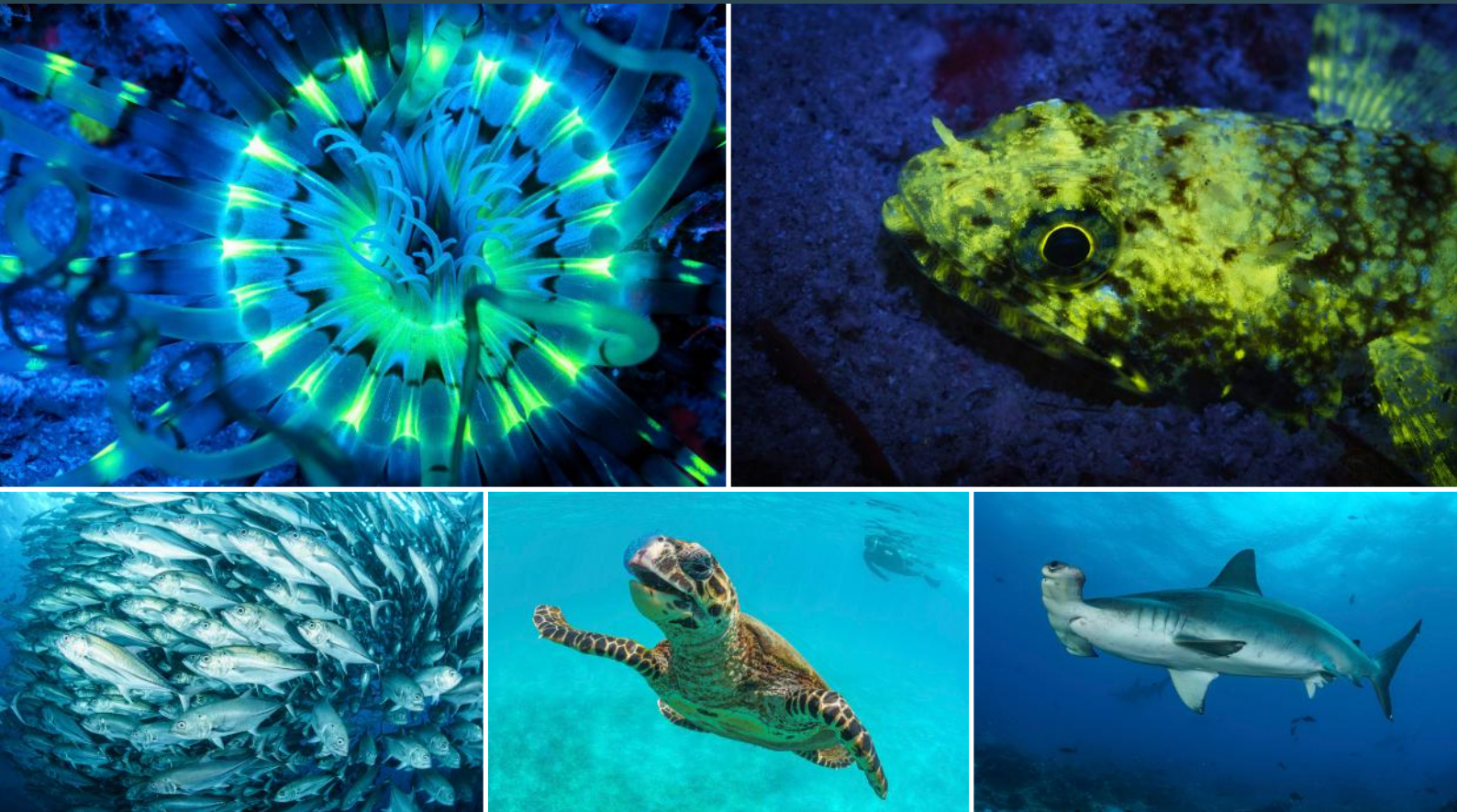
My go-to natural light settings for the A7RIII and Canon 8-15 mm fisheye:

- Manual mode. Normally, for whale sharks, I'll be using 1/250 sec and f/8. The corners aren't sharp at f/8 on the 100 mm port, but it's not a big deal if it's just water in shot.
- Auto ISO with base 100, max 3200.
- Wide area continuous autofocus. Note that tracking autofocus (which is my usual go-to for wildlife) doesn't work on this lens with the Metabones.
- Matrix metering.
- High continuous frame rate (8 fps).
- Cloudy white balance.

SETTING UP THE A7RIII FOR WIDE ANGLE PHOTOGRAPHY (WITH STROBES)

My go-to settings for the A7RIII and Canon 8-15 mm fisheye, when using Sea & Sea YS-D2 strobes:

- Manual mode. My normal starting settings are 1/100 sec and f/10.
- ISO 200. I've got this assigned to the AEL button at the moment, although the default position (right side of the control dial) is fine.



L-R: 1. Sea anemone fluorescence under blue light at Nosy Sakatia, Madagascar. **2.** Lizardfish fluorescence. **3.** A large school of fish (jacks / trevally) taken while diving in the Galapagos Islands, Ecuador. **4.** Hawksbill sea turtle (*Eretmochelys imbricata*) eating a jellyfish at Nosy Tanikely, Madagascar, just off Nosy Be and Nosy Komba. **5.** Close approach by scalloped hammerhead shark while it was cleaning at Darwin Arch in the Galapagos Islands, Ecuador.

- Wide area continuous autofocus. If that's not focusing on the right area – it's usually good – you could switch to a single focus point and place it using the joystick, if your subject is stationary-ish.
- Matrix metering.
- Single shot.
- Cloudy white balance.
- Manual strobe power (usually set to 16 initially).
- Fill flash mode, unless I'm using slow shutter speeds, in which case I'll use rear sync.

You may also want to switch between 42.4 mp “fisheye” and 18.84 mp “wide angle” in camera, as sometimes a fisheye is just too wide. As above, that was a major selling point of the A7RIII over the 24 mp A7III for me, although I haven't used it underwater at all yet.

SETTING UP THE A7RIII FOR MACRO PHOTOGRAPHY (WITH STROBES)

My go-to settings for the A7RIII and Sony 90 mm macro, when using Sea & Sea YS-D2 strobes:

- Manual mode. My normal starting settings are 1/200 sec and f/22. The max strobe sync speed is supposed to be 1/250 sec, but it doesn't seem to work properly (I get a black band across the top of the photo). That may be an issue with either the sync cords or the strobes, rather than the camera itself. I haven't fully tested it yet.
- ISO 200. I've assigned this to the AEL button, although I never really change it for macro (except fluoro photography, which is a special case).

- Single point autofocus. However, I've got the down button on the control dial set to toggle between autofocus and manual focus (AF / MF). In manual focus, I've got peaking on, set to red, and on medium sensitivity. Very, very helpful. I've got the focus gear on the Sony 90 mm lens, but it's often faster to get the focus about right with autofocus, then switch to manual and use peaking to place the focus plane exactly. If I'm shooting a lot of consecutive macro dives I'd probably set the AF / MF toggle to the AF-ON button (upper thumb lever on the housing) for fast access.
- Matrix metering.
- Single shot.
- Cloudy white balance.
- Manual strobe (usually set to 22 initially).

SETTING UP THE A7RIII FOR VIDEO (NATURAL LIGHT)

Still working on this! I haven't shot many videos yet.

- I ummed and ahed about 1080p / 60 fps vs 4k / 30 fps. 60 fps is useful underwater, as you can slow it down to half-speed to make it look epic (and less jittery, if your buoyancy was a bit off). I'm using 4k at the moment. 4k can also be stabilised during post-production if you've got the appropriate software (which I haven't).
- The crop frame / APS-C mode is supposed to provide (very) slightly nicer video in 4k, as it is sampled from the sensor differently (and a lot better).
- Switching to video using the red button

on the camera / downward thumb lever on the housing will apply the settings you were using for stills, rather than any specific preset video settings. That's super dumb. Ideally, you'd probably be shooting video in manual or shutter priority mode, with shutter speed set to ~2x your frame rate (i.e. 1/60 sec for 30 fps 4k), maybe manual aperture, and Auto ISO to maintain a constant(ish) exposure. You'll have to programme that to the movie mode or one of the custom modes (on the upper mode dial) and switch to that for optimal video. That's not a super-fast or one-handed switch, so it's really annoying if you're in a hurry. I hope Sony will provide a firmware update to at least give an option to preset the 'instant video' settings.

- As I mentioned earlier, the camera doesn't white balance well for underwater wide-angle video, apparently.
- I'm still working out the best focus mode. Will update when I've tested a few options.

Phew. That was a lot of writing. Hope it's useful!

www.simonjpierce.com





A full-page background image of a vibrant underwater coral reef. The scene is bathed in a deep blue-green light, with various types of coral and sea anemones visible. In the bottom left corner, a portion of a diver's yellow and black BCD is visible. The text is overlaid on the upper half of the image.

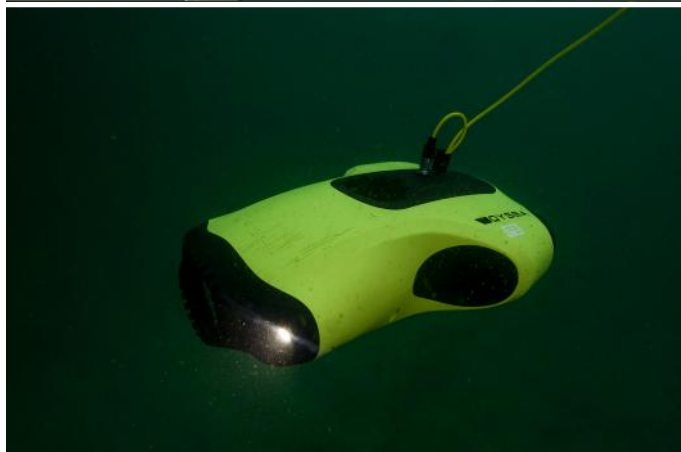
FIFISH P3

UNDERWATER DRONE REVIEW

FEATURE AND PHOTOGRAPHY **CHRISTOPHE CHELLAPERMA**

There are many other reasons than to just take the FIFISH out for a spin. It goes down to a maximum depth of 100m, so it could also be used to search for wrecks and to make overall marine inspections.

The fact that it is so easy to handle is definitely its strong point.



In this age of technology, drones have become part of our daily lives. We might not realise it, but aerial drones are used for a wide range of applications. For us divers, we are familiar with seeing drones used to get some incredible aerial shots of dive locations. On some liveaboards, they are sometimes used to locate wildlife. In the Philippines for example, they spot whale sharks with the use of drones so we can get dropped in right next to them.

When people mention drones, most of us think of flying machines, but some brands have recently released underwater versions. One such example is the FIFISH P3 by QYSEA. Grand Stores Digital – the distributor in the UAE – kindly lent us one so that we could test it and review it for you. For this review we took the FIFISH P3 to Fujairah, to take a dip in the water with Freestyle Divers.

The drone has 3 main rotors, one located in the middle of the drone which permits the drone to ascend or descend. There are two additional rotors placed on each side of the drone which are the most powerful rotors on the machine and allow for the drone to turn left or right. It is important to note that the rotors are not made of plastic, but rather are built for durability as they are single machined aluminium pieces.

On the front of the drone, we find the camera that allows us to shoot in 4k. The lens is a 6.55mm with a focal of 2.8. The lens offers a sharp image for photography or video, however regrettably, there is no thread to add a red filter. The drone is equipped with two LED video lights that are crucial when at depth to restore the lost colours.

There is no on or off button on the drone

itself, the drone turns on automatically when it is wired, the connection is a Fischer connection and there is an O-ring to prevent a short circuit or water leak.

It is important to ensure that the instructions to lift the drone are followed. There is an attachment that can hold up to 18 kg of lift. Ensuring that the attachment is fitted correctly prevents any damage to the wire connections when the drone is lifted.

The wire around the reel is 100m long, and it has two connections: one with a jack for the remote, and the other is the connector plug for the drone. The reel is almost too basic, we at least wish that there was a handle on the reel since it takes two people to get the wire rolled without one. Had there been a handle on the reel, and a guide, it would have prevented any line mix-up while the drone was in use.

The remote control is an essential part of the drone as it allows you to access its various functions. The left stick allows you to go forwards or backwards, and to turn right and left. The right stick controls the drone's depth for it to ascend or descend. We must admit that it is very easy to take control of the FIFISH and to start filming with no previous underwater drone experience. We rapidly became quite confident.

One of the features we really liked on the remote control, is the possibility to smoothly attach a phone or a tablet to it as the attachment is adjustable. There are two speeds to select on the controller which can be flipped very easily. You can also find a record button as well as a photo button. The connection between the phone and the controller is via Wi-Fi, which is very simple to set up using the free downloadable app developed by QYSEA for the FIFISH P3. The interface on the app is straight forward and there is even the possibility to review the footage post shooting on your phone and via the app. A hood could be a good addition around the phone / tablet, particularly if you plan to shoot in a bright environment – despite setting the brightness at full power, we struggled to view the screen in the daylight.

We had a great time doing this review, it was a lot of fun to operate the FIFISH P3 and you never know what you could stumble across! In just one day, we managed to get shots of an eagle ray and three turtles that were sitting on the reef. There are many other reasons than to just take the FIFISH out for a spin. It goes down to a maximum depth of 100m, so it could also be used to search for wrecks and to make overall marine inspections. The fact that it is so easy to handle is definitely its strong point.

The unit is well built with excellent quality materials – this is not just a big boy's toy, it can be considered for multiple tasks.

The FIFISH P3 can be purchased from any Grand Stores Digital outlet throughout the UAE for a price of AED 12,999.

We would like to thank Freestyle Divers for welcoming us to their incredible location for the review.



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www.grandstores.com

PERFORMANCE

Dimension:	L 492 mm × W 337 mm × H 174 mm (L 19.37 in × W 13.27 in × H 6.85 in)
Weight:	5.85 kg (12.9 lb)
Maximum Depth:	100m (328 ft)
Top Speed (Forward):	3 Knots (in still water)
Thrusters Configuration:	3 thrusters (2 Horizontal, 1 Vertical)
Suspension Accuracy:	± 5 cm
9 Axis Sensor Accuracy:	± 0.10°
Operating Temperature:	-10 ~ 60 °C
Battery Capacity:	87.48 Wh 10.8V, 8100 mAh)
Battery:	4.5 hours
Charging:	3.5 hours

CAMERA

FOV (Field of View):	162° (In air)
Aperture:	f/2.8
Lens Size:	1 inch
Sensor:	13.3 mm × 8.8 mm (1 inch) SONY® CMOS Effective Pixels: 20.48 Million
Focus:	Fixed focus / Macro mode and Normal mode
Image Size:	20M: 6144 × 3456 16:9 8M: 3840 × 2160 16:9
Video Resolution:	4K 3840 × 2160 25 fps / 30 fps FHD 1920 × 1080 25 fps / 30 fps HD 1280 × 720 25 fps / 30 fps
ISO Sensitivity:	100 ~ 12800 100 ~ 3200 (default)
Shutter Speed:	1 / 100 ~ 1 / 5000 (default) 1 / 10 ~ 1 / 5000 (manual)
Storage:	32G SDHC / 64G SDXC

LIGHTS

Brightness:	2000 lm × 2
Dimming Control:	8 levels adjustable
Light Beam Angle:	120°
Colour Temperature:	5500K

REMOTE CONTROLLER

Frequency:	2.4~2.4835 GHz
Maximum Datarate:	300 Mbps
Battery Life:	5 hours
Charging:	3.5 hours

TETHER

Available Length:	100 m / 200 m (328 ft / 656 ft)
Breaking Strength:	80 kgf

ADAPTER

Droid:	Input: 90 ~ 264 VAC Output: 14.25 ~ 15.75V / 3A (DC)
Remote Controller:	Input: 90 ~ 264 VAC Output: 4.75 ~ 5.25V / 3A (DC)

APP

Name:	FIFISH
System:	Support iOS v 10.0 or later; recommend iOS v 11.0 or later
Requirements:	Support Android v 6.0 or later; recommend Android v 7.0 or later
LIVE-Streaming:	1080P 25 fps / 720P 30 fps



OCEANS S1

COMPASS

BUDDY PING

8°C

2,4m

NITROX
32/1.4



120

2,4

MAX DEPTH

NO DECO

DIVE TIME

0

W

SW

S

SE

E



SUPERSONIC

INTRODUCING THE OCEANS SI SUPERSONIC

FEATURE AND PHOTOGRAPHY **OCEANS**

Today, Oceans is unleashing a next generation dive computer, adding a new dimension to scuba diving: buddy communication.



WE ARE THE UNDERWATER WORLD

For scuba divers, communication under the surface is a challenge. Hand signals work well, but they're hampered by one obvious caveat: the signals rely on divers looking at each other.

Over the past year, the Swedish company Oceans and their team of engineers and product designers have been working to create a next generation dive computer with an all-wireless design that syncs via Bluetooth to the Oceans app, features a 3D digital compass, silent haptic feedback and a hi-res colour display.

BUDDY COMMUNICATION

As a first for a wrist-worn dive computer – using soundless ultrasonic waves – the device called “Oceans SI Supersonic” allows you to summon your buddies, divemaster or instructor, by the tap of a button.

Ping: When activated, the SI sends a message to each paired dive computer, and shows a notification on the display screen with the name of the diver looking for attention. The SI has a communication range of 15-20m (50-

60ft) or more depending on the terrain.

We've been testing the Oceans SI Supersonic extensively during the fall and winter in the icy cold Stockholm archipelago in Sweden, and it's “ping” feature is truly addictive!

ALL-WIRELESS DESIGN

The Oceans SI Supersonic has an all-wireless design – no cables are needed.

Syncing: The SI connects via Bluetooth to the



Oceans app to automatically import dives into your digital logbook. In the app, you can add location, observations, gear and photos, and share it with the global community.

Charging: When your battery runs low, the SI charges wirelessly using any Qi standard charger.

HI-TECH FEATURES

The SI comes loaded with tech that will make a diver's life much easier underwater.

Compass: Navigate like a pro with the built-in digital 3-axis compass and gyro.

Haptic Feedback: You will no longer annoy your buddies or the wildlife with the loud noises you used to make to catch a divers attention. The silent haptic feedback notifies you through vibrations when needed.

Hi-Res Colour: The SI features a retina class LED colour display for a clearer view of your diving adventures.

JOIN US ON KICKSTARTER

The biggest obstacles and challenges in developing the SI have been cleared, and we are ready to go into final design and production. Join us on Kickstarter and get your Oceans SI Supersonic which runs through to the 9th of March. The dive computer starts at \$335.

www.oceans.io



BYRON BAY DOWN UNDER

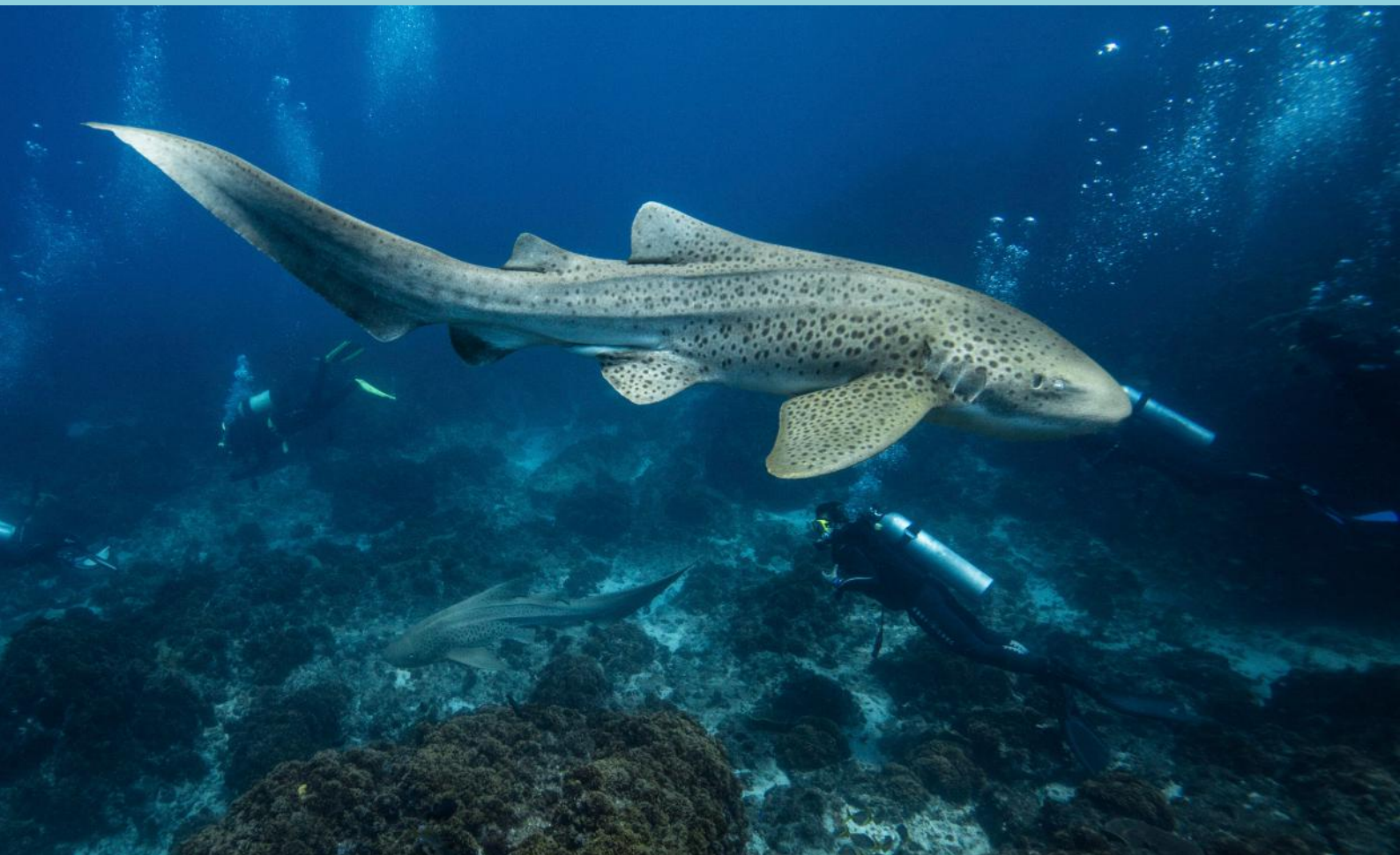
DISCOVER THE HIDDEN GEMS OF JULIAN ROCKS

FEATURE AND PHOTOGRAPHY **SIMONE CAPRODOSSI**

Very few dive sites in the world offer the sheer abundance of charismatic marine fauna that Julian Rocks has year round, and with just a 5 minute boat ride from an easy to access main tourist town.



Spotted Wobbegong resting at the end of Hugo's Trench.



ABOVE: Summer Visitors: the leopard sharks. **OPPOSITE PAGE TOP:** The shallow soft coral reef. **OPPOSITE PAGE BOTTOM:** Grey nurse shark.

Diving in Australia for most people usually means focusing their diving on the Great Barrier Reef. However, if you move further South between Brisbane and Sydney, there are a few unique dive locations that have not yet made their big names on international maps, but they offer world-class diving.

One of them is Julian Rocks, a volcanic island just a few minutes by boat from the main beach of Byron Bay which is a surf and beach holiday destination located about two hours south of Brisbane. Julian Rocks recently made it to the National Geographic list of the top 21 dives sites in the world, and was named among the top 3 snorkelling spots in Australia; for good reason.

Julian rocks are the remains of a volcanic eruption that took place 20 million years ago. The two island peaks that formed are mainly made up of sedimentary rock and form an extension of the Byron Cape. Captain Cook named the rocks in 1770 after his nephew and niece, Juan and Julia.

For the more romantic, legend has it among the Bundjalung native people that a jealous husband threw a spear at a canoe containing his wife and her lover. The mighty throw broke the canoe in two and it sank to the bottom

of the ocean. Only the front and back of the canoe are still visible sticking up and out of the water, creating what we now call 'Julian Rocks'.

In 1982, Julian Rocks and the surrounding area was established as a marine reserve and thanks to over 35 years of protected status, the site is extremely biodiverse and is surrounded by thriving marine life. Limited permits are

creates a unique level of biodiversity year round with over a thousand cold and warm water species found at the site.

One of the few sites in the world where shark encounters can be almost guaranteed, Julian Rocks is home to hundreds of wobbegongs of three different species that hang out all year round.



The Spotted Wobbegongs (*Orectolobus maculatus*) are the most common across all dive sites. The much bigger Hale's Wobbegong (*Orectolobus halei*) has beautiful patterns and can reach 3 metres in length. It is not uncommon to see the two species piled over each other. The third species, the much smaller Ornated Wobbegong (*Orectolobus ornatus*), is endemic of New South Wales and was only identified as a new species in 2006.

available for diving and snorkelling operations keeping the diver pressure low allowing for great observations of the varied aquatic fauna.

Julian Rocks is the most easterly point of Australia and is hit by the cold water currents from the South of Australia in winter, and the warm water currents from the North in summer. This mixing of cold and warm water

The other year-round residents are three species of sea turtles. Young green turtles (*Chelonia mydas*) hang in the shallows close to the top of the rocks. Confident hawksbills (*Eretmochelys imbricata*) are found a bit deeper around the coral bommies. Then there are a few substantial resident loggerheads (*Caretta caretta*) that call the rock home. One of them, known to the locals as 'Terrible Ted' very often comes to greet the





TOP: Young green turtles in the surge.

BOTTOM: A Spotted Wobbegong resting on a Hale's Wobbegong.

divers and likes to nibble at fins and BCDs, he also loves to engage with his reflection in big camera dome ports offering a very detailed view of his tongue and mouth.

With the changing seasons, the marine life changes dramatically.

As the temperatures drop below 22 degrees during the Australian winter, a critically endangered population of grey nurse sharks (*Carcharias taurus*) follow the colder water north and come to Julian Rocks in large numbers. With irregular pointy teeth poking out of their mouths, the grey nurse sharks look ferocious but are actually extraordinarily placid and harmless and very chilled around the divers.

In the Australian summer months (from December to March) the warm streams from the north raise the water temperature to up to 24 degrees and with that comes one of the world's largest aggregations of leopard sharks aka zebra sharks (*Stegostoma fasciatum*). The leopard sharks have beautiful spotted patterns and gracefully glide through the water smoothly swinging their long tails. They are entirely oblivious to divers and swim past at arm's length; there are moments when you are surrounded and it's an incredible experience.

In the warmer seasons, the number of rays also increases around the rock. Manta rays (*Mobula alfredi*) are occasional summer visitors stopping by for a clean from time to time.

Blue spotted stingrays (*Dasyatis kuhlii*) make their home at Julian Rocks all year round, but in summer they suddenly appear everywhere and you can see them taking off in all directions as you swim over their patch of sand. Huge black spotted bull rays also multiply in the summer months swimming around the dive sites mid-water like huge flying carpets.





TOP: Terrible Ted the loggerhead having a nibble at my dome port. **BOTTOM:** Spotted stingrays piling up in the Nursery.

Resident sharks and rays also include less common small sharks such as the rare colclough's shark and different species of blind sharks as well as occasional guitarfish.

As well as the constant significant animal action, the walls and coral bommies are incredibly rich in macro life with a huge variety of nudibranchs, shrimps, crabs and cuttlefish.

Many octopi and morays populate the rock crevices, and with keen effort ghost pipefish, frogfish, leaf fish, and other unusual subjects can be found.

After 12 years of enjoyable Dubai life, I have moved to Australia and bought Sundive Byron Bay, the oldest dive operator in Byron Bay that has been diving Julian Rocks for over 30 years. Sundive offers diving at Julian Rocks three times a day, all year round.

The diving day starts with a check-in at the centrally located dive shop in Byron Bay. After setting up the gear and a detailed briefing, you are driven down to 'The Pass', a beautiful beach spot at the very end of Byron Bay's main beach.

The boats launch from the beach and once everyone is on board, the boats then head out jumping through the surf. The ride to the rock takes about 10 minutes with a flat sea, unless the resident dolphins put on a little show to make it worth a stop on the way.



Mooring buoys have been placed by the Cape Byron Marine Park authorities to take care of the fragile reefs and to offer an easy descent along the line.

Under the surface, different dive sites open up around the base of the 'Rocks', each with its unique characteristics. The 'Cod Hole', 'The

Needles' and 'Hugo's Trench' are all classic dives not to be missed.

The Cod Hole is a large swim-through at the eastern edge of the island facing the open Ocean, it ranges from 18 to 15 metres in depth.

It is usually filled with large schools of fish, including large jewfish and kingfish. Large wobbegongs sit on the rocks right outside, while smaller ones often rest inside the cave. In season, it is not uncommon to find grey nurse sharks or huge bull rays hanging in the cave. Huge Queensland groupers patrol the waters around the deeper side, and in winter the sand trenches that descend deeper are full of grey nurse sharks. This is a site that can offer unexpected encounters as any large pelagics can pass by the outer edge of the rocks and mantas are often seen in this area in the summer months, as well as

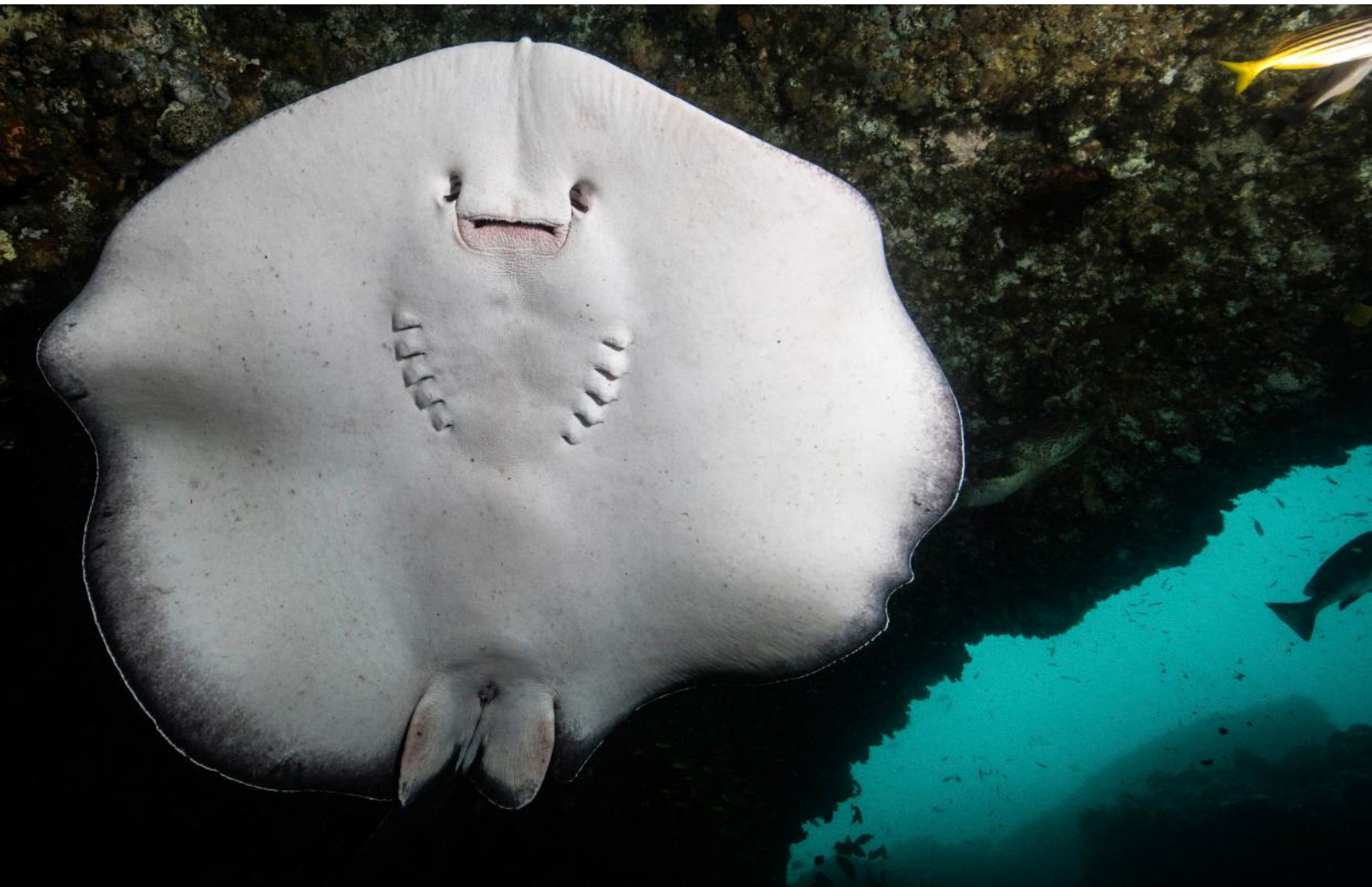
big eagle rays.

The Needles is a large area south of the island with many unusual rock formations, covered in beautiful soft corals. It is a shallow dive with depths ranging from 9 to 15 metres, and it is the preferred spot for leopard sharks during the summer aggregation. On a pleasant



Leopard shark aggregation in the Needles.







OPPOSITE PAGE TOP: Grey nurse shark traffic in Hugo's Trench. **OPPOSITE PAGE BOTTOM:** A bull ray coming out of the Cod Hole. **THIS PAGE:** Leopard shark, Queensland groupers at the deep end of the Cod Hole and a white tip reef shark.

summer day with clear visibility, it is tough to pick where to look. The big sandy alleys created by parallel rock formations become busy traffic highways of leopard sharks, bull rays, eagle rays and turtles. The soft coral tops of the rocks are animated by large schools of reef fish bringing splashes of yellow, pink and blue into the scene. While you are distracted by the mesmerising action, you may suddenly be poked by a large loggerhead who has just awoken and is not impressed with your presence at his night den.

Hugo's Trench is a personal favourite. It is a canyon formed into the cut between the walls of the two large rocky outcrops that form Julian Rocks. A huge rock sits in the middle of the trench in its narrowest part, typically with a wobbegong or two perched on top. Slowly sliding over the rock, the view opens over a narrow sandy alleyway between two high walls.

When northerly winds create strong current conditions all around the island, most of the marine life moves in there to find shelter, and it is also the most protected place to dive. The grey nurse sharks fill the trench with heavy shark traffic swimming back and forth along its length, while tens of wobbegongs

carpet the sandy bottom piled on top of each other. Laying low, the grey nurse sharks glide over the divers – nearly touching their heads and are occasionally spooked by a burst of bubbles. Looking up, green turtles swim in the surge near the surface, and eagle rays and bull rays occasionally fly past. It is one of the most crowded dive sites I have ever seen. The walls of the trench are also literally covered in nudibranchs, corals, sponges, sea stars and all sorts of small marine life when one has the time to pay attention.

Very few dive sites in the world offer the sheer abundance of charismatic marine fauna that Julian Rocks has year round, and with just a 5 minute boat ride from an easy to access main tourist town. I would certainly rank it among my top ten dives of all times. And when coming all the way to Australia's east coast, there is also South West Rocks to consider which is just 4 hours south of Byron Bay, and Wolf Rock – only 4 hours north; both also offer world-class diving.

If you are keen to experience Julian Rocks, 3-days of diving with Sundive are up for grabs as a prize to this year's Digital Online competition, so don't miss the opportunity!



Did you know Julian Rocks Marine Reserve, where our dive sites are located, has been likened to a 'mini Galapagos' (Lonely Planet 2014) and one of the best dive locations in Australia (The Australian 2011)? The Australian Geographic also rated Julian Rocks as one of the Top Ten snorkelling spots in the country!

GETTING THERE

Byron Bay can easily be reached from Brisbane by car in less than 2 hours, or from Sydney/Melbourne connecting into Ballina or Gold Coast domestic airports.

Emirates flies daily to Brisbane/Sydney/Melbourne.

ADDRESS: Shop 8, 9-11 Byron St, Byron Bay NSW 2481, Australia

TEL: +61 (0)2 6685 7755

EMAIL: bookings@sundive.com.au

FACEBOOK: Sundive Byron Bay

www.sundive.com.au



One of the nurse sharks amongst the spectacle on our night dive.

THE MALDIVES

FEATURE AND PHOTOGRAPHY **LEVENTE ROZSAHEGYI (@LEVENTE.PHOTOGRAPHY)**

We had a spectacle of many sharks and stingrays rock up to the event. At some point I must have seen 10+ sharks swimming a few metres above me. I stayed in one spot for 20 minutes, then moved to the jetty where I just watched the show from there.





THIS PAGE: Our group enjoying the dance of this majestic manta at the Fish Head dive site in Mahibadoo. **OPPOSITE PAGE:** Night dive with mantas.

Not many people have heard of this island country located in the middle of the Indian Ocean, but those who have, will be dying to take a trip there if they haven't already. The Maldives is best known as the honeymooners destination! Pristine beaches, aqua blue water, stunning sunsets, and some top dining hotel locations. Most, if not all the hotels or resorts, make up one island each.

The country is made up of a number of Atolls that are the result of volcanic activity from a long time ago. These are the craters of the volcano, or the top of the rim, if you will. Currently these rims are barrier reefs protecting the inside of the crater from waves, while islands formed on the top. These islands make up the individual resorts that you see on postcards.

A lot of the honeymooners go snorkelling around the island where they stay, or on organised snorkelling trips. However, there is another world to see in the underwater world of the Maldives. You can stay in a resort and dive locally and move in different directions daily, but that's a very time consuming exercise and it limits the distances you can explore.

There is a much better way for a diver to explore the Maldives properly. A liveaboard. For the readers who are not familiar with liveaboards, you get on board a luxury yacht that can carry between 15-30 people – depending on the size – and you stay and sleep on the boat for an entire week. The boat travels from one dive site to another, while you eat, sleep and dive. The great advantage is that you only have to set your gear up once, and the crew refills your tank for you. There is no need to haul tanks and weights around, except to don them for your dives. In the Maldives there is a smaller boat called the Dhoni that follows the main boat with the dive gear to maximise the luxury.

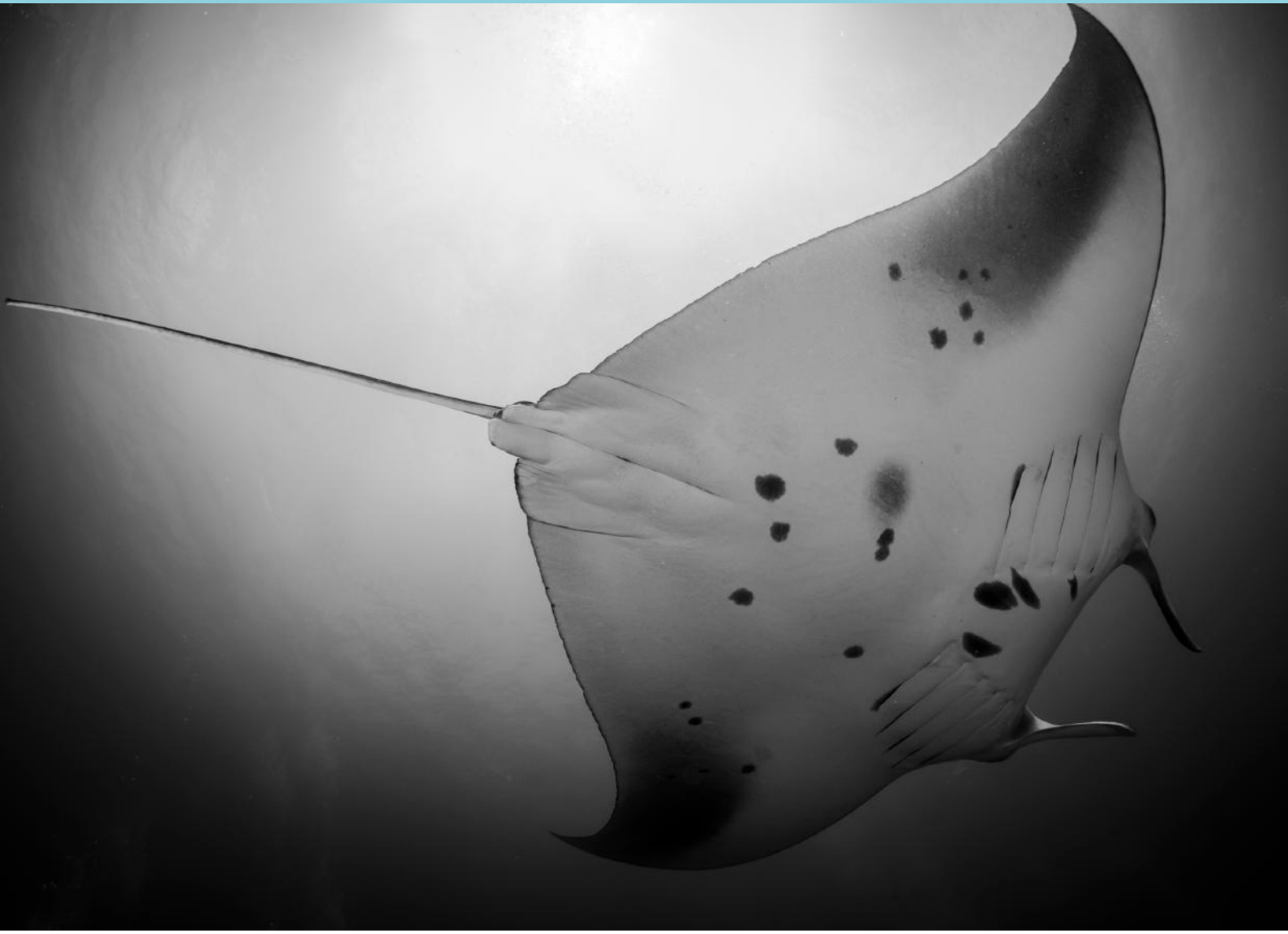
Turning back to my life in Dubai, there are some advantages to working for a semi government organisation. During the public holidays we get a few extra days off, and in this case back in August during the Eid Al Adha holidays, we got the whole week to ourselves. I literally jumped online, bought a flight ticket to Male (the capital of Maldives) and booked a liveaboard that I had been checking out at the time. Why August? August is the rainy season in the Maldives, people don't want to spend

much money sitting at a hotel, let alone on a boat for a week when it's raining, however, August is the manta season! These beautiful creatures live along the country and travel all over the Indian Ocean, feeding and mating. The famous Hanifaru Bay has hundreds of them gather at that time of year.

The trip had been named Manta Madness, so I was hoping for lots of manta action. As a very last minute call, my brother and sister joined me for the holiday, making it a very entertaining, and even more memorable week.

The Emperor Divers dive manager, Johnny, who schedules the liveaboard trips, sometimes has to make alternative plans due to bad weather or channel crossings. This boat was simply fantastic, and I have been on a number of liveaboards, but this was the most stable one I'd been on.

Johnny was in contact with the Hanifaru Bay research centre to see if the mantas were there... Well, believe it or not, nature decides above all, and they were not there. So Johnny decided on another route to take and try to find mantas elsewhere.





1. Modelling on the second dive. **2.** The fan coral around a bommie I had signalled my sister to get behind for a photo shoot. **3.** The friendly moray eel at Kudarah Thila.

The first dive of any trip with a group, usually always starts slow. With a lot of people on board – some of them have not done any diving for months – everyone has to get reacquainted with the system and their equipment before getting them all in the water. Our dive guide for the week was a Maldivian gentleman, whom we just called, Sandokan.

During this dive, I didn't take my camera down with me as I had bought new Dive Rite gear and wanted to make sure all the settings were correct beforehand. However, I wish I

had done! For the first time in my 20+ years of diving, two reef sharks started to fight in front of me for food. This is during a day dive when sharks don't usually hunt for meals. One of them then pulled out a fish, a metre away from me, from under a rock. It was a very interesting experience.

Second dive, we went to Lankan Reef where we found 3 large mantas at 18 metres, hanging around a cleaning station. We managed to spend some quality time with them, but they were unfortunately a little far to take decent

photos, so we just watched them.

The following day resulted in some magnificent deep shark dives as we headed down south to the Ari atoll and its islands.

We stopped in a bay that was supposed to be shallow, expecting mantas there in the late afternoon. Johnny decided to make it a night dive, he grabbed 8-10 torches and jumped into the water. He placed the torches on the bottom (at about 15 metres deep) 2-3 metres apart from each other in a line.



1. When patience rewards you, and you get a manta all to yourself at the Mahibadoo island cleaning station. 2. Our Maldivian dive guide, Sandokan. 3. The sharks seen at Fish Head.

In the meantime, the captain turned on a massive LED light at the deck facing down into the water. Mantas feed on small creatures – plankton, or tiny fish – by opening their mouths and filtering the water through their gills. The light attracts plankton, plankton attracts mantas, and 5 minutes later, the water was full of plankton, and eventually the dancing mantas turned up at the back of the boat. How the crowd cheered!

The morning dive was at the Fish Head dive site where we expected more mantas. This is

also a cleaning station they go to, also located at 15 metres, so we hooked ourselves in place with reef hooks against the current. Thankfully the mantas were cooperative and they turned up for the occasion.

Imagine a small bommie, more circular in shape by nature, surrounded by a lot of small fish. These little guys are there for the mantas. The mantas swim on the top of the bommie and wait with their large mouths open. The small fish then enter their mouths and eat small particles that get stuck on their skins

while the mantas feed from the open water. This is the perfect way to live in harmony and take advantage of every single piece of food. Mantas can hang around there for hours while they are being cleaned up.

Coming up from the dive, a big surprise provided much happiness. More mantas at the surface! My brother wasn't diving and got to snorkel with 2-3 mantas while we "struggled" 15 metres below with the current. I dropped my gear off on the boat and kept snorkelling with them all around the area. It was an



THIS PAGE: Snorkelling with one of the mantas at Fish Head. **OPPOSITE PAGE:** Sunset on Mahibadoo.

amazing experience having a massive manta slowly swimming towards you as you try to make eye contact – in the best possible sense.

Sandokan, our dive guide is originally from the island called Mahibadoo. This island is on the south part of the Ari atoll. There is a small village and a few guest houses on the island where Sandokan wants to open his own dive centre this year. We dived at a location called Kudarah Thila. This place is one the most untouched dive locations I have ever been to. The fish were so “friendly”, the environment was extremely clean, the corals were super healthy and colourful. We slowly dived around the Thila, from 20 metres upwards, and across between overhangs. I found a friendly moray eel who posed perfectly for me.

The second dive was a very murky one initially. We managed to pull through some rough current, arriving to this stop where a beautiful anemone lived with its anemone fish. I asked my sister to act as a model for this shot. Right before the dive we saw a similar setup on the boat in one of the magazines, so she got the idea of what I wanted. Positioning was a struggle due to the current. The model faces the current, hence my job was a lot more challenging as I had to hold myself up with the current against by back. We took about 15-20 shots and this one turned out really well with some great colours, and a good view of the anemone.

During the next few days, we dived around Mahibadoo island and found another cleaning station for mantas. I usually try to reserve

my air in these dives as people tend to get nervous and start swimming around, rapidly using up their air. I told my sister to stay cool and not to move too much as she is a great air consumer.

We waited for about 40 minutes – nothing happened – the crowd started going back up to the surface. I signalled to my sister to swim in the opposite direction as I saw a nice fan coral around a bommie. We swam there slowly and took a few photos.

I hate to say that I was right, but I was right. A few minutes later, a manta turned up at the cleaning station. All the other divers had disappeared, my sister and I were the only ones that remained. She was a little slower and got stuck at the front of the cleaning station, which is not ideal as it disturbs the manta's swim, but the manta slowly made its way to the front and swam above her creating a very nice photo opportunity for me. My buddy was super excited about the experience, not to mention that the manta came back around me and posed for another few good shots with the sun in the background.

Johnny was very keen to show us one of his favourite night dive sites. This dive was in Alimatha where a small jetty creates an ambient atmosphere for the living creatures, not to mention the large number of sharks that congregate around the area. With the torches fully charged, we jumped in and got down to about 15 metres and waited. The tricky part of this dive is the large number of

boats around the area, and with that comes a mass of people. Luckily for us, all the other dive groups had already left by the time we got into the water.

We had a spectacle of many sharks and stingrays rock up to the event. At some point I must have seen 10+ sharks swimming a few metres above me. I stayed in one spot for 20 minutes, then moved to the jetty where I just watched the show from there. I did not take many photos as I wanted to relax a bit. Even though we had a closing dive the next day, this night dive closed the Maldives for us.

I highly recommend Emperor Divers Maldives to anyone looking to have a similar experience!

EMPEROR DIVERS MALDIVES

This is where truly iconic diving awaits you with 26 atolls calling for you to dive right in. Mantas, whale sharks, sharks and the blue of the Indian Ocean are just some of the reasons the Maldives is such a popular diving destination. Your choice is plentiful from Emperor liveaboards to Emperor resort diving.

Our six liveaboards consistently attract top-rate guest reviews, ranging from the contemporary design of Emperor Explorer, to Emperor Atoll, so popular with small groups.

FOR MORE INFORMATION:

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Malé 20008
Maldives

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UK Callers: 0203 695 0974 (free)

Email: info@emperordivers.com

www.emperormaldives.com



LATEX ALLERGIES AND DIVING EQUIPMENT

FEATURE **DAN** STAFF PHOTOGRAPHY **MARCELLODIFRANCESCO.COM**



Statistics indicate that 1 to 6% of the general population is allergic to natural rubber latex, and in rare cases, reactions can be so violent that they may cause death. Usually, they occur when the latex allergens touch the skin. It is also important to note that even in people who do not have an allergy to latex, contact with these allergens over an extended period of time could cause them to become highly sensitive. When thinking of diving equipment and latex, the first thing that comes to mind is dry suits, which usually have latex wrist and neck seals. Opting for a dry suit with silicone or neoprene seals would seem to solve the problem, but sometimes latex can be found in unexpected places.

As recreational divers, we've all seen the relatively new fad of using a bungee necklace, which actually started a long time ago with technical and sidemount divers. What is a regulator bungee necklace? With this slightly pretentious name, all we are really describing is an elastic piece of rubber chord worn around the neck to hold the alternate air source in position. The advantage is that, in case of an emergency, it will be very easy to locate and use. All you have to do is put a hand under your chin, much easier than groping around looking for your spare regulator attached to your BCD. Besides, it is so simple that most divers

prefer making their own bungee necklace at home. After all, it's just a piece of flexible chord with a couple of fishermen knots.

But are there any disadvantages to using a bungee necklace? The story of a 49-year-old Australian male technical diver living in the USA, told in a case report by Divers Alert Network, can help us see that there can be a curious downside to the matter. He travelled to Nevada for a dive show with his diving buddy, both of them with thousands of dives under their belt. The day before the show, they decided to go take some photographs of an underwater canyon at a depth of 45 metres, in Lake Mead, choosing the sidemount configuration; this means having two twin tanks, one on each side, and two sets of regulators to breathe from, to use alternatively. They used air and EANx50, and their dive lasted 39 minutes, including decompression. The Australian diver wore a double necklace around his neck to keep both regulators at hand, which he had already used for around 100 dives.

He had eaten dark chocolate before the dive, and had a couple of beers afterwards. He started feeling a certain numbness on the left side of his upper lip, and within a half an hour his face started swelling visibly. By dinner time,

the whole left side of his face was swollen, and filled with liquid, even if he did not feel any pain and could eat normally. The swelling persisted for an entire day before starting to get better. He called DAN and the doctors immediately suspected some kind of allergic reaction. After inspecting all pieces of equipment, the final findings indicated that the bungee necklace used was worn out. Some rubber filaments coming out at either end of it had come into contact with his face, causing this pretty serious allergic reaction. He was tested for allergies and was indeed highly sensitive to latex, which was found in the filaments of the bungee necklace.

What can we learn from this story? That our diving equipment should always be in perfect condition, even if we don't suspect we could have allergies. Especially experienced divers tend to overlook this key aspect: safety needs to be our top priority, no matter how many hours we've spent underwater. Too often we get lazy and forget that, to avoid problems, even small and apparently insignificant pieces of equipment, such as a bungee necklace, do get worn out with time and need to be replaced. It is always better to be safe than sorry!

DAN | **AlertDiver**

MEDICATIONS AND FITNESS TO DIVE

Our medical staff often receive questions on whether it's safe to dive while taking a particular medication. Even though there is no straightforward answer to this question, we can provide some useful information.

DAN (as any other medical organisation) does not keep a repository of data on how medications are affected by the diving environment. No formal research trials about the influence of drugs on human divers in an underwater environment can be conducted, out of ethical concerns. Anecdotal reports of dive accidents are of limited value in assessing if it is safe to dive while taking a particular drug. Several physical and physiological factors are always involved, so it is extremely difficult to isolate a single variable. However, by considering elements such as the medical condition being treated, the physical demands on divers whilst underwater, and known facts about a drug from clinical trials conducted on land, sound advice can be provided about the suitability of diving while taking medications.

GENERAL CONSIDERATIONS

Most divers asking DAN's advice about medications and diving are concerned about new side effects occurring at depth. It is possible that certain drugs might potentiate (enhance) or be potentiated by the narcotic effect of nitrogen. A diver should consider this possibility if planning to dive deeper than 24 metres while taking a drug that warns against drinking alcohol or operating heavy machinery. Aside from this theoretical concern, most drugs are not suspected to incur specific biological hazards due to immersion, pressure or breathing-gas mixtures. It is understandable for divers to be apprehensive about new side effects occurring during a dive, but the more important issue to medical professionals is whether the underlying medical condition might make diving less safe. The injury or illness being treated is much more likely than the medication to exclude someone from diving.

Reduced physical fitness is not uncommon among people treated for medical conditions. Although diving itself is a relaxing activity for most recreational divers, lifting and wearing heavy equipment as well as entering and exiting water can cause fatigue. Divers should always have sufficient physical capability to fight currents, perform a long surface swim or help a buddy in case of an emergency. They should not be at increased risk of barotrauma due to congestion, and they should not have symptoms such as numbness, tingling or pain that might be confused with decompression sickness (DCS) after a dive.

Furthermore, it is important to consider whether a diver has experienced any side effects from a medication, how long he or she has

been taking it, and what other drugs the diver is taking. Before diving while taking a particular drug, the person should have experience with it on land. For most prescription medications, 30 days is recommended to ensure the dosage is correct and reveal any side effects the diver is

likely to experience. At least one doctor should be aware of all medications an individual is taking to minimise the risk of drug interactions. A diver who experiences any side effects that could cause distraction or decreased awareness underwater should not dive.

These are general considerations, but there are also some specific questions and points for discussion relevant to particular types of medications, which should be addressed during the physician's evaluation, as well as in the diver's self-assessment.

ORTHOPEDIC PAIN MEDICATIONS AND MUSCLE RELAXANTS

- Could pain or impaired mobility cause distraction or physical limitation during a dive?
- Might heavy dive gear exacerbate an injury?
- Could side effects of prescription-strength pain relievers diminish a diver's alertness or awareness?
- Might soreness, numbness or tingling be confused with DCS after a dive?

NEUROLOGIC DRUGS

- Are the diver's physical capabilities diminished?
- Has the diver ever experienced a seizure?
- Could any drugs the diver is taking cause side effects that might be confused with DCS?

PSYCHIATRIC MEDICATIONS

- Might symptoms or a drug's side effects impair judgment, behaviour, awareness or ability to handle stress?
- Is the patient's condition managed successfully or in remission?

GASTROINTESTINAL DRUGS

- Is the patient at risk of gas trapping that could cause barotrauma on ascent?
- Is the diver dehydrated due to vomiting or diarrhoea?

A diver should consider this possibility if planning to dive deeper than 24 metres while taking a drug that warns against drinking alcohol or operating heavy machinery.

CARDIOVASCULAR DRUGS

- Does the patient have the cardiovascular health and exercise capacity to safely dive?
- Is a stress electrocardiogram (EKG) needed to confirm good cardiac fitness?

RESPIRATORY MEDICATIONS, INCLUDING INHALED CORTICOSTEROIDS

- Is there any reason to suspect air trapping or impaired ability to breathe while diving?
- People with asthma should undergo an exercise challenge test, which consists of pulmonary function testing before and after exercise in a clinical setting.

DECONGESTANTS, ANTIHISTAMINES AND INTRANASAL STEROIDS

- Is the diver congested (and therefore at increased risk of barotrauma)?
- Has he or she been congested recently?
- If the medication wears off at depth, will it cause a problem?
- How might the potential sedative effect of antihistamines affect the diver?

HORMONES, INSULIN & MEDICATIONS USED TO TREAT DIABETES

- Are the patient's hormone levels stable and close to normal?
- Is the diabetic diver at risk of hypoglycemia with exercise?
- Divers with diabetes must have good health and fitness and be experienced managing blood glucose levels while exercising.

ANTIBIOTICS

- Does the patient have an illness or infection that might be complicated by diving?

CHEMOTHERAPY DRUGS

- Is the person physically fit to dive?
- Lung cancer warrants particular consideration.
- Medical ports are generally not a problem, but they should be padded well.

These points should be considered in the context of both the symptoms of the medical condition and the side effects of any drugs used to treat it. The focus should be on whether any of these factors might lead to impairment of a diver's physical capabilities, awareness, reaction time or judgment. This list is by no means exhaustive, but it highlights some of the concerns that accompany certain medical conditions and the drugs used to treat them.

Any medical condition or medication should prompt a diver to seek a physician's approval prior to diving. As always, DAN is available to discuss the relevant concerns of injuries, illnesses and the medications used to treat them. If you have questions, email DAN at medical@daneurope.org.



CAN WHALES GET THE BENDS?

DECOMPRESSION STRESS IN DIVING MAMMALS

FEATURE **NEAL POLLOCK, PH.D.**



Conventional wisdom holds that diving mammals do not suffer from decompression sickness (DCS). This is based on two key points: first, evolution has allowed them to adapt to the diving world and, second, their gas supply is limited to a single breath hold. As time often shows, however, experience can be at odds with conventional wisdom.

Anecdotal reports of symptoms consistent with DCS in extreme human breath-hold divers and substantial amounts of physical gas found in some stranded marine mammals raise questions about the decompression implications of breath-hold diving. The Woods Hole Oceanographic Institution Marine Mammal Center recently took the initiative to host a workshop that brought together experts from many fields to review the current knowledge. The panel included specialists in human dive medicine, physiology and decompression modelling and marine mammal medicine, pathology, anatomy, physiology, ecology and behaviour. The consensus of this panel was reported in a paper published in the Proceedings of the Royal Society – Biology.

The effects of pressure and the hazards of DCS are well known to human divers. The increase in ambient (surrounding) pressure causes inert gas to flow from the compressed-gas source into the lungs and then throughout the body. The relative excess of inert gas flows out of the body through the lungs during and following ascent. If the pressure reduction is

too great for a given inert gas load, bubbles may form in tissues, and a cascade of events may be initiated that results in symptoms of DCS. Human divers control decompression stress by limiting the dive exposure and/or following experimentally derived or mathematically derived decompression schedules.

Marine mammals dive routinely and repeatedly to impressive depths without the benefit of dive computers or dive tables but also typically without obvious injury. In addition to the limited amount of gas in a single breath, gas compression and collapse of some small airways trap gas within portions of the lungs to reduce the volume of gas that reaches the blood and other tissues.

These factors do not stop all delivery, though, as indicated by substantial gas volumes observed in recently stranded animals that cannot be explained by decomposition. In addition, necropsy studies have found lesions consistent with chronic tissue damage as might be expected from repetitive decompression stress. Ultimately, these findings encourage a shift in thinking about marine mammals and decompression. There are several mechanisms that likely reduce the decompression stress in marine mammals, even if to a lesser degree than previously believed. The single breath of air does limit source gas, more so for species that dive following partial exhalation from the lungs. The collapsing airways will reduce uptake of inert gas by the blood, at least during deeper dives. The reduction in blood flow to

nonessential tissues (part of the diving reflex) will also reduce inert gas delivery to tissues. It is important to appreciate that while these factors reduce the risk, they do not eliminate it, particularly for the more extreme divers. Ultimately, it is likely the dive profile, lung volume and pre-dive surface interval balance the needs of thermoregulation, digestion, buoyancy control, hunger, predator/prey interactions and exertion to determine the actual decompression stress for a given dive or day. Voluntary and/or reflexive control over behaviour and the physiological responses to diving may alter the risk-reward balance. Extending surface intervals or adding partial-depth dives to reduce or resolve bubble formation may be strategies – conscious or unconscious – that reduce decompression stress.

Future research is needed to improve our understanding of the practical limits of the protections enjoyed by marine mammals, the normal patterns and consequences of bubble formation and how marine mammals and humans differ in their response to bubbles and tissue injury. It is likely that emerging technologies to collect real-time data from free-ranging marine mammals will be critical to answer the many open questions.

For now, the available evidence indicates marine mammals manage decompression stress more than they avoid it.

 **DAN** | **AlertDiver**

UPCOMING EVENTS

DIGITAL ONLINE EXHIBITION OPENING & AWARDS NIGHT

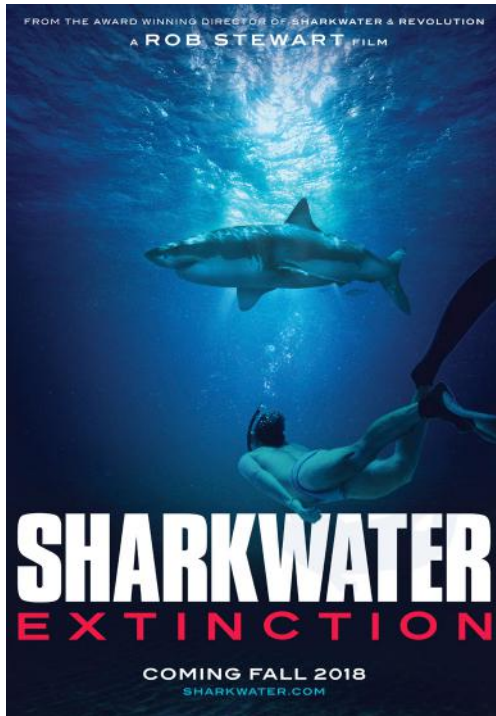


COMPETITION CLOSES: Sunday, 28th April 2019
AWARDS NIGHT: Wednesday, 22nd May 2019

Digital Online will be celebrating its 10th Anniversary on the 22nd of May!
The Rules and Guidelines 2019 can be found on page 65.

EDA MOVIE NIGHT WITH VOX CINEMAS

SHARKWATER: EXTINCTION | VOX Cinemas, Mercato Mall
Wednesday 1st May 2019 | 18:30 Registration, 19:00 Start



Sharkwater: Extinction (2018) is a thrilling and inspiring action packed journey that follows filmmaker Rob Stewart as he exposes the massive illegal shark fin industry and the political corruption behind it – a conspiracy that is leading to the extinction of sharks.

From West Africa, Spain, Panama, Costa Rica, France, and even in our own backyard, Stewart's third film dives into the often violent underworld of the pirate fishing trade to expose a multi-billion dollar industry.



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MISSION STATEMENT

To conserve, protect and restore the UAE marine resources by understanding and promoting the marine environment and promote environmental diving.

LEGISLATION

Emirates Diving Association (EDA) was established by a Federal Decree, No. (23) for the year 1995 article No. (21) on 23/02/1995 and chose Dubai as its base. The Decree stipulates the following responsibilities for EDA.

- To legislate and regulate all diving activities in the UAE.
- Ensure environmentally respectful diving practices in all EDA members.
- Promote and support the diving industry within the UAE by coordinating the efforts of the diving community.
- Promote diving safety in the commercial and recreational diving fields through standardization of practices.
- Promote and preserve historical aspects of diving within the gulf region and enhance environmental education to diving and non diving communities through EDA activities.

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DUBAI INTERNATIONAL
BOAT SHOW

DIVE MENA EXPO

26 FEB - 2 MAR 2019
DUBAI CANAL, JUMEIRAH

LET'S JUST
live a little deeper

REFORMED & REJUVENATED

The Dubai International Boat Show breathes new life into the Dive MENA Expo with the key principle of building a community driven event, bringing divers together to network, learn and inspire.

To ensure the success of your business, Dive MENA Expo is targeting **154,000+ certified divers in the GCC**, here's why you should attend:

- ~ **Partnerships with Dive Clubs** hosting their members at the show
- ~ **Celebrity Dive Speakers** in partnership with Emirates Diving Association
- ~ **Interactive dive experiences** on the show floor
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