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DIVERS FOR THE ENVIRONMENT

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DIGITAL ONLINE 2016

THE PHOTO & VIDEO RESULTS ARE IN

DMEX RECAP • ICE DIVING • **THE BIG SAADIYAT RELEASE** • WIDE ANGLE UNDERWATER PHOTOGRAPHY • **NEW CALEDONIA** • DAYMANIYAT ISLAND TRIPPING • **DAN EUROPE**

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EDA
جمعية الإمارات للغوص
Emirates Diving Association

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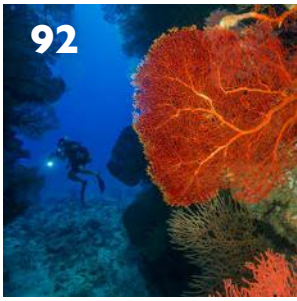

REGULARS

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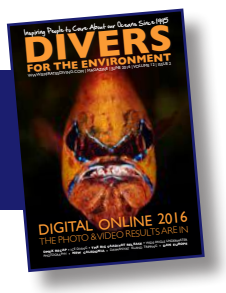
DIVERS FOR THE ENVIRONMENT

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. It is hoped that the magazine can become 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 of "Divers for the Environment" released in September 2016. Send all articles, feedback or comments to: **magazine@emiratesdiving.com**

EDA COVER

PHOTO BY STEVEN BOARD
BEST OF THE UAE ENTRY | DIGITAL ONLINE 2016



REDUCE REUSE RECYCLE

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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.

RESEARCH

Representative research among many dyslectics has now shown that the font actually helps them with reading texts faster and with fewer errors.

THE QUARTERLY CONTRIBUTORS

Meet the regular quarterly magazine contributors who share their passions, interests and the expertise of their fields for our readers of, 'Divers for the Environment'.

Want to contribute? Email: **magazine@emiratesdiving.com**

DR. ADA NATOLI
Ada is a specialist in population genetics applied to conservation of species. Having been involved in whale and dolphin research since 1992, she is a member of the IUCN Cetacean Specialist List and founder of the UAE Dolphin Project. **www.uaedolphinproject.org**

SIMONE CAPRODOSSI
Simone is an Italian underwater and travel photographer with a passion for diving and the sea. Simone uses his photography to support environmental initiatives and is heavily involved in local shark and turtle conservation projects. **www.scaprodossiphoto.com**

DR. RIMA JABADO
As the leader and founder of the Gulf Elasmo Project, Rima has been working in the Arabian region to promote conservation of sharks and rays through research and education. She is a member of the IUCN Shark Specialist Group and works with various international organizations to build capacity for the implementation of protection measures. **www.gulfelasmoproject.com**

PATRICK VAN HOESERLANDE
Diving opens up a whole new world. Being a writer-diver and co-editor of the Flemish divers magazine Hippocampus, I personally explore our underwater world and share it through articles with others, divers and non-divers. You'll find a collection of my articles on **www.webdiver.be**

PAUL WARWICK
Born and educated in the UK leading to a career as an officer in the British Army. Now a specialist consultant for the UAE Government inbetween his other interests and his passions which are family, scuba diving (A PADI IDC Staff Instructor), conservation and marine management.

NICO DE CORATO
Blogger, marathon runner, triathlete, divemaster and heli rescue swimmer with Bergamo Scuba Angels. You can check my website **www.dubaiblognetwork.com**, contact me on social networks or via email at admin@dubaiblognetwork.com for information about my articles or just to say hello.

PHILIPPE LECOMTE
Having followed in his father's and brother's love for the sea, French diver and underwater photographer Philippe, took to underwater photography in 2006 after having moved to Abu Dhabi in 2003 and now seldom travels without his camera. **www.plongee-passion-photo.over-blog.com**

UNDERWATER AMBASSADORS

IBRAHIM N. AL-ZU'BI
EDA Executive Director

I would like to welcome you all to this June issue of 'Divers for the Environment'. We are already half way through 2016 and it has been really busy in EDA. The Dive Middle East Exhibition (DMEX), the region's only dive show and platform for members to meet with the industry and learn about the latest dive equipment, came and went in March.

Summer has officially begun and June is the pivotal month where temperatures in the UAE start to hit the late 30°C and early 40°C. The temperatures may be rising outside, but things are heating up for the EDA team indoors too, with plenty of planning going on for some upcoming events and activities for the remaining half of the year.

Last month, we held our annual Digital Online Underwater Photography and Film Competition which is now in its 8th year cycle. Again, I find myself lucky to not be on the judge's panel because this year was another tough one to score. There are now many underwater photography gurus amongst our members, participating and sending EDA amazing photos of the varied marine life from all the places they have dived. If I were to describe the entries we received this year in just one word, it would simply be, "Amazing". During the Digital Online Award Ceremony, which was held at the American University in Dubai (AUD), I spoke with one of the winners who had specifically honed their photography skills to get a chance to win against the other talented competitors this year, and succeeded. I want to congratulate all the participants for enriching EDA's photo library with such amazing imagery – I am sure you will all agree with me when you see the photos in this issue, they truly are 'Underwater Ambassadors'. I also want to thank the judges, the sponsors, and the EDA team for another successful EDA event towards promoting environmental diving, not only in the UAE, but the whole region.

I also want to take this opportunity to thank our EDA members who continuously share their insightful diving experiences and underwater pictures 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 your trips. We hope your passion and enthusiasm continues and you will continue to share your news with us about your next diving adventures. We look forward to seeing your next batch of underwater world snaps!

Looking back, not only at the last six months, but also at the last 21 years of EDA, it makes me proud to remember how we managed to pioneer voluntary work in diving and evolve our passion to creating a dedicated organization for diving and marine conservation. More than 3,000 passionate and dedicated members who appreciate the sea and the underwater marine life, and those with specialization and expertise in the field, have been key factors in our success and making EDA a hot organization on national, regional and international levels.

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 the upcoming EDA events.

I wish you all Ramadan Kareem and Eid Mubarak!

Happy reading and dive safe! Enjoy the summer!

Ibrahim Al-Zu'bi

Ibrahim N. Al-Zu'bi

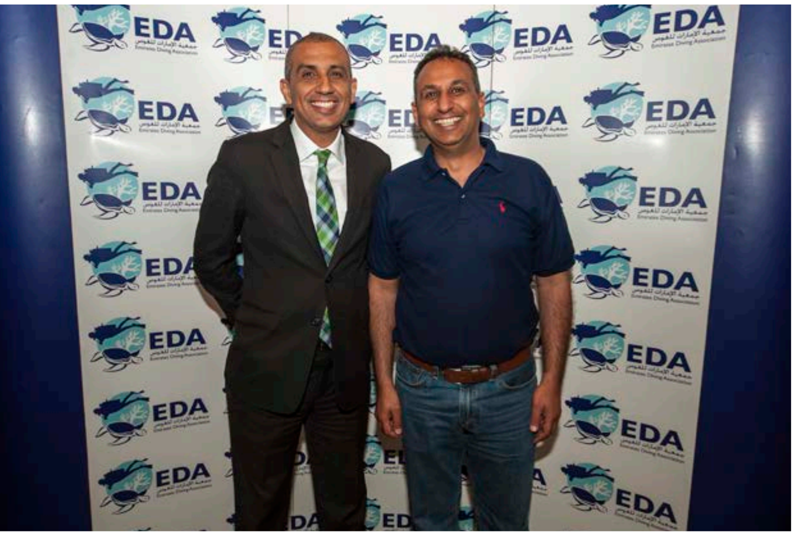
AN EDA MOVIE NIGHT WITH VOX CINEMAS

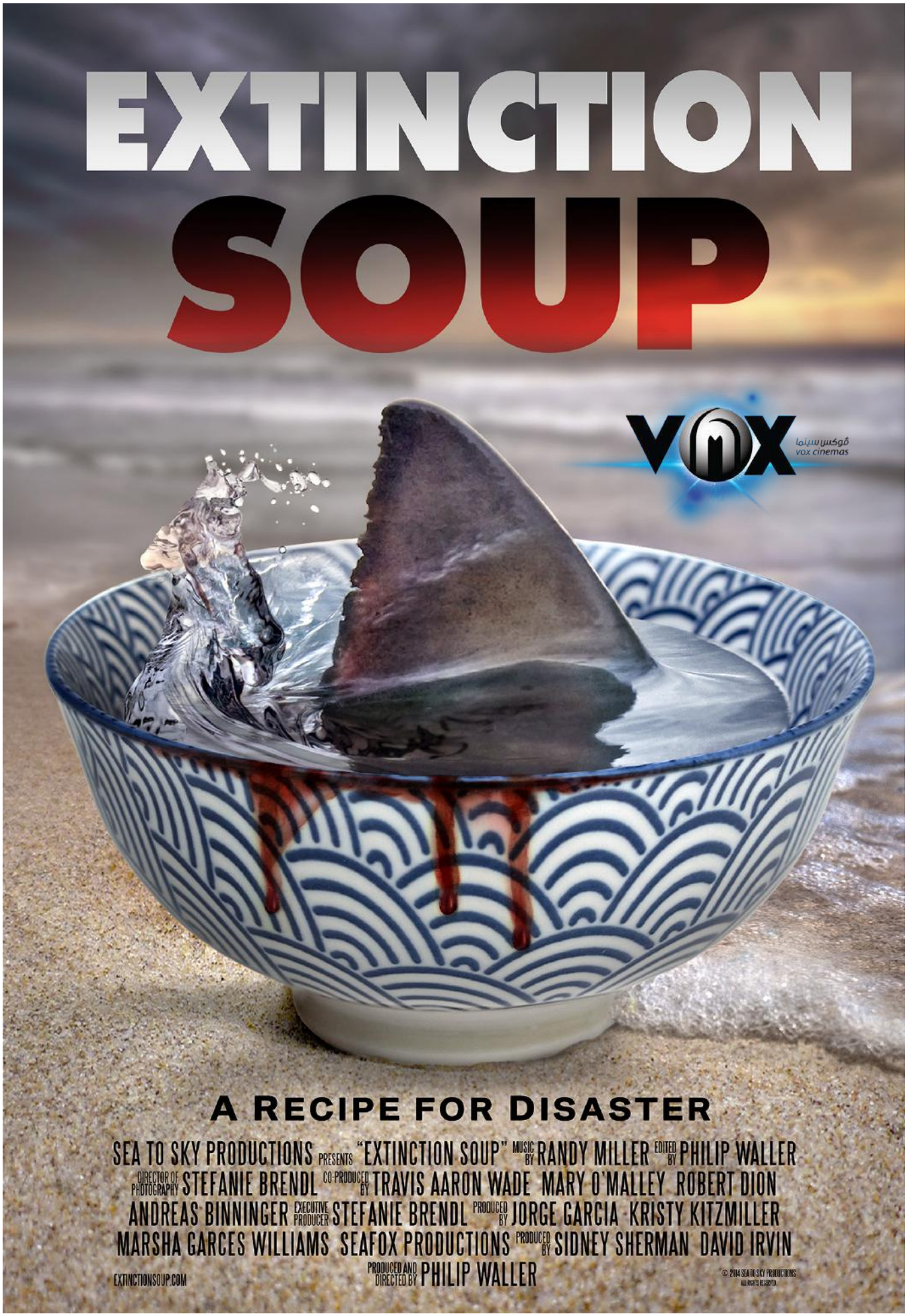
EXTINCTION SOUP

EDA members got to see a movie screening in April of the documentary, Extinction Soup. The Dubai screening was held in Mercato Mall VOX Cinemas on the 6th of April and in Abu Dhabi in VOX Cinema Marina Mall on the 7th of April.

EXTINCTION SOUP

Extinction Soup follows documentary filmmaker Philip Waller on his quest for adventure as he sets out to tell the story of his larger-than-life friend and extreme sports legend, Jimmy Hall. The film quickly takes a surprise turn when Waller finds himself consumed with exposing to the world an environmental catastrophe in the making – the extinction of the oceans' shark population through the mass slaughter of these magnificent animals for their fins. Waller documents the efforts of conservationist Stefanie Brendl as she fights to educate lawmakers and help pass the ground-breaking legislation that will curb the consumption of shark fin soup, considered a delicacy in many Eastern cultures, and the impetus behind 70 million sharks being killed per year.




EXTINCTION
SOUP
VOX
فوكس سينما
vox cinemas
A RECIPE FOR DISASTER
SEA TO SKY PRODUCTIONS PRESENTS "EXTINCTION SOUP" MUSIC BY RANDY MILLER EDITED BY PHILIP WALLER
DIRECTOR OF PHOTOGRAPHY STEFANIE BRENDL CO-PRODUCED BY TRAVIS AARON WADE MARY O'MALLEY ROBERT DION
ANDREAS BINNINGER EXECUTIVE PRODUCER STEFANIE BRENDL PRODUCED BY JORGE GARCIA KRISTY KITZMILLER
MARSHA GARCES WILLIAMS SEAFOX PRODUCTIONS PRODUCED BY SIDNEY SHERMAN DAVID IRVIN
PRODUCED AND DIRECTED BY PHILIP WALLER
EXTINCTIONSOUP.COM
© 2014 SEA TO SKY PRODUCTIONS

A RECAP OF DMEX 2016

Having passed its 10th year and maintaining its exclusive position as the only dive exhibition in the Middle East, 2016's exhibitor attendance represented over 100 of the world's leading dive brands. In addition, the Diving Middle East Exhibition offered exhibitors from outside the UAE an opportunity to showcase what is on offer in international waters. Here is a visual recap of the event.

THE DIVE MIDDLE EAST EXHIBITION

Whether you're a casual or seasoned diver, immerse yourself in a world of underwater adventure during the 10th Dive Middle East Exhibition, the only international event in the Middle East. Supported by the Emirates Diving Association (EDA), discover state-of-the-art diving gear and equipment, alongside a series of professionally delivered practical and interactive activities in our on-site demonstration pool, designed for divers of all levels.

DMEX
DIVE MIDDLE EAST EXHIBITION

1-5 March 2016 | Open 15:00 - 21:30
Dubai International Marine Club, Mina Seyahi

THE VENUE – DIMC

Founded in 1988, the Dubai International Marine Club is one of the most established marina and watersports clubs in the region and has become the diving force behind the growth of national and international water sport events in the Middle East. Located on Dubai's rapidly developing waterfront, next to the Le Meridien – Mina Seyahi and the iconic Palm Jumeirah, DIMC is the ideal venue partner for the Dubai International Boat Show.

1-5 March 2016 | Dubai International Marine Club, Mina Seyahi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NAUI
THE DEFINITION OF DIVING
AQUA LUNG
FREESTYLE
BARE
BAUER

BAIN & COMPANY CLEAN UP UMM AL QUWAIN BEACH

Business Consultancy Bain & Company joined the EDA team on the morning of the 28th of April for a team building clean up on Umm Al Quwain Beach. 15 Bain members armed with collection bags and gloves, manned the stretch of beach and collected a total of 2,964 items of rubbish in less than 2 hours. Although the public beaches are patroled with beach cleaners, the small pieces of neglected rubbish – mostly straws, bottle tops and cigarette butts – are abundant within the grains of sand and are those that end up in the sea, swept over by the winds, and then ingested by our marine life.

The small difference the clean up made that day had a massive impact and reduced some of the threats to the environment. Best of all, it did not go unnoticed. Several onlookers stopped in curiosity and asked why we did, what we did. The team's work was awarded with admiration and gratitude, and gave an overall understanding of why it is so important to collect the smallest pieces of rubbish afterall.

ABOUT BAIN & COMPANY MIDDLE EAST

Bain has been present in the Middle East since the early 1990s and opened an office in 2007 in Dubai – ideally situated to serve our clients headquartered or operating in the GCC, and to support our operations in Turkey. In just a decade's time, Dubai has emerged as a booming hub for leaders in the consumer products and retail, financial services, private equity, tourism, and transportation and construction industries. As the Gulf region's economy continues to grow rapidly, it will bring more competition and opportunities to the area.

SHARING OUR CLIENTS' ASPIRATIONS AND DELIVERING TRUE RESULTS

Bain was founded on the principle that consultants should deliver sustainable and measurable results – not just reports –to their clients. Our Middle East experts bring a diverse set of capabilities, and industry experience to each engagement. They look at a business from a chief executive's perspective, and work alongside the client as "one team" to achieve enduring results. We strongly believe that, "Our client's success, is our success"!

PROVIDING EXTRAORDINARY OPPORTUNITIES FOR OUR PEOPLE

Bain Middle East is truly global; We recruit experienced Bain consultants and new hires from the best international and regional schools. We strive to provide extraordinary opportunities for our people by setting new standards of excellence in every industry in which we work. Those opportunities and our commitment to achieving results for our clients, have made us one of the leading business consulting firms in the Middle East.

MAKING AN IMPACT AND HAVING FUN WORKING TOGETHER

Community engagement is an integral part of Bain Middle East. Over the years, Bainies in the Dubai office have been making an impact in our community through pro bono and public sector casework, fundraisers and volunteering.

For more information visit: **www.bain.ae**

RUBBISH ITEMS	TOTAL
COMMON ITEMS FOUND	
Cigarette Butts	1,337
Food Wrappers	141
Plastic Take Out Containers	18
Foam Take Out Containers	22
Plastic Bottle Caps	296
Metal Bottle Caps	60
Plastic Lids	40
Straws/Stirrers	151
Forks/Knives/Spoons	94
Plastic Beverage Bottles	17
Glass Beverage Bottles	2
Beverage Cans	9
Plastic Grocery Bags	14
Other Plastic Bags	40
Paper Bags	55
Paper Cups & Plates	1
Plastic cups & Plates	6
Foam Cups & Plates	14
FISHING GEAR	
Buoys/Pots/Traps	4
Net & Pieces	52
Line	25
Rope	144
OTHER TRASH	
Balloons	1
Cigar Tips	1
Cigarette Lighters	5
Construction Materials	6
PACKAGING MATERIALS	
6-Pack Holders	5
Other Plastic/Foam Packaging	22
Other Plastic Bottles	2
Tobacco Packaging/Wrap	6
PERSONAL HYGIENE	
Diapers	1
TINY TRASH (< 2.5cm)	
Foam Pieces	28
Glass Pieces	42
Plastic Pieces	199
OTHER	
Rubber Pieces	1
Shoe Sole	1
Tissues	28
Metal Bracelet	1
Teabags	6
Comb	1
Compass	1
Metal Cutlery	2
Wood Skewers	20
Foil Pieces	24
Wood Pieces	9
Pacifier	1
Bulb	1
Plaster	1
Socks	1
Paint Brush	1
Paper Pieces	1
Lollipop	1
Bones	3
GRAND TOTAL:	**2,964**

BAIN & COMPANY

ARABIAN SHARK & RAY SLATES

SHARK AND RAY ILLUSTRATIONS © **MARC DANDO**

FOR EDA MEMBERS ONLY

EDA and Gulf Elasmo Project have teamed up to give EDA members a nifty tool to bring along on their dive trips to help identify Arabian sharks and rays. Marc Dando has illustrated 25 species of sharks and rays based on photographs taken in our region for the sole purpose of these informative slates. These slates are being distributed for free to EDA members in support of shark conservation in the region.

GULF ELASMO PROJECT

The Gulf Elasmo Project is a non-profit initiative working on elasmobranchs (sharks, rays, guitarfish and sawfish) in the Arabian Seas region. They aim to advance the research, education and conservation of elasmobranchs in the region by promoting, developing, supporting and undertaking research and educational initiatives.

WHY REPORT YOUR SIGHTINGS?

There is currently little information on sharks and rays in the Arabian Seas region. With increasing threats from fisheries, coastal development, habitat degradation and pollution, continued monitoring of sharks and rays is essential to ensure their long-term survival.

The Gulf Elasmo Project is collecting information about these species from Arabian Seas waters to increase understanding of the species diversity, abundance and distribution. Citizen science is a powerful tool to collect data from across the region. All sightings of sharks, rays, guitarfish and sawfish, whether historical or recent, can help. Populations of most of these species are in decline so your information is invaluable to science, to raise awareness about Arabian elasmobranchs, and to support management decisions.

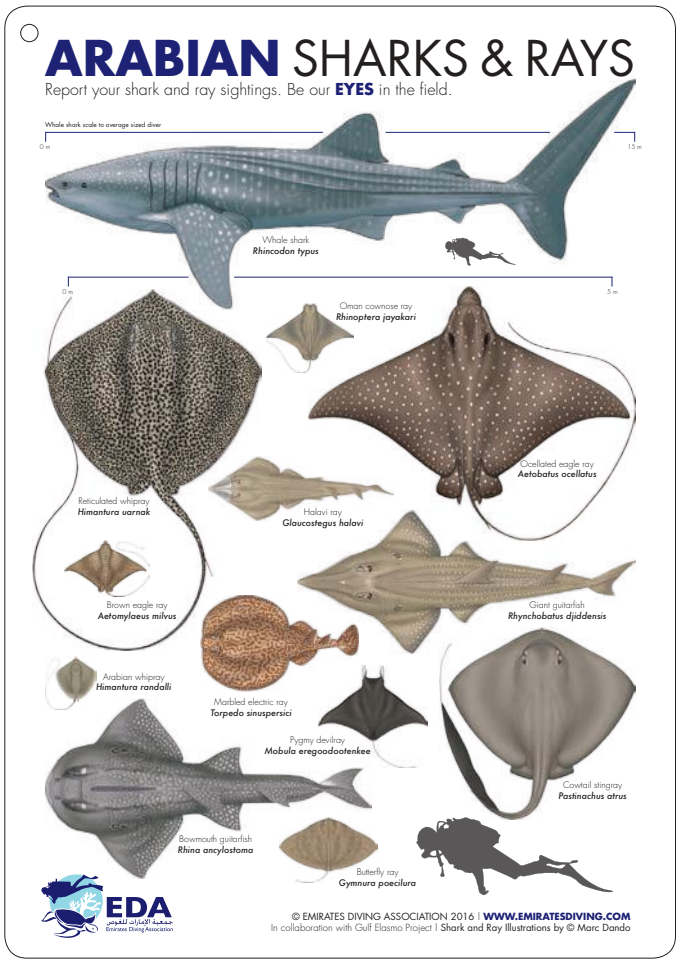
WHAT PHOTOGRAPHS TO TAKE

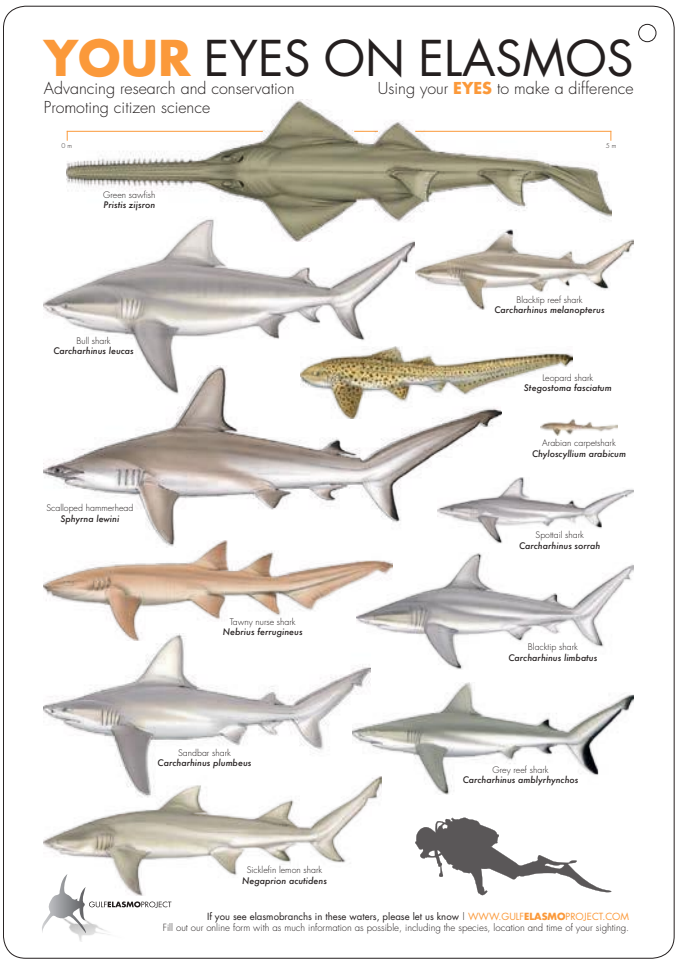
You do not have to be a professional photographer to submit your photographs. Any image can help us with this project. However, to help us make an accurate identification, side images of sharks showing the whole body, and top views of rays and guitarfish, are preferred. As male and female individuals can easily be distinguished, please try and take a photo of the pelvic area.

REPORT YOUR SIGHTINGS

If you see elasmobranchs in these waters, please let us know by visiting our website. **www.gulfelasmoproject.com**

Email us or fill out our online form with as much information as possible, including the number of animals you saw, the location, the time of your sighting and your activity at the time.





RIMA W. JABADO, PhD
FOUNDER AND LEAD SCIENTIST

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GULF**ELASMO**PROJECT

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Promoting citizen science
Using your **EYES** to make a difference

ENJOY THE SUN SAFELY

HAVE FUN OUTDOORS WITHOUT THE RISK OF SUN BURN

Without sunshine, our immune system stops functioning and our mood drops, however, too much sun is also not healthy. Staying healthy is all about achieving good balance – giving our bodies what they need, and staying safe in the process. Follow these 'how to stay healthy tips' while enjoying the outdoors, and reduce the chances of the sun permanently damaging your skin:

DAILY SUN EXPOSURE

We are exposed to the sun everyday and this is good for us in moderation.

15 MINUTES ARE ENOUGH

15 minutes of sun and direct exposure to UV rays is tolerated by almost every skin type. After this, your skin gets damaged. Such damage does not necessarily result in sun burn. Even without redness, the skin remembers long exposures to sun and the risk of skin cancer increases.

DRESS-ON, NOT OFF

If you want to enjoy the sun for longer periods of time, you should consider protection. Dermatologists specifically recommend the use of clothing such as iQ UV's shirts and sportswear with integrated Ultra Violet (UV) protection, rather than sun cream, as clothing will protect you from harmful UV rays for an entire day.

iQ UV's products range from caps and shorts, to shirts with long and short sleeves. They permit freedom of movement, they dry fast and are breathable. In addition, iQ guarantees a Sun Protection Factor (SPF), of more than 300 – the highest SPF factor in the world.
Parts of the body not covered, should still be protected with sun cream and despite the use of UV clothing, seeking out shade during the hottest hours of the day is still advisable.

6 INTERESTING FACTS FOR SUN LOVERS

1. A normal, dry cotton shirt has an SPF of 10. When it is submerged in water, this reduces to SPF 3. (The European standard of UV protection clothing requires a minimum SPF of 40).
2. An infant's skin has almost no protection. Young children build up this function only as they grow older.
3. The strength of UV rays is classified with the UV index. In the UAE, the UV index is often 11 and above, which is the highest value on the international UV index scale.
4. In the shade, 50 percent of the UV rays are still present.
5. Your skin tans, but it also absorbs UV rays. In and next to water, UV rays increase up to 90 percent due to reflection. Even the light reflection from sand at the beach increases UV rays up to 50 percent.
6. A complete application of sun cream is between 20 to 30ml.

For more information, go to **www.iq-uv.com** or check the local dealer's site **www.qvolution.co**

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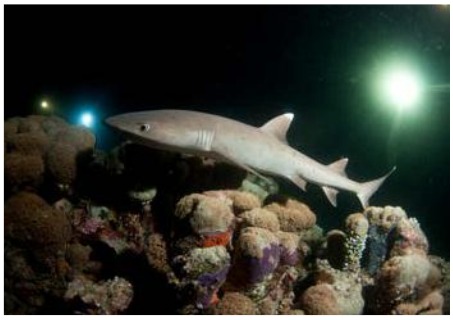
UV PROTECTION YOU WEAR

Q VOLUTION

DIVE48 – A SUCCESSFUL EVENT TO CREATE AWARENESS FOR MARINE LIFE

BY **MICHELLE WETTSTEIN** PHOTOGRAPHY **SHAFRAZ NAEEM** & **BHUSHAN BAGADIA**



Dive48, the biggest dive event to have been held in the Maldives to date, was carried out on the last weekend of February 2016! The event was Shaff Naeem's brainchild, the enthusiastic founder of Atoll Scuba. The aim was to raise awareness about the Maldivian marine life's endangered and threatened species, and monitor the conditions of a famous dive spot's coral reef structure. Since El Niño is one of the biggest topics of conversation around the globe, the team also collected data about possible effects caused by the climate cycle itself.

The Dive48 team was made up from all corners of the world and were flown in by Turkish Airlines, one of the event's main sponsors. The team had carefully been selected specifically for this event and even though most of the divers had only just met, it looked as if they had been friends a long time. Special guest, freediving world champion, Şahika Ercümen from Turkey and her trainer, Mindaugas Kreivenas from Lithuani were also welcomed and took part.

The first dive team kicked the event off on Friday the 26th of February at 4pm. From then on, there were shift changes every hour for the next 48 hours until Sunday the 28th of February. Even though it was incredibly tiring, all the divers remained highly motivated throughout!

Safety were the organisers' main priority. No diver went solo and if a diver didn't feel fit enough to go on the next dive, the team was flexible enough to rearrange the buddy teams. It was not only about the diving; the divers all collected a mass amount of data about the marine life, edited photos and uploaded footage to social media for all the followers around the world. After the 48 hours were completed, temperatures were logged, and the stationed video cameras, which had been placed at the start of the event, were brought back up to the surface. Everyone was tired but happy that they had achieved the goal and very proud to have been a part of the project.

There was fantastic support from the different sponsors and partners. Turkish Airlines flew the team in to the Maldives. Würth Group supported the team throughout the event. Dhiraagu, the No. 1 Maldivian Telecommunication company installed a massive infrastructure for the event. Coca Cola cared for the team's hydration, Fourth Element provided the team's exposure suits, and last but not least, TGI Maldives at Halaveli and Maayafushi, provided all the diving equipment and material, who without, the dives would not have been possible.

THE FUTURE OF DIVE48

According to the team, they have already started planning the next phase for next year's edition. It will need a lot of work to prepare the next event and to negotiate with the sponsors and partners. The team have all agreed on one point – even though the time was very short and they faced many difficulties, they made the event a reality and most importantly, a success. The next event in 2017 is envisioned to be even bigger than this year's.

www.atollscuba.com and **www.dive48.org**

ATOLL SCUBA™

CROWN-OF-THORNS STARFISH
CLEAN UP BY ISLAND DIVERS DHIGURAH, MALDIVES

Crown-of-Thorns Starfish (COT), *Acanthaster planci* is a multi-armed sea star which is related to other species of sea stars. In an ideal and healthy reef, they occur naturally and keep the faster growing species of coral in balance by feeding on them. Covered in long poisonous spines, they range in color from purplish blue to reddish-gray to green. They are generally 25-35cm in diameter, although can be as large as 80cm (**reefresilence.org**). Generally, they are found during the warmer periods usually from October to February in the Indo-Pacific region, occurring from the Red Sea and coast of East Africa, across the Pacific and Indian Oceans, to the west coast of Central America.

COTs have now become one of the biggest threats in tropical reefs. Outbreaks of COTs can quickly devour a healthy reef, leaving the dead skeleton behind and then move on to the next patch. Normally an outbreak is defined as 30 or more adult starfish per hectare on reefs (**reefresilence.org**) and this number can increase to hundreds or even thousands. Frequent outbreaks will cause significant damage to the coral reefs and these should be removed in order to protect the beautiful reefs, to maintain the flora and fauna of the magnificent underwater world.

Triton shells and Napoleon wrasses are some of their natural predators which help keep their population under control in a healthy reef system. The cause of the current outbreaks is believed to be due to high nutrient content in the water which is caused by pollution. The increase in certain nutrients ensures that a significantly higher number of COTs larvae can survive and grow to adults. Another main reason is due to climate change which increases the number of COTs.

Island Divers located on the island of Dhigurah, has recently taken the initiative to remove COTs as part of a community event to protect the beautiful reefs of the Maldives. The dive center is located at the South Ari Marine Protected Area (SAMPA) which is famous for whale shark sightings throughout the year. Being the only PADI 5 Star dive resort and the only green fin member on a local island in South Ari Atoll, Island Divers endeavors to be in the forefront of environmental activities in the area. Working with the island council, local guest houses, the island community, the schools and NGOs in Dhigurah, 3,000 COTs were removed from the outer reefs on the 23rd February, making it one of the most successful efforts. The COTs collected were safely disposed of by burying them on dry land. This was the third COTs clean up event organized by Island Divers. The dive center has been in operation for over 3 years. The staff working at Island Divers are some of the most experienced and passionate local instructors in the field. Services provided by the dive center include dive trips and excursion to a number of different dive sites in Ari Atoll, including the world famous reefs such as Bodufinolhu Thila. Whale Shark Safaris have been one of the most popular and exciting excursions provided by them. Island Divers also provide beginner to advanced dive courses such as Discover Scuba Diving, the Open Water course and Underwater photography courses to name a few.

Website: www.islanddivers.mv
Email: dhigurah@islanddivers.mv

OCEAN DIVE CENTER LAUNCHES UNDERWATER CLEAN-UP PROGRAM

BY **DR IAN WING – PADI COURSE DIRECTOR**

Like all great cities, Abu Dhabi experiences problems with pollution and damage to the environment. The underwater environment of Abu Dhabi is particularly at risk. It includes fragile sea grasses, sandy coral reefs and complex sea-life interactions between animal life that includes turtles, dugongs, dolphins, reef sharks and whale sharks.

Fortunately, many Abu Dhabi divers are committed to preserving our wonderful underwater environment and protecting it from pollution. Many of us have already participated in underwater clean-up dives such as the PADI Project AWARE Dives Against Debris. Some of us are also instructors for the PADI Dive Against Debris Specialty Course.

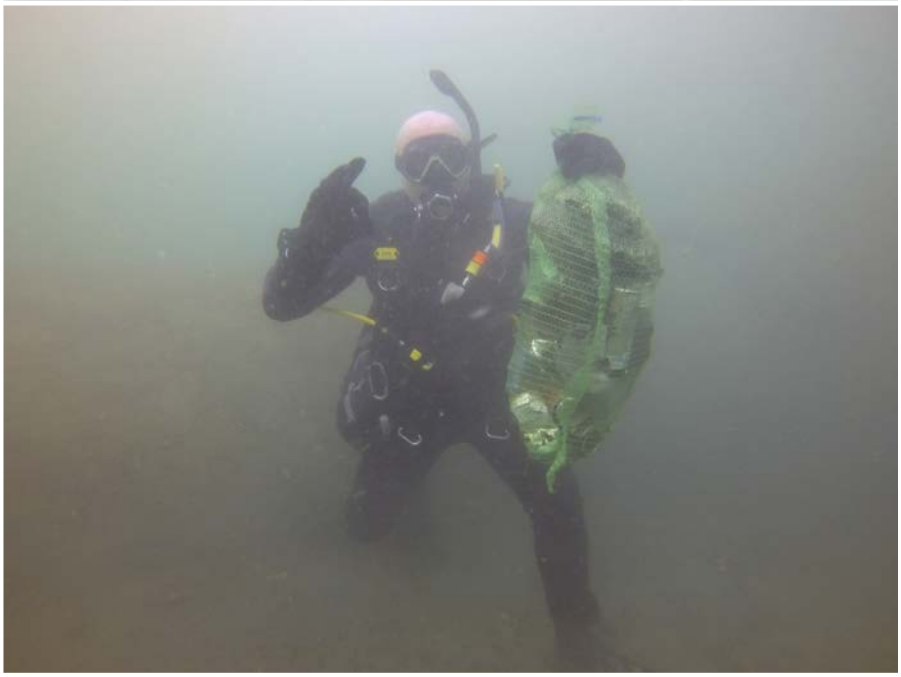
Ocean Dive Center is a PADI 5 Star Instructor Development Resort located at the Beach Rotana Hotel in Abu Dhabi. The center has been in operation for ten years, but it has only recently been upgraded to provide the PADI Instructor Development Course.

On the 1st of May, Ocean Dive Center hosted Mr. Ahmed Sayed, PADI's Regional Manager, and he gave a PADI "Go PRO" presentation to a group of divers ranging from entry-level up to instructors. Ahmed emphasized the need for all divers to increase their diving skill-set and to always respect the underwater environment.

Following on from Ahmed's excellent presentation, Ocean Dive Center announced its plans for a program of underwater clean-up dives. The dives will be run once a month and will target selected dive sites where underwater trash has been seen on earlier training and recreational dives. It is likely that the first dives will occur at the Breakwater, Blocks and Saadiyat Island sites.

All of the participating divers will receive skill and safety awareness training as part of the pre-dive briefing. Protective gloves will be issued and each diver will carry a mesh bag to collect the trash. The results of each clean-up will be reported to PADI Project AWARE for their world-wide database.

We plan to also provide updates on our progress to EDA and these will form the basis for ongoing articles in this magazine. For every dive on the program, our dive objective will be clear: "Let's Clean-up Abu Dhabi Underwater!"



RAMADAN SPECIAL OFFER: RAMADAN KAREEM OFFER VALID FROM 5th JUNE UNTIL 5th JULY 2016

Al Marsa's purpose-built Dhows were commissioned with the genuine looks of a traditional Dhow, yet each one is fully equipped with the convenience of modern amenities which include:

- Air-conditioned cabins and saloon
- Spacious sundecks
- Diving platform
- Food catering facilities
- Music player
- Electronic navigation

AL MARSA *Musandam*

YELLOW DHOW
Minimum of 12 people/Maximum of 18 people
AED600 per person per night, instead of AED800 for sharing rate
AED9,000 per night, instead of AED11,000 for charter of private booking

RED DHOW
Minimum of 10 people/Maximum of 15 people
AED600 per person per night, instead of AED800 for individual rate
AED7,500 per night, instead of AED8, 400 for charter of private booking

BROWN DHOW
Minimum of 8 people/Maximum of 12 people
AED600 per person per night, instead of AED800 for individual rate
AED6,000 per night, instead of AED8,400 for charter of private booking

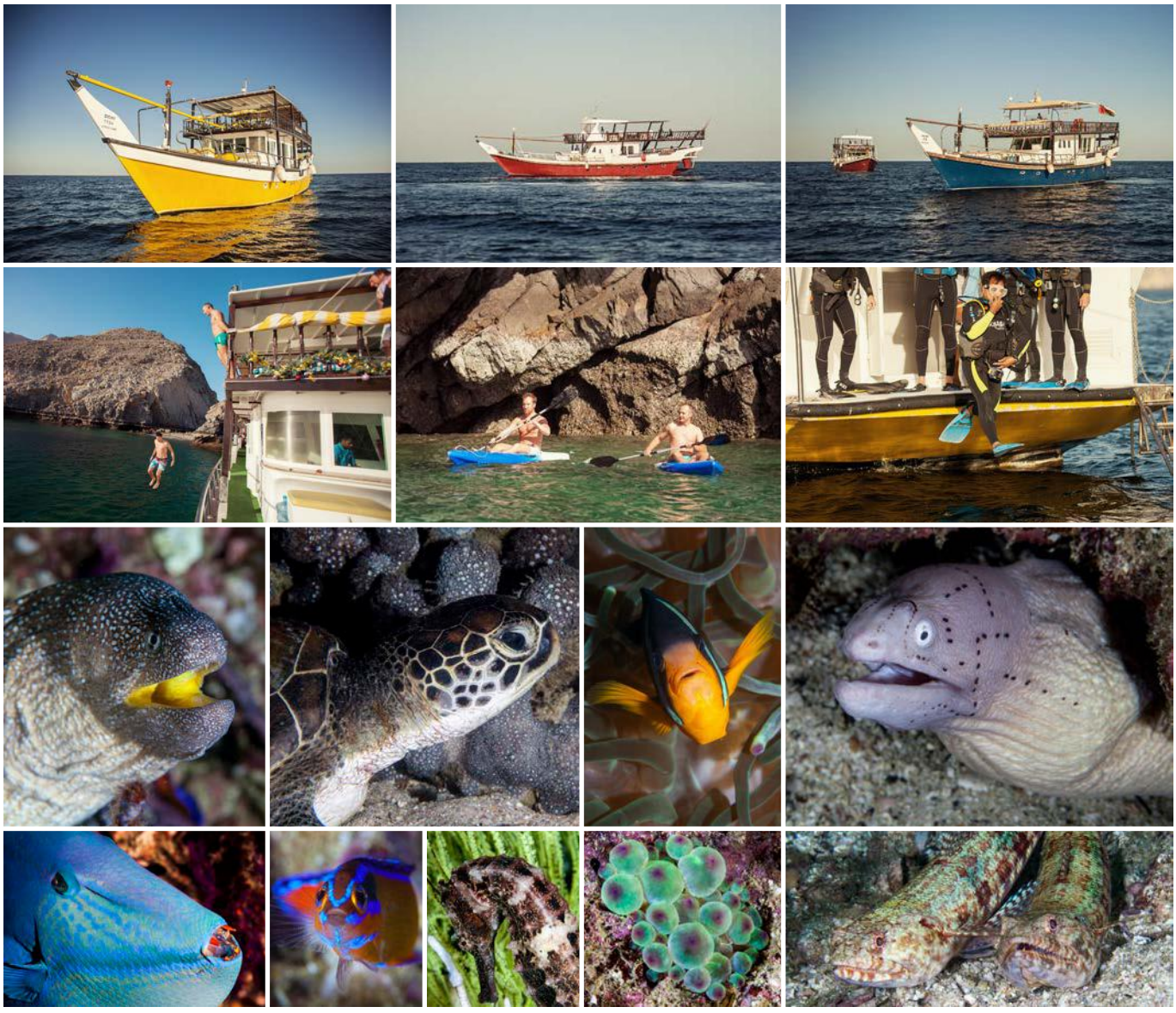
BLUE DHOW
Minimum of 8 people/Maximum of 12 people
AED600 per person per night, instead of AED800 for individual rate
AED6,000 per night, instead of AED8,400 for charter of private booking

Included in the rates are:

- All meals, normally starting with dinner, ending with lunch, water, coffee, tea and soft drinks.
- Snorkeling, usage of kayaks, fishing line and bait, and an on-board PADI Instructor/Dive Master.

Excluded in the rates are:

- Diving supplement & dive tax at AED130 per person per day – (includes dive tank, weights and 3 dives a day).
- Full Equipment rental at AED90 per person per day.
- 15L tank at AED30 per day – Normal 12L tank is included in the diving supplement rate.
- Torch at AED50 per person per dive.
- Extra dive at AED80 per person per dive.



ARIA – THE NEXT BIG THING IN SNORKELING
(FULL FACE SNORKELING MASK, IT'S A COMPLETE GAME CHANGER)

Have you ever tried snorkeling with a full face mask? Should you make the switch from the conventional one?

First we have to know what a full face mask is. As the name suggests, a full face mask is a mask that covers the entire face compared with the conventional mask which only covers the eyes and nose.

HOW DOES IT WORK?
By integrating the snorkel into the mask, the user doesn't have to hold the mouthpiece in the mouth. With ARIA it is made easier for the diver to appreciate and explore the underwater world. The diver can breathe naturally through his nose and eliminate jaw discomfort while the dry top prevents the water from getting into the snorkel. It has the largest field of vision and with the mask's frame, it guarantees no fogging.

THE ADVANTAGES OF A FULL FACE MASK:
NO JAW DISCOMFORT
The diver naturally breathes through their nose and doesn't need to bite on anything to keep the unit in their mouth.

ATTACHED SECURELY
Instead of just a single strap holding the mask in place with the snorkel, the full face mask has several independent straps that are placed securely around your head. Less likely to lose the snorkel which is common for newbies.

WIDE FIELD OF VISION
The field of vision is cinematic. The best full face masks allow for almost 180 degree vision, more than any traditional dive mask.

NO FOGGING
No product treatment is necessary, no hassles and no loss of opportunities. Aria's air circulation system inside the mask's frame guarantees no fogging and no stress.

CAMERA SUPPORT
You can mount your sport camera and take the support off to move the camera around and record and relive your experience any time you want. You can even take a selfie!

Goodbye to the traditional mask and snorkel! ARIA makes it far easier to start discovering the ocean.

So fellow ocean enthusiasts and defenders of the marine environment, let's conquer the underwater world.

ARIA is exclusively distributed by Premiers for Equipment which is located at Al Meena, near the Fish Market, Abu Dhabi.

PREMIERS FOR EQUIPMENT

DIVEHEART FOUNDATION | DIVING FOR THE DISABLED

PRESENTATION AND DEMONSTRATION AT THE TWI FACILITY IN SHAH ALAM, KUALA LUMPUR

BY **KIDS SCUBA**





Diveheart is a non-profit organization, founded in Illinois in 2001 by Mr Jim Elliott. His vision was to build confidence, independence and self-esteem through scuba diving in children, adults and veterans with disabilities.

This vision has been accomplished through many international exhibitions and demonstrations; one of the latest being held at the TWI Technology Sdn. Bhd facility in Shah Alam, Kuala Lumpur Malaysia on the 24th March 2016, with Mr Jim Elliott (founder of Diveheart) and Ms. Tinamarie Hernandez (Executive Director) in attendance.

This memorable event was hosted by Mr Ernie Moskini, Regional Manager for TWI SEA and his Executive Director, Mr Darus, who provided the facility, including the 10m x 10m x 6.5m deep pool, seminar room and canteen facilities.

Kids Scuba Director and PADI Instructor, Hj Syed Abdul Rahman, works extensively with children, teenagers, orphaned youths and adults with disabilities in Malaysia, and was instrumental in organizing the disabled volunteers, scuba diving equipment and local media coverage. His PADI qualified Kids Scuba Dive Team acted as attendants.

The seminar commenced with a welcome addressed by Mr Darus, the Executive Director of TWI who introducted the Diveheart Foundation President, Mr Jim Elliott who had come to Malaysia from the US for the first time. This was followed by a scuba diving exercise with each of the disabled volunteers.

Blue Water Engineering (M) Sdn Bhd provided a unique opportunity for the disabled diving team to experience commercial diving equipment used in the offshore oil and gas industry.

Mr Reudavey and Mr Charles Rowe, from BWE (M), presented the introduction and familiarization of the equipment to the divers. Each disabled diver, in turn, was suited and seated in a purpose built cage, which was then lowered into the pool via an overhead crane. They all experienced the underwater view through a Kirby Morgan 18 diving mask, which communicated with the diving supervisor on the surface. Mr Jim Elliott of Diveheart accompanied each of them in the cage.

Charles Rowe acted as an additional standby diver using a Kirby Morgan 17 dive helmet with mounted light and video camera to capture this unique experience for each of the divers.

Representatives from Malaysia TV1, TV9 and Radio 1M4U were also present to conduct interviews as well as capture footage of the event.

The presentation was closed with Mr Jim Elliott expressing his heartfelt thanks to the Kids Scuba dive team, TWI, Blue Water Engineering and the media for making it all possible.

The underlying message established from this event, is that people with disabilities have both the willingness and capabilities of carrying out the tasks just as those without disabilities. This in turn builds confidence and self esteem to further expand their horizons in their lifestyle and career opportunities and choices – inshore commercial diving, environmental projects become a possibility.

Congratulations and thank you to the stars of this event, who variously live with polio, blindness, and neuro-muscular disorders:

- Ms Tan
- Ms Chin
- Ms Jackie
- Mr Steven

A BUCKET OF WATER ON YOUR HEAD

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

So, pressure is a force pushing on a surface. And like a balloon, the more you press it, the smaller it gets. That was what Fred had understood from the explanation given by his friend. But, Skubba still didn't understand what all that had to do with his pear-shaped bag.

"What does pressure have to do with my bag?" asked Skubba, a little confused.

Fred took a bucket and asked Skubba to put it on his head. With eyes wide open Skubba did what his friend asked.

"What do you want to prove with this?" he asked as he held the bucket steady with his hands.

"Wait," Fred replied. He stood a little higher and poured water into the bucket. Skubba felt the weight on his head increase. After a while, the muscles in his neck and arms started to stiffen up. This thing was heavy.

"Why Fred?"

"Underwater, you also have weight above your head. The water may not be in buckets, but it is there above your head."

Skubba thought about it. His friend was smart, but something didn't seem quite right. "Why don't I feel that weight on my head when I'm in the water?".

"The water isn't only above you, but it also pushes you from the right, the left, the front, and the back. It pushes you all around. According to Pascal, water presses against you from every spot of your body. That's why you don't feel it!".

"Did my cousin Pascal tell you that?".

"No. Not your cousin, but the researcher Pascal. He showed that pressure pushes in all directions. Therefore, you not only feel the pressure on your head, but also on your stomach and your back."

"Ah," replied Skubba doubtfully. "But what has that to do with the pearlike shape?".

"On your head there is only one bucket of water, but your feet are deeper in the water, therefore there are more buckets pushing on them. More buckets is...".

"...more pressure!", replied Skubba quickly. Skubba began to see the connection. "Top, little pressure. Down, more pressure. At my feet, the bag is pressed more tightly together than at my shoulders."

"Yes, yes."

"So, when I lay down, the pressure will be the same everywhere. I will no longer look like a pear. I will look like, uh, a tube."

"Yes, you really have understood it."

"Let's try it!", shouted Skubba as he started getting ready. Completely dressed, he jumped into the water, but... whatever he tried, he stayed at the surface. He wasn't a diver, but a float on the water.

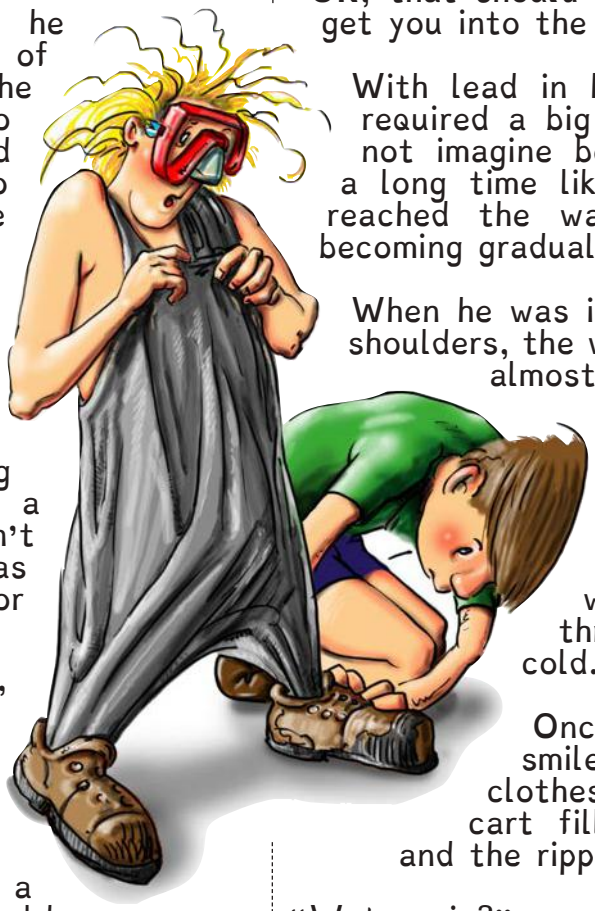
What had gone wrong this time?

WITH LEAD IN THE SHOES

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

Whatever he tried, he kept bouncing like a float on the surface. When he pushed his head into the water, his feet came up. Feet under, head up. Why couldn't he dive? Fred could help him, but Fred was gone. Where was Fred?

With great difficulty, he was able to climb out of the water. Once out, he saw his friend coming to him with a heavily loaded cart. The wheels sank into the ground. What was he carrying?



"Do you remember Archimedes?", shouted Fred.

Skubba thought deeply, but apart from knowing that Archimedes was a clever Greek, he couldn't remember what he was known to have done or said.

"The glass in the sink," said Fred.

"The glass in...", yes, now he remembered. The glass did not want to go under. Only by hanging a weight on the glass, could it sunk to the bottom. The weight had to be equal to the weight of water that you could pour in the glass. "Yes, Archimedes!"

"Indeed. This law applies not only to your diving bucket but also to you in the bag."

"And that's why you brought all that lead?"

"Yes, I'm going to add weight to you and make you heavy."

Skubba had to stand up straight while Fred placed an oversized shoe with lead in it, over Skubba's left foot. Then he did the same thing with his right foot. The bag Skubba was wearing, looked like a pair of oversized overalls.

Skubba then had two heavy lead plates put over his shoulders. The weight almost toppled him over. The more Fred worked, the heavier Skubba became. Until finally, the cart was empty.

"OK, that should now be enough. Let's get you into the water."

With lead in his shoes, every step required a big effort. Skubba could not imagine being able to dive for a long time like this. But, once he reached the water, he felt himself becoming gradually lighter. It worked!

When he was in the water up to his shoulders, the weight seemed to have almost gone. That was it!

Unfortunately the plastic bag tore before he could dive. Cold water poured in and in no time, Skubba was completely soaked through and freezing cold.

Once home, his mother smiled upon seeing the wet clothes piled on top of the cart filled with lead blocks and the ripped bag.

"Wet again?"

"Yes, the bag tore."

"There's something in the garage for you. You will appreciate it."

Skubba thought it would be a set of dry clothes or tape, but instead, Fred discovered a black, rubbery suit.

"Unbelievable, a real neoprene diving suit."

"A neosuit?", asked Skubba surprised.

"No, a diving suit made of rubber with bubbles trapped in it. Those bubbles will keep you warm in the water. Man, now you can really dive."

"Thank you, mom!"

AMBITIOUS PLANS IN STORE FOR REEF CHECK MALAYSIA AFTER SUCCESSFUL 2015

BY **REEF CHECK MALAYSIA**

While Reef Check celebrates its 20th anniversary this year, 2016 also marks the 10th year of operations since Reef Check Malaysia (RCM) was registered in 2007, and they have come a long way in their efforts to protect the coral reefs of Malaysia. RCM sent in this summary of their successes in 2015 and plans for 2016:

In 2015, RCM successfully trained 55 new EcoDivers and 5 new EcoDiver trainers! We always look forward to having more people come aboard as EcoDivers and we hope to see you on our upcoming surveys. For those interested to become EcoDivers, please feel free to contact us at ecodiver@reefcheck.org.my or visit our website at www.reefcheck.org.my.

In total, we conducted 242 surveys across Malaysia in 2015, our biggest programme to date. The aggregated results from these surveys show that there are no significant changes to the health of coral reefs in Malaysia, good news overall. However, individual reef areas do need action to reduce impacts, and these will be discussed with reef managers and local stakeholders over the coming months.

Our Cintai Tioman community programme is now entering its third year! The recycling programme with the villagers was a huge success in 2015. All in all, we collected 1612.5kg of plastic, 1,421kg of tin and 130kg of batteries. We also conducted trainings for members of the local population in areas such as computer skills, Rescue Diver and Emergency First Responder (First Aid), Reef Check surveys and reef rehabilitation as well as Medic First Aid training for licensed boat operators. As a result of the reef rehabilitation training, some of the trainees are now working on reviving our reef rehabilitation efforts in Monkey Bay. A composting workshop was also organised with students from SMK Tekek, and as of 2015, we have 20 individuals participating in our composting programme. We hope that the recycling and composting efforts will continue to help reduce the waste management problem on the island.

RCM's work on Mantanani Island continued in 2015 with the expansion of reef rehabilitation sites and more education efforts with the local primary school and community. We are still testing different approaches there, due to challenging water conditions around the island. But more importantly, the project allows us to continue to work with the local community to promote the idea of improving management of the islands' reefs, in particular combating fish bombing.

Throughout 2015, as part of efforts to improve management of Malaysia's coral reefs, RCM has been working with the Department of Marine Parks Malaysia (DMPM) to identify local impacts to coral reefs, and develop Action Plans to reduce or eliminate those impacts.

Our focus this year will be very much on improving management of Malaysia's coral reefs, with the inclusion of all stakeholders. The programme is ambitious, but one which we hope will successfully demonstrate novel approaches to managing marine ecosystems.

We will be working closely with DMPM and other agencies to implement the local impact Action Plans, as part of which we hope to increase the involvement of local communities in decision making. This is already happening in Tioman, where we are training a group of islanders to provide services to the Marine Park, as well as working to revitalize the Community Consultative Committee. We are hoping to replicate some of those activities in Perhentian.

In Mantanani, we hope to hold the first round of formal community consultations on the concept of managed areas around the islands' reefs – a process which will take some time to complete but which will eventually involve all stakeholders working together to the common goal of sustainable reef management. Similar projects are on-going in Perak and Johor, and we are hoping that in each location we will be able to demonstrate different approaches to reef management, all with the relevant local communities deeply involved.

Finally, we could be dealing with another mass bleaching episode this year. Predictions from NOAA, based on satellite tracking of sea surface temperatures, indicate potential catastrophic bleaching in South East Asia by April/May, though it is worse in the south of the region. If necessary, the Malaysia Bleaching Response Plan will be activated. This defines a number of management actions in response to different levels of bleaching, ranging from simple monitoring to site closures. We will work closely with DMPM and all local stakeholders and involve them in decision making as much as possible.

For more information on Reef Check Malaysia and how to get involved, please visit: **www.reefcheck.org.my**

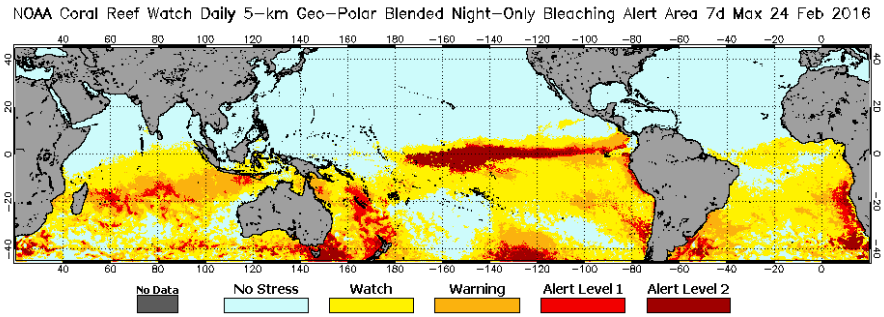
One of the reef rehabilitation sites in Tioman

Participants of the Local Impacts workshop

Some of the recycle bags filled with plastic bottles and tins, ready to be shipped out

GLOBAL CORAL REEF BLEACHING EVENT UPDATE

BY **DR. GREGOR HODGSON, REEF CHECK EXECUTIVE DIRECTOR** PHOTOGRAPHY **REEF CHECK FRANCE**



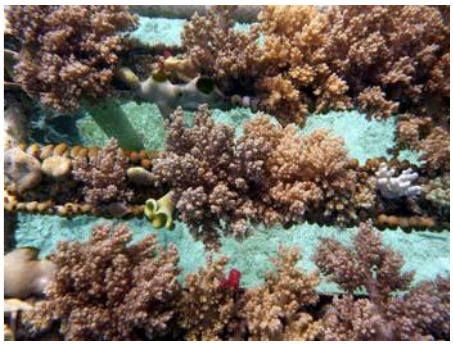
The 3rd Global Bleaching Event is now working its way through the southern hemisphere with NOAA Coral Reef Watch showing "hotspots" in the Central and SW Pacific and the Indian Ocean from Indonesia over to Madagascar. Significant bleaching has been recorded by Reef Check teams in many areas including Fiji and New Caledonia in the Pacific, and Mayotte in the Indian Ocean. Sadly, Fiji was just hit by perhaps the most powerful cyclone in history, killing dozens of people. The strong wind and waves mixed the waters there, rapidly reducing surface temperatures so that the bleaching and fish kills stopped.

The 3-year El Niño is now the longest in history, and is now dissipating according to NOAA, to be followed by La Niña.

But so much heat has been built up in the ocean, hot water could continue to be a problem for corals into 2017. We are asking all Reef Check teams in affected areas to get in the water and track impacts so that we can assess the damage. The good news from the field is that compared to dire predictions in 2015, it appears that the corals that survived the previous two global bleaching events are now somewhat more resistant to hot water. The microscopic algae called zooxanthellae that live inside coral tissues reproduce very quickly allowing them to adapt even faster than the corals. This means that there is still time to save coral reefs by reducing our own personal carbon footprints. Eating one less hamburger a week is one of the easiest and most healthy solutions.

BANGKA ECOEXPEDITION PARTICIPANTS GET INTRODUCED TO SOFT CORALS AND CORAL FARMING

BY **REEF CHECK ITALIA'S FILIPPO BARGNESI**



In 2015, Reef Check Italia organized its EcoExpedition to the wonderful Bangka Island (North Sulawesi, Indonesia) surrounded by the huge biodiversity of the Celebes Sea. Held from the 26th of October to the 2nd of November, participants received courses on coral identification and coral reef monitoring, including, for the first time, a specific class on soft corals.

Activities with the students were conducted in three steps. After an introduction on soft coral biology and ecology, some organisms belonging to the most common taxonomic families were collected and maintained in aquaria for some days to see the main morphological characteristics of the different genera. At the end, polyp morphology was analyzed under a stereomicroscope and sclerites (a species-specific calcium carbonate structure made by these organisms) were extracted and analyzed under an optical microscope for better classification.

Soft corals are very interesting for monitoring the health of a coral reef because they are pioneer organisms in the secondary colonization of destroyed and degraded reefs, due to their high growth rate and high resistance to adverse conditions. They are also valued for reef restoration due to this high growth rate and the fact that they can easily be grown on submerged farms which can provide organisms that can be transplanted on impacted reefs.

When you consider conservation and people's awareness of environmental sustainability, it is also interesting to note that these organisms are in demand in the aquarium trade. Growing them at specific sites could potentially decrease wild harvesting of soft corals and could also give to local economies an alternative to destructive practices like bomb and poison fishing.

In the end, we would like to thank the Coral Eye management for giving us the opportunity to use the facilities of their Indonesian outpost, such as the wet laboratory (with nine 15l tanks and sea flowing water) and the dry lab, where we made use of microscopes, stereomicroscopes and reagents.

ALTASEA AT THE PORT OF LOS ANGELES, REEF CHECK AND LOS ANGELES MARITIME INSTITUTE

ANNOUNCE "STUDENT OCEAN SCIENTIST" PROGRAM TO ENGAGE YOUTH IN OCEAN-BASED LEARNING

EDUCATIONAL COLLABORATION FOCUSED ON TEACHING MIDDLE SCHOOL CHILDREN HOW TO CARRY OUT SCIENTIFIC INVESTIGATIONS OF THE LOS ANGELES HARBOR AND COASTAL WATERS

(Los Angeles, CA) – March 7, 2016. AltaSea at the Port of Los Angeles, Reef Check and the Los Angeles Maritime Institute (LAMI) announced a collaborative partnership to engage youth in marine conservation through a highly interactive Student Ocean Scientist Program (SOS). The acronym reflects the urgent need to address threats to marine life locally and globally, and is designed to raise awareness about the value of ocean resources, threats to ocean health and solutions to those problems.

"We're excited to bring together organizations with decades of experience in ocean exploration and experiential education," said Jenny Krusoe, Executive Director of AltaSea, which facilitated the connection between Reef Check and LAMI. "This partnership aligns perfectly with AltaSea's efforts to ignite passion and commitment through educational programs that immerse children and adults in the critical role that the ocean has on our planet."

For the pilot phase, the STEM-based program will focus on Title I middle schools located in Los Angeles County on a first-come, first-served basis. During each three-hour program, students are introduced to the local marine ecosystem in the Los Angeles Harbor aboard one of LAMI's two tall ships, the Irving Johnson and Exy Johnson. These 110-foot traditionally rigged vessels were "purpose built" for youth education at sea. In addition to offering a close-up look at marine life, students become part of a working sailboat crew and learn the importance of teamwork.

Sails have already taken place with students from Lennox Middle School, Dana Middle School and Emerson Middle School, with a total of 21 sails planned through June 2016.

"This is a natural expansion for our TopSail Youth Program," stated Bruce Heyman, Executive Director of Los Angeles Maritime Institute (LAMI). "We're elated to partner with AltaSea and Reef Check to bring more science-based programming to our schools and community, and ultimately, challenging students to think about solutions to environmental impacts on our local waters."

Reef Check uses "citizen science" to engage local communities in marine conservation. At the start of the SOS program, students are asked to answer a simple question: Why is the ocean valuable? This discussion leads to a hands-on scientific investigation where students will analyze and interpret data collected in the ocean to explain how human impacts play a key role in the health of the ocean and why ocean conservation is critical to our own survival.

"It is shocking that more than 50% of LA County students have never put their toes in the ocean, many do not know how to swim and know little about marine life," expressed Dr. Gregor Hodgson, Founder & Executive Director of Reef Check Foundation. "By learning to sail a real brigantine sailboat and observing living marine organisms like John Steinbeck did, we hope that SOS students will make an emotional connection with the ocean. Our goal is for students to become ocean ambassadors in their schools and communities."

The partnership among AltaSea, Reef Check and Los Angeles Maritime Institute gives students the opportunity to become marine biologists for the day, to experiment, test water for pollution, and to observe fish, invertebrates and live plankton swimming under a microscope. "We hope that some students will eventually enter our advanced marine science training courses to become Reef Check EcoDivers, and join our annual underwater survey of the entire California coast," said Hodgson.

Upon students' arrival at the waterfront, they receive a packet of illustrated marine science cards to guide their scientific investigation aboard the tall ships. To assist teachers, the SOS program includes classroom and field

units designed to support California's Next Generation Science Standards, and pre and post-program knowledge testing. Students learn about ocean ecosystems, oceanography of waves and currents, and ocean conservation while sailing on a brigantine similar to those used by 19th century explorers.

This educational collaboration seeks to create a new generation of young people who will spread their appreciation for the value of the ocean, for marine life and all of us.

ABOUT ALTASEA AT THE PORT OF LOS ANGELES

AltaSea at the Port of Los Angeles accelerates scientific collaboration, facilitates job creation and inspires the next generation for a more sustainable ocean. Built on a historic pier with access to the deep ocean, AltaSea's 35-acre campus brings people together to expand science-based understanding of the ocean; incubate and sustain ocean-related business; and pioneer new ocean-related education programs. For more information, please visit **www.altasea.org**

ABOUT REEF CHECK FOUNDATION

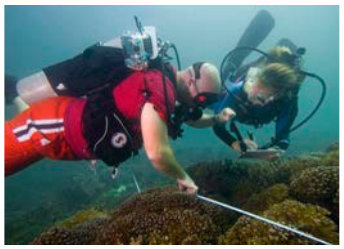
Founded in 1996 by former UCLA professor of marine biology Dr. Gregor Hodgson, the Reef Check Foundation headquartered in Marina Del Rey, is an international nonprofit organization dedicated to the conservation of two ecosystems: tropical coral reefs and California rocky reefs. Reef Check operates the only global coral reef monitoring program carried out by trained teams of volunteer citizen scientists in more than 90 countries and territories, and a second program devoted to annual monitoring of over 80 reefs and marine protected areas along the entire coast of California. **www.reefcheck.org**

ABOUT LOS ANGELES MARITIME INSTITUTE

Since its inception, Los Angeles Maritime Institute (LAMI) has served over 60,000 young people throughout Los Angeles County with transformational experiences at sea. Founded in 1992 by sailor and retired science teacher, Jim Gladson, the award-winning TopSail Youth Program introduces at-risk and disadvantaged youth to a world beyond their communities where they are provided with real-life challenges not available in the traditional classroom. LAMI's unique educational approach fosters students' interest in continuing their education, particularly in STEM-related subjects, while opening doors of opportunity for global maritime careers. The hands-on program is offered year-round aboard the twin brigantines Irving Johnson and Exy Johnson, 110-foot traditionally rigged wooden vessels built on the LA Waterfront between 2000 and 2002. The purpose-built vessels and their crews were proclaimed the "Official Tall Ships and Maritime Ambassadors of the City of Los Angeles" by city resolution at their launch. They are the only twin brigantines in the world. **www.lamitopsail.org**

WIN A SPOT ON A REEF CHECK/BIOSPHERE EXPEDITION TRIP!

PHOTOGRAPHY **BIOSPHERE EXPEDITIONS**



Win a place to join a unique SCUBA diving coral reef conservation expedition in Oman, the Maldives or Malaysia!

In partnership with Reef Check and the Marine Conservation Society, Biosphere Expeditions is offering a free place on an expedition to Musandam (Oman), the Maldives or Tioman Island (Malaysia). Each trip includes training and certification as a Reef Check EcoDiver. And there's more: in addition to the expedition prize, there are other prizes from Reef Check and the Marine Conservation Society to be won.

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 to the diving expedition.

More information and the application form is at **www.biosphere-expeditions.org/competition**

Good luck!

NO NEWS IS GOOD NEWS – BANGKA REEF CHECK ITALIA ECOEXPEDITION 2015

BY **REEF CHECK ITALIA'S GIANFRANCO ROSSI**

In the year in which researchers of a consortium, established by NOAA, XL Catlin Seaview Survey, The University of Queensland (Australia) and Reef Check, announced the third global coral bleaching event ever, the coral reefs of Bangka Island in North Sulawesi, Indonesia look like they are not affected at all by this phenomenon. These are the evaluations that come from the recent expedition that Reef Check Italia has carried out, for the fifth year, at the Coral Eye Outpost in Bangka.

The unique and complex role that currents play in all the Indonesian Archipelago has brought this year, in this area, cold waters that have kept the water temperature below the seasonal average, saving this zone from the widespread bleaching phenomena that are affecting other parts of the planet. On the contrary, a great drought is devastating many land areas of Indonesia, especially with the aggravating circumstance of palm oil companies that are responsible for forest fires, with a practice of forest clearance known as slash and burn, where land is set on fire as a cheaper way to clear it for new planting.

For the first time, volunteers from other countries, like Hong Kong and the USA, have joined our expedition. The result has been excellent and we hope others will join future trips. In addition to monitoring the reefs, participants also had the opportunity to improve their knowledge of hard corals in the global center of biodiversity, an area with more than 500 species of coral reef builders. Thanks to the presence of the Coral Eye Museum, participants were able to observe samples of more than 50 genera of hard corals in the laboratory and then find the same genera alive in the water. Furthermore, a new training session dedicated to soft coral and coral farming has enriched an already intensive program.

As documented in the previous five years of surveys, anthropogenic (manmade) impacts are the main problem that plagues the reefs of Bangka Island: mainly pollution and, in particular, overfishing which is characterized by the use of highly destructive techniques.

The most dangerous occurrence, that in these five years of monitoring has mainly threatened the integrity of the reefs of the Island, is still the start of mining activity. Now the Indonesian Supreme Court of Jakarta has confirmed the verdict that requires the Chinese company MMP to remove all the heavy machinery from the island, but this doesn't mean that the Island has definitively resolved its problems. Continual and careful monitoring will always be necessary.

While the current global bleaching event which has triggered the alarm for many reefs around the world seems to have spared the Island of Bangka, it does not mean they will be immune to bleaching in the future. The final agreement that nearly 200 governments have subscribed to at the 2015 United Nations Climate Change Conference in Paris is a very important decision and could be scientifically robust in the aim of reducing the impact of anthropogenic global warming on coral reefs. Decreasing the overall warming well below 2°C could guarantee the survival of coral reefs for future generations globally, but we are still very far from these targets so it will be fundamental that everyone of us play a role in the achievement of these objectives.

REEF CHECK SPOTLIGHT: PACIFIC SEAHORSES INVADE SOUTHERN CALIFORNIA

BY **REEF CHECK CALIFORNIA'S SOUTHERN CALIFORNIA TRAINING COORDINATOR, KATIE KOZMA** PHOTOGRAPHY **TAKEN IN LA JOLLA CANYON BY LOCAL SAN DIEGO DIVER, ROGER UZUN**

The Pacific seahorse, *Hippocampus ingens,* is currently listed as a vulnerable species by the International Union for the Conservation of Nature's (IUCN) Red List of Threatened Species and with a size of about 12 inches, it is one of the largest seahorse species you will find around the world.

This subtropical fish comes in a variety of different colors including gray, brown, red and yellow, which often match the color of the surrounding habitat that they live in. They can normally be found in shallow beds of soft corals and gorgonians in the Eastern Pacific region and they're unique in the fact that they're the only seahorse species that can be found along the California Coast, reaching San Diego Bay. Its normal range extends southward to Peru.

There's a very large demand for dried seahorses in Asia and other places around the world because they have been used as medicine for thousands of years. Each year, tons of Pacific seahorses are caught, dried and shipped to these countries. As the population on the planet increases, the demand for seahorses grows and the number of this species continues to decline, making them a rare sight to be seen even throughout their normal distribution range.

With the influx of unusually warm water that's been brought in by this year's El Niño event, local divers have been seeing some very rare species while diving in Southern California, including the Pacific seahorse. They have recently been spotted in San Diego and as far north as the waters of Alamitos Bay in Los Angeles County, which is the farthest north this particular species has ever been sighted before.

Seeing seahorses in California is definitely unusual, but there are two reasons why an El Niño event could bring them into the waters of Southern California. First, the increased water temperature associated with El Niño could allow them to temporarily expand their range further north. Second, water from the western Pacific is brought towards the American coastline due to the reversal of the Walker cell, a phenomenon that occurs during an El Niño event. This process could potentially transport a seahorse attached to some seaweed drifting in the open ocean into California waters. With this recent increase in Pacific seahorse sightings in Southern California, we may get the chance to see one during the upcoming survey season this year!

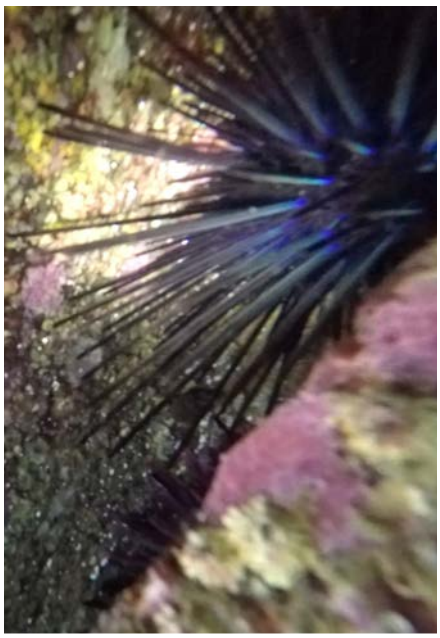
CROWNED SEA URCHIN SEEN IN MONTEREY BAY

BY **REEF CHECK CALIFORNIA DIRECTOR DR. JAN FREIWA**

While teaching the Reef Check California (RCCA) survey methods to students from the California State University Monterey Bay (CSUMB) scientific diving class on April 12, 2016, Jan Freiwald, Director of Reef Check California saw and documented a crowned sea urchin, *Centrostephanus coronatus*, in the kelp forest at the breakwater in Monterey. This subtropical species has a reported distribution range from the Galapagos Islands in the south to the California Channel Islands in the north. In southern California they are present in much lower densities than other common sea urchin species. To our knowledge, this species has not been reported as far north as Monterey Bay before. Therefore, this observation could document a range extension of this species. The individual had a test diameter of around 4 centimeters. The average body size of 4.5-5cm for this species suggests that this individual has recruited a while ago and has grown to almost full size on the reef in Monterey Bay. As we have seen many southern species over the last year in Monterey Bay, this occurrence of a warm water urchin is likely linked to the recent El Niño conditions and the warm water that has persisted along the central California coast over the past two years.

Crowned urchins have a planktonic larval stage during which individuals can be transported by currents over long distances. Typically, they are moved southward by the California Current. Adult individuals occupy holes and crevices on shallow reefs and don't move far. After nightly feeding excursions of a few meters at most, they return to their home crevice before sunrise. Natural predators of this species are southern California fish species such as the California sheephead and others, and the urchin's diurnal feeding behavior might be a response to the inactivity of these predators at night.

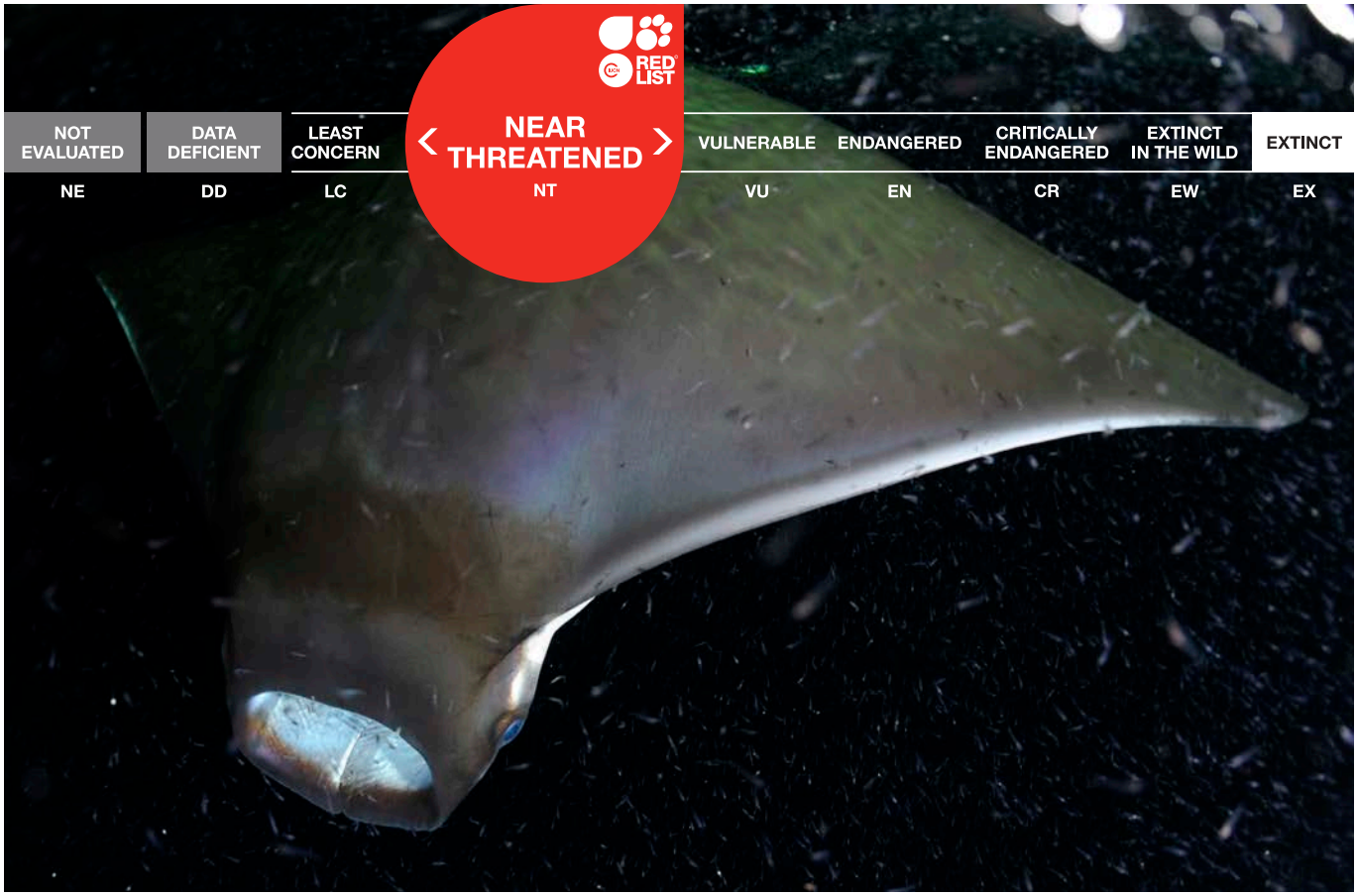
Crowned urchins are one of RCCA's indicator species seen on many transects in southern California. As the species list for RCCA surveys is consistent throughout the state, it lends itself to detecting range expansions as divers look for species even outside of their reported geographic range. As we begin the 2016 survey season, we will look for further evidence of species' range shifts in California waters due to the recent very unusual warm water conditions.



FEATURE CREATURE

PYGMY DEVILRAY (*MOBULA EREGOODOOTENKEE*)

FEATURE **IUCN RED LIST 2003** PHOTOGRAPHY **GUY STEVENS/MANTA TRUST**



RED LIST CATEGORY & CRITERIA: NEAR THREATENED
Scientific Name: *Mobula eregoodootenkee*
Common Name: English: Pygmy Devilray

Justification: *Mobula eregoodootenkee* is locally common within its wide tropical Indo-west Pacific and northern Indian Ocean distribution. However, little is known about its biology and ecology, although inference from related Mobula species suggests this species is likely to have a low reproductive output. *Mobula eregoodootenkee* is likely to be a bycatch component of several fisheries through entanglement in nets, with much of this catch unreported. It is marketed in Thailand and probably elsewhere in South East Asia. Fishing pressure could severely impact this species, and given the lack of quantitative data available, it is prudent to assign the species with an assessment of Near Threatened (close to Vulnerable A3d) until its population is otherwise proven to be stable. This species is of no commercial value in Australia and is not recorded as a catch in any domestic commercial fisheries. At this low level of exploitation, its population is likely to be stable and no immediate threats to its survival are apparent, thus the species is assessed as Least Concern in Australia.

Range Description: *Mobula eregoodootenkee* is widely distributed through the coastal continental waters of the tropical Indo-West Pacific. This species has been reported from the Western Indian Ocean, Eastern Indian Ocean and Western Central Pacific. It occurs in the Red Sea, Arabian Sea and Persian Gulf to South Africa and the Philippines, north to Viet Nam, and south to southeast Queensland and northern Western Australia in Australia. It has not been recorded from oceanic islands.

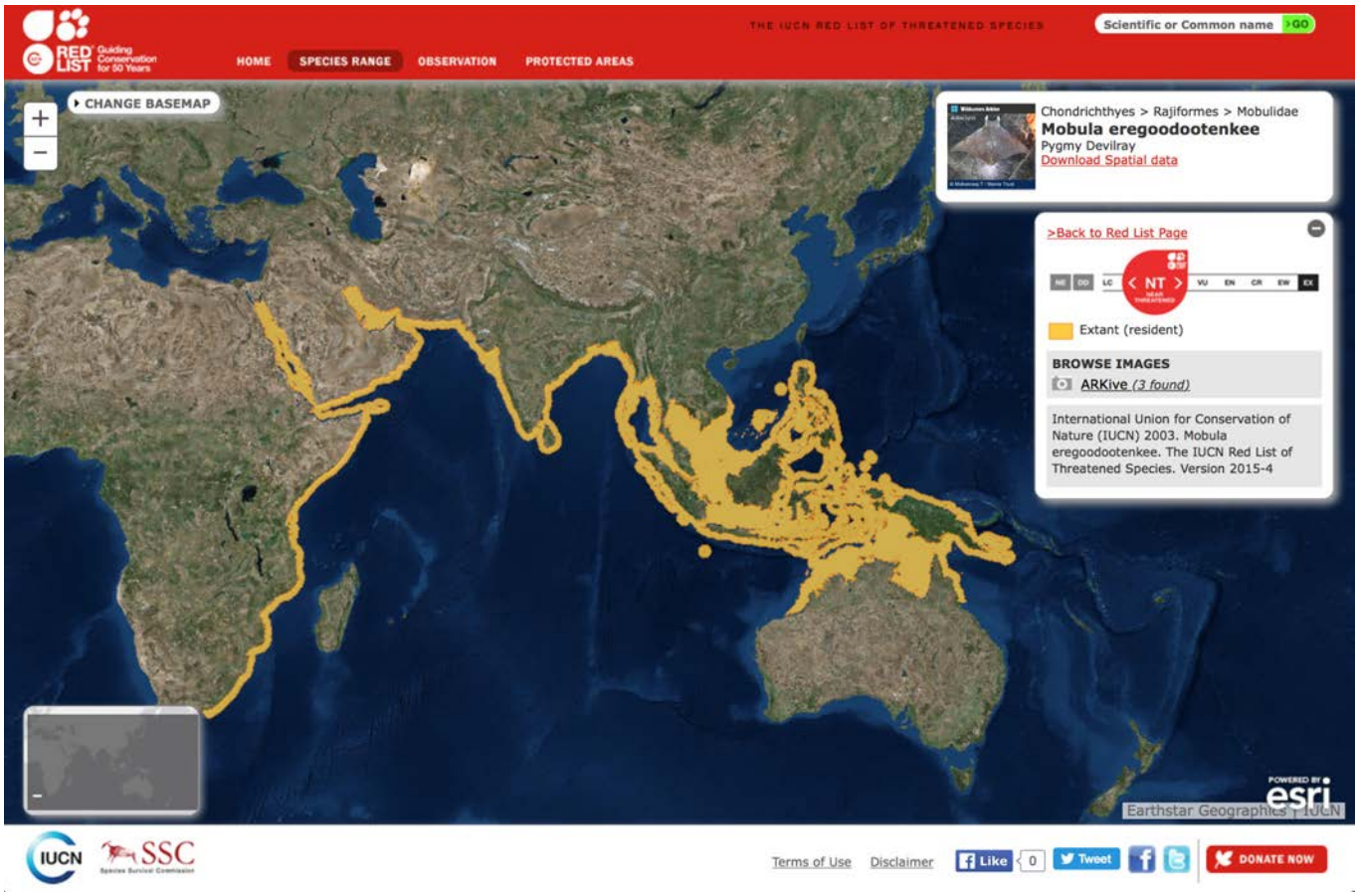
Countries occurrence: Native: Australia (Northern Territory, Queensland, Western Australia); Djibouti; Egypt; Eritrea; India; Indonesia; Iran, Islamic Republic of; Kenya; Kuwait; Madagascar; Malaysia; Mozambique; Myanmar; Oman; Pakistan; Papua New Guinea; Philippines; Qatar; Saudi Arabia; Somalia; South Africa; Sri Lanka; Sudan; Tanzania, United Republic of; Thailand; United Arab Emirates; Viet Nam; Yemen

FAO Marine Fishing Areas: Native: Indian Ocean – western; Indian Ocean – eastern; Pacific – western central

Population: The Northern Territory Government in Australia classed the conservation status of this species as Data Deficient within territorial waters in March 2002. No direct or indirect indices of abundance were available for this assessment. No subpopulations are known. *Mobula eregoodootenkee* is regarded as locally common over its range and fairly common within Queensland, Australia waters (Last and Stevens 1994, Compagno and Last 1999).

Current Population Trend: Unknown

Habitat and Ecology: *Mobula eregoodootenkee* reaches a maximum size of approximately 100cm disc width (DW). The neotype for this species, a male of 96.9cm DW, was sexually mature (Notarbartolo-Di-Sciara 1987). These rays are ovoviviparous (uterine viviparity), usually producing one offspring per litter. This ray is not known to penetrate the epipelagic zone. Mating and birthing occur in shallow water, and juveniles remain in these areas. This species feeds on planktonic organisms and small fish (Michael 1993).

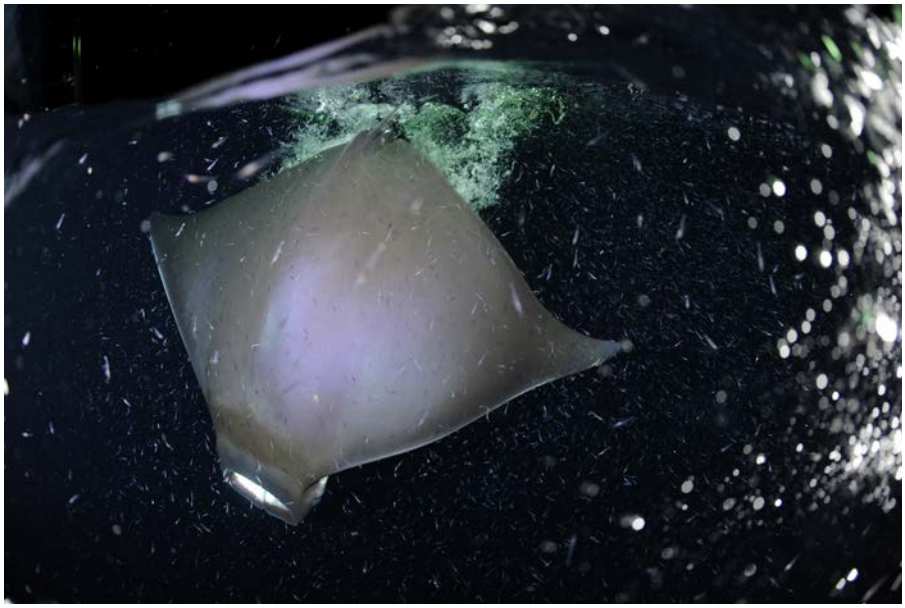


Systems: Marine

Major Threat(s): This species is caught as bycatch in several fisheries through entanglement in nets. Fishing pressure could potentially impact this species due to its presumed low reproductive rate. It is marketed in Thailand and probably elsewhere in southeast Asia.

Conservation Actions: None to date. Although the target fishery for Manta birostris was banned in the Philippines in 1998, fisheries continue for other species of mobulid, which are just as vulnerable to over-exploitation (Simpfendorfer et al. in press).

Citation: Pierce, S.J. & Bennett, M.B. 2003. ***Mobula eregoodootenkee***. The IUCN Red List of Threatened Species 2003. **www.iucnredlist.org**



ICE DIVING

THE FIRST BIG SCUBA EVENT OF THE YEAR IN ITALY, ORGANISED BY ANIS ORGANISATION

FEATURE **NICO DE CORATO – ADMINISTRATOR OF DUBAIBLOG**
PHOTOGRAPHY **ANIS & BERGAMO SCUBA ANGELS**

On the last weekend of January, the Icy Lake of Lavarone (Trento, Italy) was conquered by almost 150 enthusiastic divers from all over Italy to experience scuba diving under the ice.

Between rounds of diving, helicopter rescue divers from BSA (Bergamo Scuba Angels), performed breathtaking jumps into safe and cleared holes under the supervision of their instructor, Fabrizio Boffi.

Diving under ice is an extreme environment to be in because of the equipment needed and the training parameters to take beforehand and the physiological effects it has on the divers overall: generally divers are in an overhead environment with only a single entry/exit point. Ice divers are often tethered for safety reasons: ice diving is a team diving activity because the diver's line requires a line tender. The diver and the tender on the surface are connected by a rope and harness. The harness is typically put under the BCD or other buoyancy device (over the drysuit) so that the diver is still tethered even in the case of an air cylinder/BCS emergency release. The harness fits over the shoulders and around the diver's back. In case of an emergency, an unconscious diver can be pulled back through the hole.

Rope signals or voice communication systems must be used. When voice-communication is not available, communication is accomplished by pulling on the line: each series of tugs means a different thing. There is a safety diver with his own tender, suited up and ready to enter the water in a moment's notice. His purpose is to assist the primary diver in the event of a problem.

Regulator performance, thermal protection and buoyancy are three principal concerns.

In those conditions, there is a chance that first and/or second-stage regulators may malfunction due to the accumulation of ice in or around the regulator itself, resulting in complete occlusion of air flow, or a massive free-flow that could rapidly end the diver's air supply.

A diving regulator suitable for cold-water is used. All regulators have a risk of freezing and free flowing, but some models are better than others. The U.S. Navy has the most stringent guidelines concerning the safety and use of cold-water regulators. Commercial manufacturers strive to pass the Navy's testing protocols and get on their list of approved cold-water regulators. Yet many off-the-shelf cold-water regulators fail to meet the Navy's standards. Given the high level of risk, use only the most robust regulators designed for cold-water diving. Environmentally sealed regulators avoid contact between the surrounding water and the moving parts of the first stage by isolating them in an antifreeze fluid, or by siting the moving parts behind a diaphragm and transmitting the pressure through a pushrod.

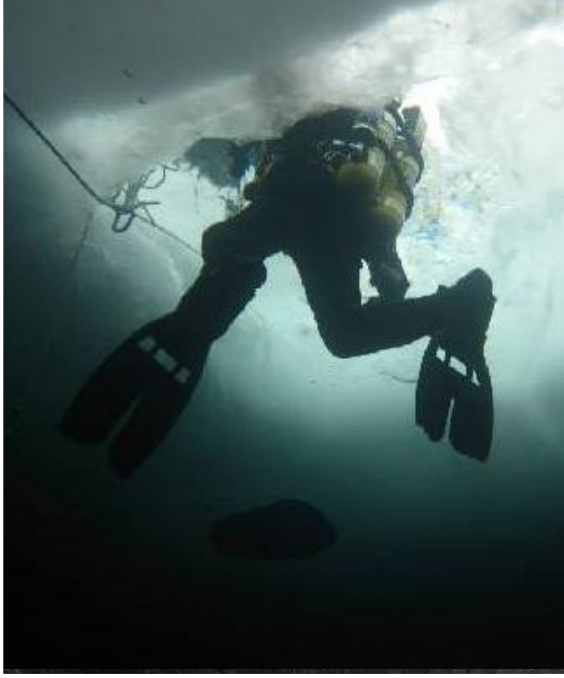
A cold-water regulator with wear and tear, or that hasn't undergone regular maintenance, can pose a serious risk to divers. Functioning properly for nine dives, a regulator can fail on the 10th; so divers should be equipped with two fully independent regulators. Drysuit inflator hoses are also subject to free-flows and are attached to backup regulators in case the air supply to the primary regulator must be turned off to stem the loss of air. When inflating a drysuit or a BCD, use frequent short bursts of air. The primary cause of regulator free-flow is entry of water into the mechanism and the water freezing once the regulator is used. Fresh water in a regulator from rinsing or melting snow may freeze as soon as the regulator is submerged in seawater or when it is exposed to extremely cold air temperatures.

Divers must be competent in change-over procedures, including shutdown of the free-flowing equipment. Keeping regulators warm and dry before diving, and limiting breathing from the regulator before immersion will reduce the risk of the regulator freezing.

Redundant systems usually typically comprise of double cylinders, with a primary and alternate regulator. Each of the 2nd stages are supplied with their own first stage, which can be shut down at the cylinder valve in an emergency, such as a free flow. The diver's BCD is on a different 1st stage to the drysuit, so if there is an issue with one, the diver can still control his buoyancy.

Buoyancy control is the critical skill affecting safety.

Most divers prefer to be more negative for ice diving than in open water like in most overhead



environments. Since diving under the ice takes place in cold climates, there is typically a large amount of equipment required. Besides each person's clothing and exposure-protection requirements, including spare mitts and socks, there is basic scuba gear, back-up scuba gear, tools to cut a hole in the ice, snow removal tools, safety gear, some type of shelter, and lines required. Often a weight harness, an integrated weight buoyancy control device, or a weight belt with two buckles on it, so the weights cannot be accidentally released which would cause a run-away ascent into the ice sheet.

Divers must wear sufficient weight to maintain neutral buoyancy with a certain amount of air in the drysuit. Runaway negative buoyancy is as great a safety problem as an out-of-control ascent. Because of the amount of weight commonly worn (30 to 40 pounds) and the serious consequences of accidental release, weight harnesses are favoured over weight belts.

Because a drysuit must be inflated to prevent suit squeeze with increasing pressure, it is most efficient to regulate buoyancy at depth by controlling the amount of air in the drysuit, which must be equipped with a hands-free exhaust valve. BCDs are considered emergency equipment to be used only in the event of catastrophic drysuit failure. This procedure eliminates the need to vent two air sources during ascent, reduces the chance of BCD-inflator free flow and simplifies the maintenance of neutral buoyancy during the dive.

The main purpose of air in a drysuit, of course, is to provide thermal insulation. Sea water freezes at -1.8°C, so it is impossible to dive in colder water. Besides, the average air temperature may reach -50°C during the month of March in some areas. The diver is thus submitted to an intense permanent cold, forcing him to protect himself with several layers of clothes to protect him from the cold and keep him totally water-proof. Some prefer to use a full face diving mask to essentially eliminate any contact with the cold water.

Drysuit fabric (vulcanized rubber, crushed neoprene or trilaminate) depends on the diver's preference: the choice of drysuit underwear is perhaps more important than the choice of drysuit material, because it is the underwear that provides most of the thermal protection.

Drygloves or mitts with inner liners (rather than wetgloves) are most commonly used with drysuits. Two disadvantages of dryglove systems are the complete lack of thermal protection if the gloves flood or are punctured and risk flooding the entire drysuit.

Pre and post-dive thermal protection is critical for safety and diver function. Adequate thermal protection must be provided to tenders and standby divers. The diver should be kept warm throughout the dive, but active rewarming by external heating and heavy exercise should be avoided directly after the dive, as the effect of cold on risk of decompression sickness is not fully understood.

Hazards of ice diving include the general hazards of penetration diving, and some hazards that are more specific to the low temperature and overhead environment. Heat loss occurs through inadequate insulation, exposed areas (such as the head in an insufficient hood arrangement) and from breathing cold air. Scuba-cylinder air is initially at an ambient temperature and chills from expansion as it passes through the regulator. Air consumption increases as the diver cools, resulting in additional cooling with increased ventilation. Significant chilling also occurs during safety stops when a diver's movement is reduced. Polar diving requires significant insulation, which results in decreased mobility and increased potential for buoyancy problems – two challenges ice divers must address.

Besides the dehydrating effect of breathing dry air on a dive, Antarctica and the Arctic are extremely low-humidity environments (polar deserts) in which dehydration can be rapid and insidious.

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NEW TECHNOLOGY FOR A NEW REBREATHER FROM ITALY

FEATURE **DR DIEGO OLIVARI, DIVING AND HYPERBARIC MEDICINE**

ADVANTAGES AND INCONVENIENCES OF DIVING WITH REBREATHERS

The ideal condition for decompression while using a closed circuit rebreather, would be to set a constant increase in the partial pressure of oxygen from the bottom, all the way to the surface. In fact, it is the method adopted in saturation dives (commercial diving) to carry out a perfect and safe decompression. Rebreathers also allow all of this; the perfect profile for technical deep dives has still yet to be written, although these machines come very close to the target.

Personally I believe it is necessary to follow the rules applied to commercial diving and adapt them to recreational/technical diving, especially if the dives present challenging characteristics such as fatigue, long exposure and other aggravating factors. With a rebreather, partial pressure of oxygen at the bottom phase, should not exceed 0.7ATA. This allows optimization of the decompression while using a constant partial pressure of oxygen at 1.2 to 1.3ATA. I also recommend to increase to 1.6ATA at depth where normally in an open circuit, I would do a gas switch for the duration of that stop, then switch back to 1.3ATA. Finally, set at 1.5ATA continuously from 6m, all the way up to the surface.

The advantage of decompression on rebreathers also lies within the possibility of using heliox as a diluent mix (low quantity and cost of refills). Maintaining a constant partial pressure of oxygen, enables a considerable reduction of decompression time. I had the possibility to study the use of heliox with bounce dives during both deep dives and during maximum depth record attempts, where I was given the opportunity to do research studies.

The first problem I confirmed, is that it is not possible to carry out fast ascents, even from extreme depths. With dives over 9ATA, helium is diffused at intra-cellular levels and does not allow for rapid ascents as we could do if we dived on air. The second issue would be with the gas itself: heliox, due to heat loss. But with using a rebreather, we would keep the inhalation loop moist and warm. Third problem along with using heliox as a diluent, is proper management of bailout mixtures. The reason is, in case of a total rebreather failure, we cannot switch from heliox to a mix with a difference in helium higher than 40% because of the risk of isobaric counter-diffusion.

The fourth problem of using rebreathers is determined by the engineering, the core functionality and the increased dead-spaces. All of these characteristics can participate in increasing the level of a dangerous gas: CO2.

RISKS OF CO2 RETENTION

The intrinsic characteristic related to rebreathers, determined by the increased dead spaces and a very dangerous gas build-up (CO2), should be controlled; for a long time, this risk has kept me away from changing configurations. "I am still looking for the solution that convinces me to use rebreathers…", I must have said this to my friends over a hundred times, each time they

would see me plunge on an open circuit with a twin 20lt in addition to the various decompression gases.

Finally, thanks to my collaboration with two engineers, Paolo Li Pera and Sebastiano Pappalardo, I came to my own conclusion: I would have to come up with my own solution. Considering my background (my experience in the military world was useful), I focused my attention in underwater and decompression physiology, and therefore decided to study the use of CO2 sensors.

The first approach consisted, as always in my research studies, in questioning who actually uses rebreathers at extreme depths. I had interviewed divers with thousands of hours and experience on these machines (civil or military). I confirmed my ideas with clinical observations and blood tests related to the changes of metabolic and inert gases during dives. Thanks to the Nitrox study developed by Admiral, Fabio Faralli (ex-director of Underwater Physiology at the Italian Navy Special Forces) and myself, we realised the importance of focusing our attention to Carbon Dioxide.

Dr Lanphier's studies with the US Navy in the 60s-70s showed that during dives, as well as on an open circuit, there was evidence of CO2 tissue retention. Two of the main causes were a complete oxygen saturation of the haemoglobin (avoiding the elimination of around 25% of CO2) and a lack of response from the brain receptors by the CO2 stimulus increasing the breathing rate.

The reason for this, still has to be understood. During dives, the base nuclei do not respond as they would "on land" to an increased level of CO2. The increased level of this gas should create deep breathing reflexes but it doesn't happen once submerged. It is interesting to note that during simulated dives in a hyperbaric dry environment, you have the same response as on land.

This phenomenon obviously varies in intensity from person to person. Dr Lanphier identified that some experienced divers would accumulate and tolerate much higher levels of CO2 compared to others (the so-called CO2 retainers). "Medicine would be an exact science if it wasn't for patients…" (Prof. Carlo Paparozzi).

The accumulation of CO2 results in an immediate "bad" narcosis that leads to panic (CO2 is 240 times more narcotic than nitrogen), which leads to superficial breathing, reducing the possibility of elimination of the gas and secondly, a harmful plug on the endothelium, inner cells of the blood vessels, rendering it more susceptible to the inflammation reaction. This is at the core of many symptoms related to decompression sickness (2010, Prof. Thom).

A large number of accidents with rebreathers, confirmed by those who survived, were due to an increased level of CO2. This in turn, led the diver to unconsciousness without warning or symptoms.

Moreover, the accumulation of this gas also increases susceptibility to neurological oxygen toxicity and, therefore, to seizures without clear warnings. I therefore asked myself if it was a good idea to install sensors and asked the engineers, Paolo and Sebastiano, what they thought about having more than one to control the CO2 level. It became a stimulating challenge also for them when I expressed my desire to modify the decompression algorithm according to the CO2.

In conclusion, I can anticipate that, with the integration of these new generation sensor systems, we will know how much CO2 is retained from a diver. In fact, the calculation will necessarily vary on the basis of two factors: first, a constant, depending on the volume of dead spaces provided by the machine and second, a variable one, from the user and his metabolism.

This system, integrated in the head and electronics of the rebreather, must be calibrated on the diver's resting condition and and during a high level of physical exertion. This will allow to create a personal set-point (max CO2) that will influence the variations of the decompression algorithm. Aside from this, the alarm system that controls the CO2 will warn the diver to take action. These consist in a counter-lung flush and adopting free diving breathing techniques.

This strong link between man and machine depends on two fundamental factors: the diver must have good self awareness, know his limits (training and experience), and know all functions related to his device (like the ticking sound of solenoid activation. Second factor would be the reliability of the device: nothing should be neglected when constructing these devices and saving on cost should not be the goal in their production.

THE BIG SAADIYAT RELEASE

FEATURE AND PHOTOGRAPHY **ALLY LANDES**

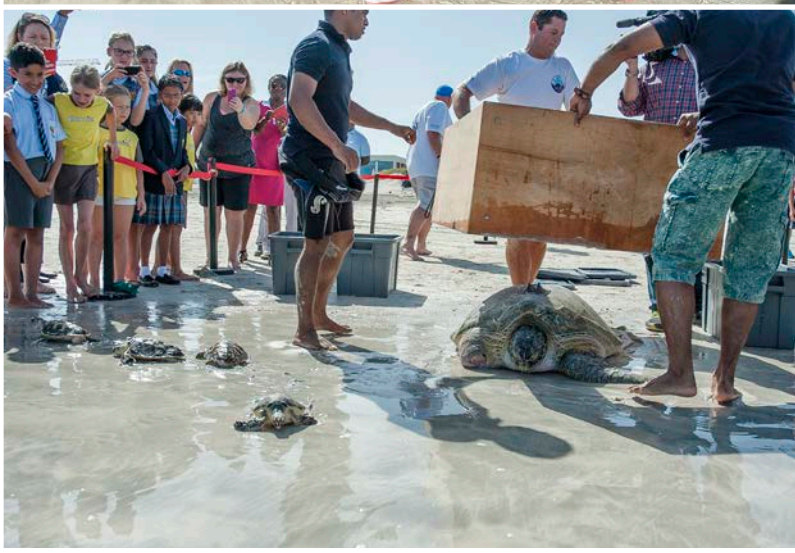
The Dubai Turtle Rehabiliation Project (DTRP) have done it again. In conjunction with TDIC, 10 rehabilated sea turtles were successfully released back into the wild in Abu Dhabi from the beautiful location of the Saadiyat Beach Club on the 20th of April. Nine of the turtles were critically endangered juvenile hawksbill turtles, and the star of the event – fitted with a special tracking device sponsored by the Burj Al Arab Aquarium – was a large, 120kg adult female green turtle, named Al Ouda, that had lost one of her front flippers after a collision with a boat's propeller. Tracking an amputee turtle has never been attempted before in this region. Al Ouda is the first to render her behaviour after release to investigate how such animals integrate back into the wild and whether it will be possible to release others like her.

Al Ouda (which means old lady in Arabic), was found stranded on a beach in September 2015 and brought to the Dubai Turtle Rehabilitation Project by the Emirates Marine Environmental Group. Al Ouda had suffered a massive trauma from a boat propeller which resulted in the amputation of her right flipper and extensive damage to the carapace. When she had been brought in, she only weighed in at 104kg, was suffering from massive infections to the wounds and debilitation, and was so weak, she was not able to lift her head. After several months of tirelessly working with her to get her eating again and treat her ailments, Al Ouda started to get well again and started putting on a lot of weight. She added more







weight on during her journey and has so far travelled a total of 740km, last spotted 3km north west off the coast of the UAE and 255km from Manama.

All of the sea turtles released had been rescued by the TDIC team in Abu Dhabi and had been brought in to the DTRP where they had been treated over the winter months for their various ailments, the majority of which were related to the colder water temperatures experienced during the UAE's cooler months.

The DTRP have been tracking green, loggerhead and hawksbill turtles in the region since 2005. The tag fitted on Al Ouda by the team, not only monitors location but also transmits information on the temperature the turtle experiences. It is hoped that through her release and tracking, that awareness will also be raised about the plight of the region's sea turtles and the threats they face in the wild. Anyone interested in following Al Ouda's daily journey may do so at **www.seaturtle.org**.

Based at Burj Al Arab, the DTRP is run in collaboration with Dubai's Wildlife Protection Office, with essential veterinary support provided by the Dubai Falcon Hospital and the Central Veterinary Research Laboratory. To date they have released over 860 sea turtles back into the wild after rehabilitation.

For more information about the DTRP, please visit **www.facebook.com/turtle.rehabilitation** or if you find a sick or injured sea turtle, please call the DTRP team on **+971 4 301 7198**.

SEA TURTLES

ARE WE HUMANS CARELESS, CRIMINAL OR CUSTODIANS

PART ONE – WHAT ARE THEY?

FEATURE **PAUL WARWICK** PHOTOGRAPHY **DIGITAL ONLINE PAST ENTRIES BY EDA MEMBERS**

Photo by © Ahmed Al Ali | Hawksbill Turtle

Mention the word "Sea Turtle" and to most of us "visitors of the world's marine kingdom", it conjours up images of serene, calm, unflappable (excuse the pun) creatures, lazily moving around occasionally interacting with "us humans", but generally ignoring us as they "go about their merry way" across our oceans and seas, grazing and foraging. Alternatively, images of female turtles hauling themselves out of the water over beaches, breakwaters and mangroves to lay their eggs, and the subsequent hatching frenzy as the young hatchlings try to make their way to the relative safety of the sea despite the onslaught by a multitude of predators from the air, sea and land. Unfortunately, the truth is far less palatable for the ecologist, environmentalist or even the intellectual, and even more so visually for most of the rest of us. Like many marine sea creatures, the world's Sea Turtle populations are under constant threat from both our ever changing environment, and more importantly, the impact of man's unrestricted, uncontrolled activities. All species of this wonderful creature are listed as Vulnerable by many international conservation groups such as WWF, IUCN etc. Some are currently listed as Endangered, but it does not stop there, some more regional and local populations of specific species of Sea Turtle are now listed as Critically Endangered. Extinction for some species of Sea Turtle is a distinct possibility within our lifetime, unless we act now! Once numbered in millions, it is now estimated that most species are numbered now only in thousands of nesting females. Like all the creatures in the marine kingdom, Sea Turtles have a vital role to play in preserving the health, vibrancy and life in our oceans and seas.

They travel throughout the world's oceans and seas and suddenly, they are struggling to survive – largely because of the people's proclivities and the impact they are having on our planet's oceans and seas and the adjoining littoral (coastlines, beaches, mangroves, reefs etc). But what does this mean for us humans? It is possible that a world in which Sea Turtles are unable to survive may soon become a world in which people may begin to struggle to survive – a frightening thought to say the least? However, all is not lost if we are prepared to learn from our calamitous mistakes and begin changing our attitudes and behaviour. There is still time to save Sea Turtles (and other important species) from the threat of extinction. In the process, we will not only be saving one of the earth's most mysterious and time-honoured creatures, but we might just be saving ourselves too! So, do we want to be seen as just careless (or not "care-a-less", for anything other than our own immediate needs)? Do we want to be seen as ecological criminals to future generations because we just sat back and did nothing, or do we want to be custodians of a marine and terrestrial natural heritage to pass onto future generations to enjoy, which I believe we should? Action has to start somewhere and at some time, so let it be now, before it is too late!

What is Extinction and what does it mean? A plant or animal becomes extinct when the last living individual of its species dies, causing it to vanish from the earth forever – a loss unique genetic material which is the cornerstone of all bio-diversity. If there is ever a time when say, the last Green Sea Turtle on earth dies, then never again will this magnificent creature grace our world. Species have become extinct for millions of years; it is a natural part of the evolutionary process. For example, all but a few of the species that existed during the time of the dinosaurs have subsequently perished. Many probably became extinct because of sudden geological or climatic changes – possibly because of a large volcanic eruption or because of a giant meteor hitting the earth. Some will have become extinct as a result of their food sources "drying up", or their ecosystem being too specialised, and chemistry and climate destroyed the conditions that they needed to survive. Today however, species are becoming extinct because of abrupt changes to our environment, destruction of unique habitats and ecosystems, depletion of natural food sources and other impacts brought about by the action of…you guessed it, people – us! All of these factors coming together are causing species to decline at a rate never before seen in either recorded or assessed natural history. This loss of species is eroding the diversity of life on earth, especially in our oceans and seas which plays host to over 90% of all species on this planet, and a loss of diversity can make all life vulnerable, even our own! Extinction is permanent, irreversible and there is no going back, despite the predictions of the prophets of science!

WHAT WOULD THE MAJOR ECOLOGICAL EFFECTS BE IF SEA TURTLES BECAME EXTINCT?

Sea Turtles, especially Green Sea Turtles, are one of the very few animals to eat sea grass, along with those gentlest of creatures, the Dugongs and Manatees. Like normal terrestrial lawn grass, sea grass needs to be constantly cut short to stay healthy and help it grow across the sea floor, rather than just getting longer blades and eventually choking itself and dying out. Sea Turtles, Dugongs and Manatees act as grazing animals that cut the grass short and help maintain the health of the sea grass beds. Over the past decades, there has been an extremely well-documented decline in the number and extent of sea grass beds in many marine ecosystems across the world. This decline may well be linked to the lower numbers of Sea Turtles grazing, as well as the impact of man's activities, and so the sea grass beds have literally grown themselves to death, stifling out their root systems.

Sea grass beds are important because they provide breeding and developmental grounds for many species of fish, shellfish and crustaceans. Without sea grass beds, many marine species humans harvest would be lost, as would the creatures that form the lower levels of the marine food chain. The reaction to this change could result in many more marine species being lost and eventually impact upon the resources that humans look for and need from the oceans and seas. So if Sea Turtles were to become extinct, there would be a serious decline in sea grass beds and a decline in all the other species dependent upon those same grass beds for propagation and survival. All marine ecosystems are linked and so all are important to bio-diversity and to the health of our oceans and seas. If you lose one, the chances are this will impact upon another and another and another, until the rest will eventually follow, initiating a collapse in the overall marine eco-structure.

Beach and dune systems do not get very many nutrients during the year, so very little vegetation grows on the dunes and no vegetation grows on the beach itself. This is because sand does not hold nutrients as well as terrestrial soil can. Sea Turtles use beaches and the lower dunes to nest and lay their eggs. They can lay around 100 eggs in a nest and lay between 3 and 7 nests during the summer nesting season. For example, along a 20 mile stretch of beach on the east coast of Florida, Sea Turtles lay over 75,000 kilos of eggs in the sand. Not every nest will hatch, not every egg in a nest will hatch, and not all of the hatchlings in a nest will make it out of the nest. All the unhatched nests, eggs and trapped hatchlings are very good sources of nutrients for the dune vegetation, even the left over egg shells from hatched eggs provide some nutrients to this barren landscape.

Dune vegetation is able to grow and become stronger with the presence of nutrients from "failed" turtle eggs. As the dune vegetation grows stronger and healthier, the health of the entire beach/dune ecosystem becomes better. Stronger vegetation and root systems help to hold the sand in the dunes and helps protect the beach from erosion. As the number of Sea Turtles decline, fewer eggs are laid in the beaches, providing less nutrients. If Sea Turtles were to be become extinct, dune vegetation would lose a major source of nutrients and would not be as healthy or strong enough to maintain the dunes, resulting in increased erosion. Once again, all parts of an ecosystem are important, if you lose one, the rest will eventually follow.

So although it seems obvious, Sea Turtles are part of two distinct and separate ecosystems, the beach/dune system and the marine system. If Sea Turtles were to become extinct, both the marine and beach/dune ecosystems would be adversely affected. Since humans utilise the marine ecosystem as a natural resource for food and since humans utilise the beach/dune system for a wide variety of activities, any impact to these ecosystems would undoubtedly have proportionate negative effects for humans and their lives.

WHERE DO TURTLES COME FROM?

Sea Turtles are the living representatives of a group of reptiles that have existed on Earth and travelled our oceans and seas for the last 200+ million years. They are a fundamental link in almost all marine ecosystems and help maintain the health of coral reefs (the foundation and nursery for most of marine life) and sea grass beds. As with many "key marine species", much can be learned about the condition of the planet's environment by looking at Sea Turtles. They have been around for an awfully long time and are one of the most successful of all marine species, probably not far behind sharks which have been around for over 400 million years. Turtles as a species are one of the oldest of all reptile groups and a more ancient group than either snakes or crocodilians. Some ancestors of present day Turtles were impressive to say the least; Archelon and Protostega were Turtles of

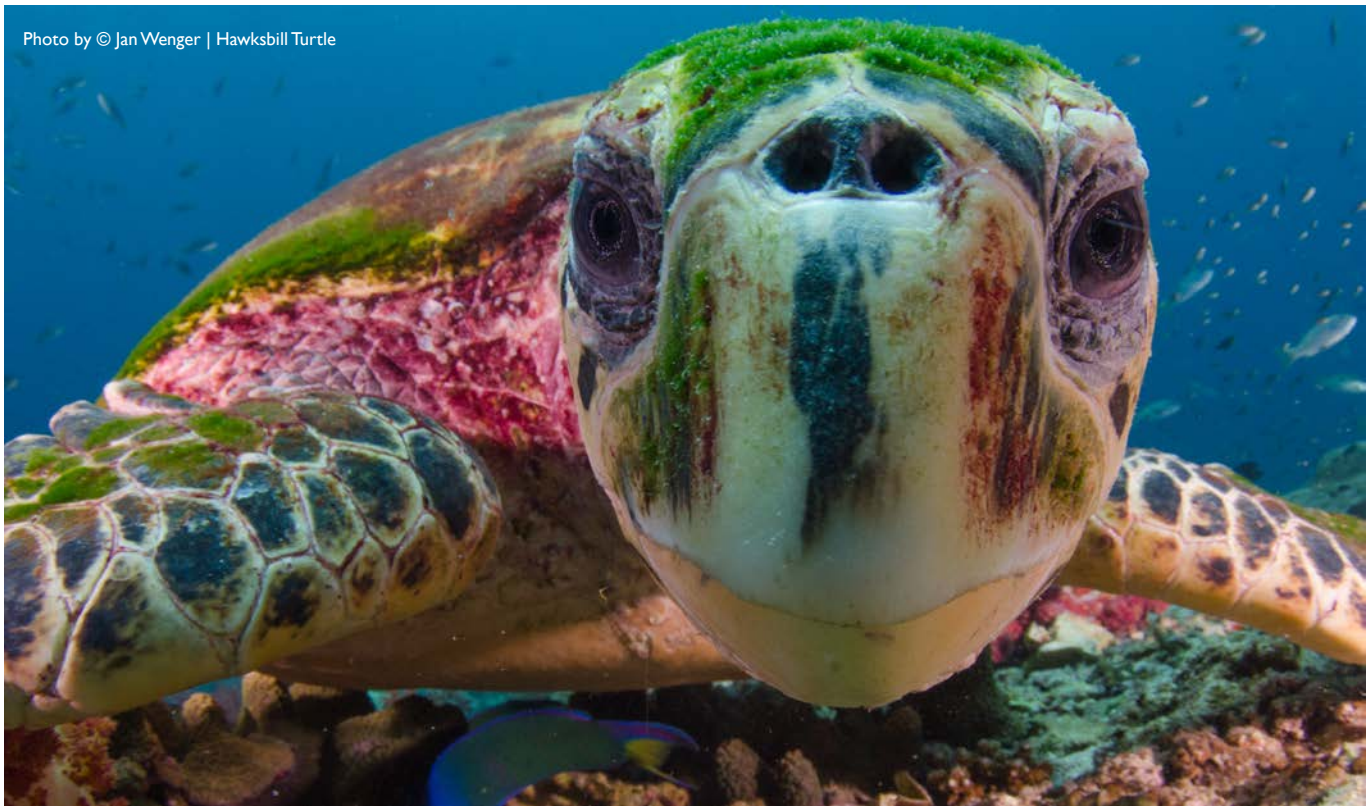


Photo by © Jan Wenger | Hawksbill Turtle

Photo by © Jan Wenger | Green Turtles

dinosaurian proportions, both measuring in at about 4-5 metres long from head to tail and weighing over 2,000 kilos. As you might expect, these giant turtles were equipped with broad, powerful front flippers, in order to better to propel their bulk through the water; their closest living relative today is the much smaller (less than 1,000 kilo) Leatherback Turtle. As the eons have passed, Sea Turtles have continued to thrive; different sizes, different marine environments, and different diets have ensured their success as a species, but now we have just seven species in total left in the world.

Turtles are reptiles of the order Testudines (or Chelonii) characterised by a special bony or cartilaginous shell developed from their ribs and acting as a shield. "Turtle" may refer to the order as a whole or to fresh-water and sea-dwelling Testudines. The order Testudines includes both extant (living) and extinct species.

Turtles have multiple sub-classifications:

- They are classified as Ectotherms meaning their internal temperature varies according to the ambient environment temperature and commonly called cold-blooded. However, because of their high metabolic rate, Leatherback Sea Turtles for instance, have a body temperature that is noticeably higher than that of the surrounding water.
- They are also classified as Amniotes, along with other species of reptile, birds, and mammals. Like other Amniotes, Sea Turtles breathe air and do not lay eggs underwater, although all species live in and around water.

SPECIES

Despite a history of survival and adaption to an ever changing world, there are now just seven (7) remaining species of Sea (marine) Turtles left in the world. Although in terms of size, none of them are as impressive as their "huge" ancestors, they are nevertheless still amazing creatures despite the huge spectrum of threats that face them as a species. The seven species of Sea Turtles are, in no particular order.

HAWKESBILL TURTLES

(Eretmochelys imbricata)

Hawksbills are named for their narrow, pointed bird-like beak. They also have a distinctive pattern of overlapping scales on their shells that form a serrated-look on the edges. These coloured and patterned shells make them highly-valuable and commonly sold as "Tortoiseshell" in markets worldwide. Hawksbills are found throughout the world's tropical oceans, predominantly in areas with coral reefs. One of the world's smaller turtles, they grow up to 100cm across the carapace (shell) and weigh up to a mere 95 kilos. They feed mainly on sponges by using their narrow pointed beaks to extract them from crevices on the reef, but are also know to eat sea anemones and jellyfish.

Distribution: Considered by many to be the most beautiful of Sea Turtles for their colourful shells, the Hawksbill Turtle is found in tropical waters around the world. They spend their time in coral reefs, marine rocky areas, lagoons, mangroves and oceanic islands as well as shallow coastal areas. This species inhabits tropical and some sub-tropical regions in the Atlantic, Pacific, and Indian Oceans. The largest populations occur in the Caribbean Sea, the Seychelles, Indonesia, Mexico, and Australia. Hawksbills are not found in the Mediterranean and few are found in North American waters; only a handful are found to nest in Florida each year.

FACTS AND TIDBITS

- These Turtles are solitary nesters, nesting in low densities on small scattered beaches. Adult females are well adapted for crawling over reefs and rocky areas to reach secluded nesting sites.
- On average, they nest roughly 4 times per season at 2 week intervals and lay around 140 eggs per nest. Nests however, many contain well over 200 eggs!
- Hawksbills are considered Critically Endangered around the world by the IUCN Red List and are listed only as Endangered in the US. Some researchers believe the Eastern Pacific Hawksbill is likely the most endangered of all Sea Turtle populations worldwide.
- Because of their sponge diet, their flesh is harmful to humans. Sponges contain toxic chemical compounds which accumulate in the animal's tissues. The consumption of their meat by humans may cause serious illness and in extreme cases even death.
- Hawksbills are important inhabitants of coral reefs. By consuming sponges, they play an important role in the reef community, aiding corals in growth. It's estimated that one turtle can consume over 1,000 pounds of sponges per year. Without them, sponges have the ability to overgrow corals and suffocate the living reefs.

Photo by © Red Vargas | Green Turtle

- It is illegal to trade, purchase or possess Sea Turtle products. When purchasing "Tortoiseshell" products overseas, be sure you are buying synthetic material

Status: The overall Hawksbill Turtle population has declined by more than 80% in the last century, primarily due to the trade in their beautiful carapace (shell), also referred to as "Tortoiseshell". Its carapace, brightly colored with intricate designs, is traded internationally for ornamental purposes. The shell is used for items such as jewellery, combs and brushes, and inlay in furniture and other decorative pieces. Hawksbills were hunted almost to extinction prior to the worldwide ban on the tortoiseshell trade; Japan imported an estimated 2 million turtles between 1950 and 1992. Despite the fact that the international trade of their shells is now illegal, there is still a thriving black market as well as the plethora of other potential natural and manmade threats of which more later.

LOGGERHEAD TURTLES

(*Caretta caretta*)

Loggerhead Turtles are named for their large heads that support powerful jaw muscles, allowing them to crush their preferred prey of shellfish. Growing up to 120cm across the carapace (shell) and weighing up to 200 kilos. Whilst listed as Vulnerable, locally due to the pressures on the species, many populations are listed as Critically Endangered. They are less likely to be hunted for their meat or shell compared to other Sea Turtles.

Distribution: Loggerheads are found in every ocean around the world, only Leatherbacks have a wider distribution. The largest concentration of nesting occurs on Masirah Island off the coast of Oman in the Middle East. In the Pacific, their main nesting grounds include Japan and Australia. In the Atlantic, the main concentration occurs in Florida. They are the most common species in the Mediterranean, nesting on beaches in Greece, Turkey, and Israel.

FACTS AND TIDBITS

- One population of these turtles nests in Japan and migrates across the entire Pacific Ocean to the rich feeding grounds off the coast of Baja California Sur, Mexico, where they spend several years foraging and maturing before heading off on their epic trans-oceanic journey to mate and breed.
- In the US, most of their nests are laid in Florida, however in the last decade, the number of nests in Florida has declined by over 40%.
- They are listed as Endangered around the world by the IUCN Red List and Threatened in US waters.

Status: The population of Loggerheads is like every other species of Sea Turtle in decline, despite international and national efforts at conservation and protection of both adults and nesting sites. As an oceanic traveller, they face all the threats that other species face from bi-catch, to marine debris, to pollution, and like most efforts at protection and conservation, are difficult to enforce and monitor. WWF estimates the world population of nesting females is just 40,000-50,000.

LEATHERBACK TURTLES

(*Dermochelys coriacea*)

Leatherback Turtles are named for their shell, which is leather-like rather than hard, like other turtle species. They are the largest of all the Sea Turtle species growing up to 150-200cm across the carapace (shell) and weighing in at a hefty 900 kilos. The oldest of all Sea Turtle species, it has been around for more than 150 million years! They survived the extinction of the dinosaurs and thrived until the last several decades when human interactions have taken a major toll on both the population and propagation of the species.

Distribution: Leatherbacks have the widest distribution of all Sea Turtle species. They are found throughout the Pacific, Atlantic, and Indian Oceans. In the Pacific, their range extends as far north as Alaska, and south beyond the southernmost tip of New Zealand. In the Atlantic, they can be found as far north as Norway and the Arctic Circle, and south to the tip of Africa. They are mainly pelagic (open ocean) wanderers but migrate to tropical and subtropical coastal regions to mate and nest.

FACTS AND TIDBITS

- Leatherbacks can consume twice their own body weight in prey per day, feeding exclusively on soft-bodied invertebrates like jellyfish and Tunicates (Sea Squirts and Sea Cucumbers).
- They have downward curving spines (also known as papillae) in their mouth and throat which help them to capture and swallow their prey.

Photo by © Simone Caprodossi | Hawksbill Turtle

- Unlike all the other Sea Turtles, these giants do not possess a carapace (shell) covered with hard scales, also known as Scutes. Their smooth, leathery skin covers a flexible matrix of bone. This specialized, flexible carapace allows them to dive to great depths unlike other species.
- Their widespread distribution and ability to tolerate cold water are due to thermoregulatory adaptations (called Gigantothermy) which allow them to maintain their core body temperature. The largest one on record washed up dead on the coast of Wales (UK) in 1988. It weighed over 1,000 kilos and measured 270cm in length! It was estimated to be approximately 100 years old.
- They can dive deeper than 4,000ft (roughly 1,200m)! Sperm Whales, Beaked Whales, and Elephant seals are the only other known animals that dive deeper.
- Researchers recently tracked an adult female more than 12,000 miles (19,000km) using satellite telemetry, from Indonesia to Oregon, one of the longest recorded migrations of any vertebrate animal.

Status: Although their distribution is wide, numbers of Leatherback Turtles have seriously declined during the last century as a result of intense egg collection and fisheries bycatch. Globally, the Leatherback status is listed as Vulnerable, but many sub-populations (such as in the Pacific and Southwest Atlantic) are Critically Endangered.

GREEN TURTLES

(*Chelonia mydas*)

The Green Turtle is one of the largest species of Sea Turtles growing up to 120cm across the carapace (shell) and weighing up to 200 kilos. It is the only true herbivore among the different species, although as hatchlings they are omnivorous, dining on sea grass, seaweed, algae and other forms of marine plant life. Green Turtles are in fact named for the greenish colour of their cartilage and fat, not the colour of their shells. In the Eastern Pacific, a group of Green Turtles that have darker shells are called "Black Turtles" by the local community. Green Turtles are an oceanic species that are found mainly in tropical and subtropical waters. Like other sea turtles, they migrate long distances between feeding grounds and the beaches from where they hatched. This species is the only one to come on shore regularly to bask. Basking only occurs in Hawaii, particularly the North Western Hawaiian Island chain, the Galapagos Islands, and in some areas of Australia.

Distribution: This species can be found in the sub-tropics and tropics worldwide, with major nesting beaches in Tortuguero (Costa Rica), Oman, Florida, and Raine Island (Australia) where thousands of Turtles nest each night during peak nesting season. They are also found nesting on French Frigate Shoals in the North Western Hawaiian Islands, Guam, American Samoa, Suriname, Georgia, South Carolina, North Carolina, Puerto Rico, and the US Virgin Islands.

FACTS AND TIDBITS

- These turtles are believed to improve the health of seagrass beds and associated microhabitats. They will graze the beds, taking off the tops of leaf blades, while avoiding the roots. The seagrass will grow healthier and faster with a daily trim!
- Green Sea Turtles in the Eastern Pacific are called Pacific Black Turtles and some researchers believe they are a separate species, although genetically, this is not the case. Their coloration is not black, but their skin pigmentation is darker than other Green Sea Turtles, making them appear darker overall. They are also smaller and their carapace is slightly different in shape.

Status: Population declines are mainly due to harvests for eggs and meat for human consumption. Fibropapilloma (also known as FP) is a disease associated with lesions and rapid tumour growth on the eyes, mouth, and soft-skin areas, as well as internal organs. FP, believed to be connected to pollution, has greatly affected their populations, especially in Florida and Hawaii, but also the Caribbean and Australia. Green turtles have been officially classified as Endangered and are threatened on all fronts, from overharvesting to land, and marine habitat destruction. Other threats include ingestion of marine debris, boat strikes, coastal development, feeding habitat degradation, and incidental capture in fishing gear.

OLIVE RIDLEY TURTLES

(*Lepidochelys olivacea*)

The second smallest turtle after the Kemp's

Photo by © Sijmon de Waal | Green Turtle

Ridley, the Olive Ridley Turtles weigh between 34-45 kilos and reach 90cm across the carapace. They are named for their pale green carapace, or shell and are the most abundant of Sea Turtle species. Like the Kemp's Ridley, they nest en-masse referred to as "arribadas". During arribadas, thousands of females may nest over the course of a few days to a few weeks. Adults reach sexual maturity around the age of 15 years.

Distribution: Olive Ridleys occur globally and are found mainly in tropical regions of the Pacific, Indian, and Southern Atlantic Oceans. They are primarily pelagic, spending much of their life in the open ocean, but may also inhabit continental shelf areas and venture into bays and estuaries.

FACTS AND TIDBITS

- There are only a few places in the world where Olive Ridley arribadas occur. In other parts of the world, they are solitary nesters.
- Though arribadas is not well understood, the timing is thought to coincide with weather events such as strong winds or cloudy days, or with moon and tide cycles. The turtles congregate in large groups offshore of nesting beaches and then simultaneously come ashore to nest. Females may remain offshore near nesting beaches throughout the nesting season.
- These turtles are omnivores, eating a variety of prey including crabs, shrimp, lobster, urchins, jellies, algae, and fish. In Baja California, Mexico, their preferred prey is the red crab which is abundant in offshore waters.
- Despite their relative abundance in comparison to other Sea Turtles, this species is considered vulnerable by the IUCN Red List and is listed as Threatened in the US.
- Although they are currently the most abundant species, their numbers have decreased by approximately 50 percent since the late 1960's.

Status: The Olive Ridley Turtles are oceanic only entering coastal waters or estuaries and coming ashore to nest. The greatest threats come from marine debris, pollution, industrial scale fishing and bi-catch. Climate change also introduces a key variable in forage grounds and the potential sex of hatchlings which may upset the balance of males and females. Estimates by WWF and other conservation groups, place this species in the 800,000 nesting females worldwide.

KEMPS RIDLEY TURTLES

(Lepidochelys kempii)

These are the smallest of the seven Sea Turtle species, weighing between 35-45 kilos and measuring approximately 60cm in length. The head is moderate and triangular in size. The carapace is bony without ridges and has large, non-overlapping scutes (scales) present. The carapace has 5 lateral scutes and is very rounded. Front flippers have one claw, while the rear flipper has one or two claws. Adults have a dark grey green carapace with a white or yellowish plastron, while the hatchlings are jet black.

Distribution: These turtles are found in the Gulf of Mexico and along the Atlantic coast as far north as Nova Scotia. The primary nesting grounds in Mexico are at Rancho Nuevo, in the state of Tamaulipas, and in Texas along the Padre Island National Seashore. A small number have also nested further north along the Texas coast. However, 95% of all nesting occurs in Mexico in the state of Tamaulipas.

FACTS AND TIDBITS

- This is the only species that nests primarily during the day. They also nest in mass similar to their relative the Olive Ridley (also known as an Arribada).
- They possess triangular shaped heads with hooked beaks and strong jaws. They inhabit nearshore habitats where they forage for their favourite prey, crabs. They also eat fish, jellies, shrimp, and a variety of molluscs.
- They are considered Critically Endangered around the world by the IUCN Red List and listed as Endangered in the US.
- Kemp's Ridleys reach sexual maturity between 10-15 years of age, which is significantly younger than most of the other species.

Status: Until recently, the endangered Kemp's Ridley Turtle was on the brink of extinction in the 1960's. Thanks to strict protection laws which protected their nesting beaches

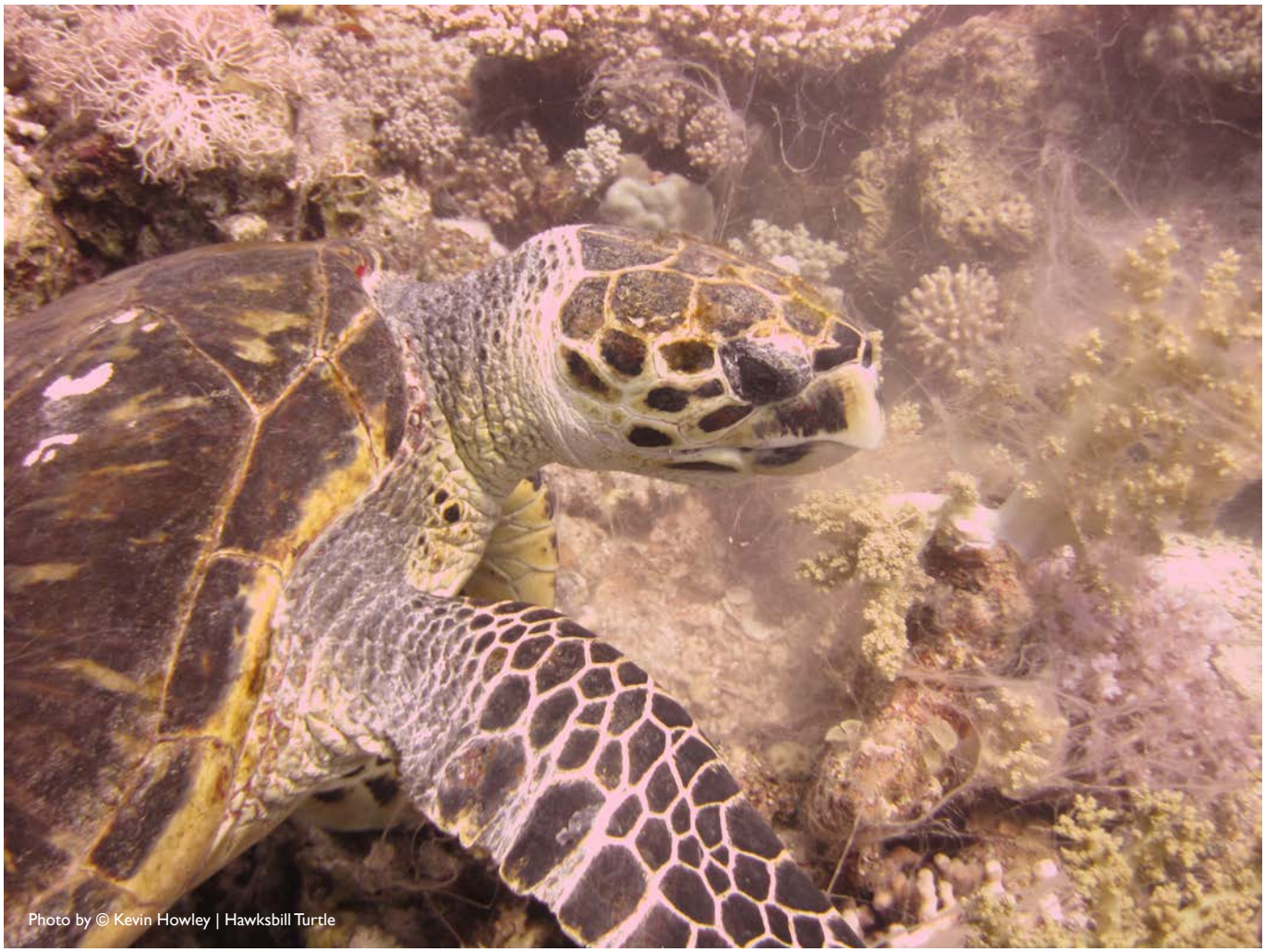


Photo by © Kevin Howley | Hawksbill Turtle

in Mexico and reduced accidental capture in fishing gear, the species has begun a slow, but steady comeback from a previous low of only 200 nesting females in the 1980's, to an estimated 7,000-9,000 individuals today.

FLATBACK TURTLES

(*Natator depressa*)

The Flatback Turtle is named after its flat carapace or shell, which is unlike the curved shell of other sea turtle species. The carapace is pale grayish-green in color with the outer margins distinctly upturned. An adult Flatback weighs approximately 100 kilos and is approximately 90cm in length. They have the smallest distribution of all the species, and breed and nest only in and around Australasia.

Distribution: The Flatback Turtle has the smallest geographic distribution of the seven Sea Turtle species. Their distribution is restricted to tropical regions of the continental shelf and coastal waters of Northern Australia, Southern Indonesia, and Southern Papua New Guinea. They do not have an oceanic phase or undertake long, open ocean migrations like other Sea Turtles, and are usually found in waters less than 200 feet in depth. Breeding and nesting only occurs in Australia with the largest concentration of females nesting on Crab Island in the North East Gulf of Carpentaria in Queensland. Primary nesting beaches are distributed from East to West across Queensland, the Northern Territory, and Western Australia.

FACTS AND TIDBITS

- In comparison to other Sea Turtle species that lay 100-200 eggs per nest, this species lays an average of 50 per nest. Their eggs and hatchlings however, are proportionally larger than other species, which may aid hatchlings in evading predators.
- The Flatback is an omnivore, feeding on a variety of prey including sea cucumbers, jellies, soft corals, shrimp, crabs, molluscs, fish, and seaweed.
- They are listed as Vulnerable under the Australian Commonwealth's Endangered Species Protection Act. They are listed as data deficient by the IUCN Red List.
- Flatbacks are preyed upon by Saltwater Crocodiles, the largest living reptile on earth. Adult females have been observed being attacked by crocs while attempting to nest.
- Despite its small range and non-migratory behaviour, until now this has been the least studied of the sea turtle species, perhaps due in part to the remoteness of much of their habitat

Status: Flatback Turtles do not have an oceanic phase to their lives and are concentrated in the coastal areas of the south eastern hemisphere. The principle threats are generally captured for meat and tourist knick-knacks, harvesting of eggs, destruction of nesting beaches, ocean pollution, oil spills and entanglement in fishing and shrimp nets. WWF estimates the populations of nesting females are at a mere 20,000. We could see these disappear entirely in our lifetime without coordinated efforts at conservation!


Photo by © Iyad Suleyman | Green Turtles

Photo by © Iyad Suleyman | Green Turtle


المحلات الكبرى
Stores

DIGITAL ONLINE 2016

THE PHOTO & VIDEO RESULTS ARE IN

Digital Online was introduced by EDA for resident photographers and videographers to develop a relationship and human interaction with those unfamiliar with the underwater world and environment.

DIGITAL ONLINE 2016

EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMPETITION

SUBMISSIONS OPENED: SUNDAY, 3rd JANUARY 2016 | **SUBMISSIONS CLOSED:** THURSDAY, 28th APRIL 2016 @ 11:59 PM (GST)

AWARDS & EXHIBITION NIGHT: WEDNESDAY, 25th MAY 2016 | 19:00-22:00 | AUD

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

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

EDA جمعية الإمارات للغوص Emirates Diving Association

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ABOUT DIGITAL ONLINE

Digital Online was realised in 2009 by Marcelo Mariozi, a professional underwater photographer who had previously been involved in the organisation and set up of underwater photography competitions in his native country of Brazil.

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 with those unfamiliar with the underwater world and environment. The film category was introduced as an extension to the competition in 2012 to share our underwater world through motion pictures.

The event now in its eighth year, has seen the steady growth of underwater photography participation, the enthusiasm, and the passion step up to another level. The event has attained equal success with the non-divers who come to support the participants at the Awards and Exhibition Opening night.

THE SPONSORS

We would like to thank all our devoted and new sponsors for all their wonderful prizes for 2016; BFC Travel Management, Tourism Malaysia, Philippines Department of Tourism, Azure Dive & Yoga Resort, Marco Vincent Dive Resort, Al Marsa Musandam, Canon, Grand Stores, Anantara Sir Bani Yas Island Al Sahel Villa Resort and Al Mahara Diving Center, Le Meridien Al Aqah Beach Resort Fujairah, Millennium Resort Mussanah Oman and Oman Sail, Nomad Ocean Adventures, Atoll Scuba, The Dive Centre, MTM Marine LLC, and Al Boom Diving.

We would like to thank our printing sponsor, Print Works who provide all the prints for the Digital Online exhibitions each year and a big thank you to the American University in Dubai (AUD) who hosted the event for the third year running in their Rotunda Gallery.

THE JUDGES

We would also like to thank Imran Ahmad, Jonathan Ali Khan and Christophe Chellapermal for being Digital Online's asset guest judges. We are privileged to have such amazing people and photographers/film makers be a part of this event.

The exhibition was open to the public from the 26-31 May, Saturday-Thursday, 9am-8pm.

THE PRIZES

Digital Online's 19 Prize Sponsors gave this year's lucky winners 26 prizes to choose from! Congratulations to all of this year's participants for taking part and sharing their underwater photos and videos.

Note: Participants were only able to win one prize or prize package each. Entrants with multiple winning entries were given priority in the points awarded and the participant with the following highest score took the prize. Digital Online gets the winners to choose their own prizes.

THE PEOPLE'S CHOICE AWARDS

We handed it over to you to pick your favourite photos and videos from Digital Online's 2016 collection via our Facebook page on the 26th of May. The photos with the most likes in highest order, won a first, second and third place nomination by you the public, and video won an overall winner nomination and were awarded a medal and a UV Protection Top from iQ-UV!

First place photo won an additional dive trip with Al Boom Diving on the East Coast and Video won a dive trip with The Dive Centre with a choice to dive either the West Coast or East Coast.

	VIDEO	TOTAL
1	Pablo Jiménez Novoa	443
2	Alaa Khalil	401
3	Khaled Sultani	382
4	Jurgens Swarts	314
5	Ahmed AlNaqbi	309

	DSLR/MILC	MACRO	WIDE ANGLE	BEST OF THE UAE	BLACK & WHITE	TOTAL
6	Simone Caprodossi	416	426	402	408	1652
7	David Robinson	425	369	419	394	1607
8	Stewart Clarke	401	389	400	347	1537
9	Iyad Suleyman	380	409	398	349	1536
10	Steven Board	375	374	384	381	1514
11	Rylan Louis Lee	392	406	355	255	1408
12	Philippe Lecomte	378	360	287	352	1377
13	Peter Mainka	352	302	300	331	1285
14	Yousef Alshekaili	360	348	257	292	1257
15	Saleh Al Mansoori	310	304	264	376	1254
16	Khalid Obaid	400	404	406	N/A	1210
17	Mohamed Abdulla	413	399	N/A	398	1210
18	Levente Rozsahegyi	N/A	444	315	435	1194
19	Ahmed AlNaqbi	333	256	264	337	1190
20	Yousif AlAli	410	348	N/A	410	1168
21	Chris Combes	247	273	329	301	1150
22	Kervin Pamintuan	350	N/A	347	356	1053
23	Karen Croshaw	323	337	N/A	350	1010
24	Imadeddin Alaeddin	312	N/A	227	314	853
25	Erwin Lota	382	N/A	N/A	358	740
26	Aamer Alhammadi	346	N/A	367	N/A	713
27	Noura Alfardan	343	N/A	332	N/A	675
28	Abdulla Almehairi	414	N/A	N/A	N/A	414
29	Jan Wenger	N/A	406	N/A	N/A	406
30	Sijmon de Waal	N/A	N/A	395	N/A	395

	COMPACT		COMPACT	BEST OF THE UAE	BLACK & WHITE	TOTAL
31	John Hager		413	392	407	1212
32	Rima Jabado		420	382	343	1145
33	Kelly Tymburski		405	321	410	1136
34	Andy Jones		369	396	316	1081
35	Pablo Jiménez Novoa		348	347	355	1050
36	Yanni Smith		350	336	317	1003
37	Jurgens Swarts		330	367	304	1001
38	Claire Barker		354	318	324	996
39	Mike Thirlwall		307	331	303	941
40	Hussein Farhat		301	331	306	938
41	Mohammad Gharaibeh		357	290	264	911
42	Lynette Ferreira		289	243	334	866
43	Jayme Rush		265	224	374	863
44	Kholousi Khayal		268	217	287	772
45	Nuraan Al Hashmi		371	341	N/A	712
46	Simon Croshaw		323	N/A	376	699
47	Kathleen C. Ebuen		350	N/A	339	689
48	Ahmed Ramadan		279	295	N/A	574
49	Hassan Khayal		219	175	159	553
50	Maitha Al Qader		226	301	N/A	527
51	Justin Redetzke		330	N/A	145	475
52	Jo Marie Valencia-Cox		325	N/A	N/A	325
53	Anthony Cox		293	N/A	N/A	293

THE WINNING RESULTS

OVERALL DIGITAL ONLINE DSLR/MILC WINNER
SIMONE CAPRODOSSI – 1652

OVERALL DIGITAL ONLINE COMPACT WINNER
JOHN HAGER – 1212

OVERAL DIGITAL ONLINE VIDEO WINNER
PABLO JIMÉNEZ NOVOA – 443

UAE NATIONAL PHOTOGRAPHY AWARD
YOUSEF ALSHEKAILI – 1257

VIDEO 1st PLACE WINNER

BLUE OCEAN | PABLO JIMÉNEZ NOVOA – 443
BFC TRAVEL MANAGEMENT | Destination Package – 5 days/4 nights in Bali, Indonesia.

DSLR/MILC 1st PLACE WINNERS

WIDE ANGLE | LEVENTE ROZSAHEGYI – 444
PHILIPPINES DEPARTMENT OF TOURISM | AZURE DIVE & YOGA RESORT | Destination Package – 5 days/4 nights superior deluxe accommodation for one person in Dumaguete, Philippines.

MACRO | DAVID ROBINSON – 425
TOURISM MALAYSIA | Destination Package – 5days/4nights to Sipadan, Malaysia.

BLACK & WHITE | YOUSIF ALALI – 410
PHILIPPINES DEPARTMENT OF TOURISM | MARCO VINCENT DIVE RESORT | Destination Package – 6 days/5 nights with breakfast and 12 guided dives for one person in Puerto Galera, Mindoro, Philippines.

BLACK & WHITE | KHALID OBAID – 406
BFC TRAVEL MANAGEMENT | Destination Package – 4 days/3 nights in Terengganu, Malaysia.

COMPACT 1st PLACE WINNERS

COMPACT | RIMA JABADO – 420
CANON | EOS 700D + 18-55 DC

BLACK & WHITE | KELLY TYMBURSKI – 410
ANANTARA SIR BANI YAS ISLAND AL SAHEL VILLA RESORT & AL MAHARA DIVING CENTER | 2 nights stay at Anantara Sir Bani Yas Island Al Sahel Villa Resort in one bedroom villa for 2 with sumptuous breakfast in the Savannah Grill restaurant & 2 dives (tank & weights included).

BEST OF THE UAE | ANDY JONES – 396
ATOLL SCUBA | A package of 10 dives with Atoll Scuba on the island of Dhiffushi in the Maldives for one diver.

VIDEO 2nd PLACE WINNER

BLUE OCEAN | ALAA KHALIL – 401
AL MARSA MUSANDAM | 2 Night Liveaboard Trip in the Musandam

DSLR/MILC 2nd PLACE WINNERS

WIDE ANGLE | SIMONE CAPRODOSSI – 426
BFC TRAVEL MANAGEMENT | Destination Package – 4 days/3 nights in Aqaba, Jordan.

MACRO | ABDULLA ALMEHAIRAI – 414
MTM MARINE LLC | Mares Abyss 22 Nitrox Din Regulator

BEST OF THE UAE | STEWART CLARKE – 400
MILLENNIUM RESORT MUSSANAH & SEAOMAN DIVE CENTRE
2 night stay for two adults in Superior Room, room only basis, valid from 30th April until 30th December 2016 with 2 tank dive package.

BLACK & WHITE | MOHAMED ABDULLA – 398
CANON | Powershot G7 X

COMPACT 2nd PLACE WINNERS

COMPACT | JOHN HAGER – 413
NOMAD OCEAN ADVENTURES | TDI CCR Air Diluent Diver Course in Musandam, Oman.

BLACK & WHITE | SIMON CROSHAW – 376
GRAND STORES | Rollei Actioncam 7s WiFi

BEST OF THE UAE | JURGENS SWARTS – 367
NOMAD OCEAN ADVENTURES | TDI Advanced Nitrox Course in Fujairah.

VIDEO 3rd PLACE WINNER

BLUE OCEAN | KHALED SULTANI – 382
CANON | Powershot D30 (Underwater Camera)

DSLR/MILC 3rd PLACE WINNERS

WIDE ANGLE | IYAD SULEYMAN – 409
LE MERIDIEN AL AQAH BEACH RESORT AND SPA | Summer Promotion – 2 night stay during summer months in a Superior Room with Breakfast Buffet for 2 at Views Restaurant.

BEST OF THE UAE | SIJMON DE WAAL – 395
MTM MARINE LLC | Mares Dragon AT BCD

MACRO | RYLAN LEE – 392
GRAND STORES | [Qudos] Action Light by Knog

BLACK & WHITE | STEVEN BOARD – 381
NOMAD OCEAN ADVENTURES | 2 days/2 nights, chalet package (4 dives) for 2 in Musandam, Oman.

COMPACT 3rd PLACE WINNERS

BLACK & WHITE | JAYME RUSH – 374
LE MERIDIEN AL AQAH BEACH RESORT AND SPA | Weekend night stay in a Superior Room inclusive of Breakfast Buffet for two at Views Restaurant.

COMPACT | NURAAN AL HASHMI – 371
MTM MARINE LLC | Mares Cruise Captain Bag

BEST OF THE UAE | PABLO JIMÉNEZ NOVOA – 347
NOMAD OCEAN ADVENTURES | Underwater Photography book by Tobias Friedrich.

THE PEOPLE'S CHOICE AWARDS

1st PLACE PHOTO | ABDULLA AHMED ALMEHAIRI
iQ-UV | UV Protection you Wear | www.iq-uv.com
AL BOOM DIVING | Voucher for 2 dives on East Coast with full equipment for one diver.

2nd PLACE PHOTO | LEVENTE ROZSAHEGYI
iQ-UV | UV Protection you Wear | www.iq-uv.com

3rd PLACE PHOTO | AAMER SULAIMAN
iQ-UV | UV Protection you Wear | www.iq-uv.com

VIDEO PEOPLE'S CHOICE AWARD | AHMED ALNAQBI
iQ-UV | UV Protection you Wear | www.iq-uv.com
THE DIVE CENTRE | Voucher for 2 complimentary dives for one person from either the Dubai or Fujairah Dive Centre.

DIGITAL ONLINE JUDGES

ALLY LANDES | EMIRATES DIVING ASSOCIATION

Events Coordinator, 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, always looking to fill gaps with improvements, developing EDA's brand, designs and managing all the EDA social media and FAM trips.

As a qualified PADI Instructor, she utilizes the experience within everyday life at EDA.

IMRAN AHMAD | PROFESSIONAL PHOTOGRAPHER

Imran Ahmad Photography and ESCAPEINC Dive & Photography

Imran Ahmad has been capturing the magnificence of life both above and below the water's surface for over 20 years. A celebrated and internationally published professional photographer, Imran is committed to showcasing, preserving and protecting the ocean's environment and its surroundings. Clients can find photographic solutions for corporate, commercial, wildlife, creative arts, publishing, photo clinic and underwater projects. A graduate from Middlesex University with a Bachelor of Arts in Film making, he is the brand ambassador for RGB Lights (Japan), and a member of the Ocean Artist Society.

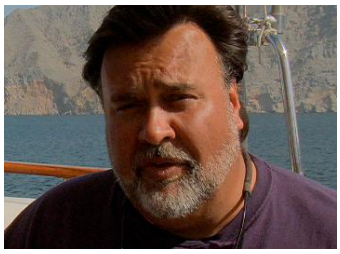
PUBLISHED BOOKS

- Seychelles Unexpected Treasures (Underwater Photo Art)
- Ocean Tapestry (Underwater Photo Art)
- Hidden Sanctuary (Mabul & Sipadan Underwater Look Book)
- PURE Series

WEBSITE: www.escapeinc.com.sg
FACEBOOK: Imran Ahmad Photography

JONATHAN ALI KHAN | WILD PLANET PRODUCTIONS

Managing Director – Natural History TV Production, Underwater filming specialists, video production and photography.



JAK is a topside wildlife and underwater camerman, producer, director and editor with a strong passion for the natural world having worked on a wide range of unique projects in the region and is recognized as an authority on environmental, conservation and diving related issues.

His fascination with filming all started after years of working as a photojournalist and shooting underwater stills. His primary interest is in marine subjects that led to the creation of Ocean World Productions in 2003. In 2008, JAK left Ocean World Productions in order to focus entirely on natural history TV development, leading to the recent creation of Wild Planet Productions.

WEBSITE: www.wildplanetfilms.org
FACEBOOK: Wild Planet Productions

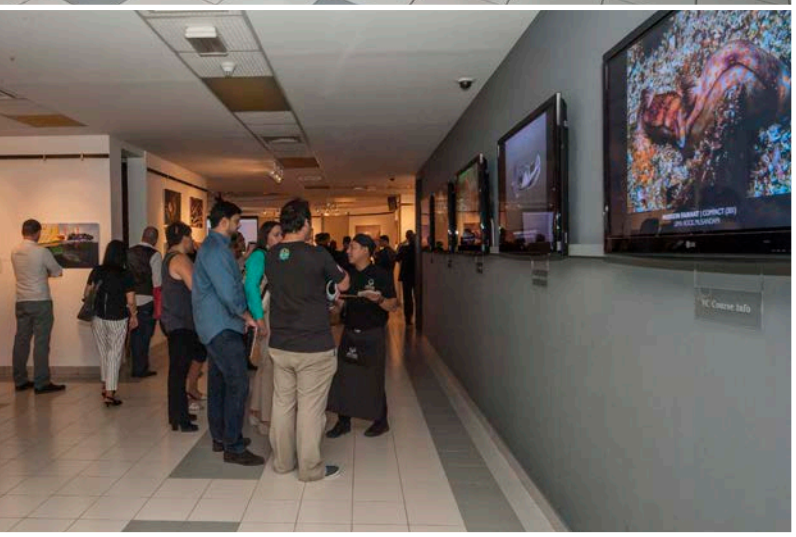
CHRISTOPHE CHELLAPERMAL | PADI & TEK TDI REBREATHER INSTRUCTOR

Founder and Owner of Nomad Ocean Adventures

Christophe Chellapermal arrived in the UAE when he was 7 years old and has been living in the Middle East region ever since. His love of water started as a young child and he has been a diver since he was 12 years old. Chris became a PADI Scuba Instructor in 1998 and with 25 years of diving experience and 17 years of teaching experience, he has gained much knowledge in the aquatic realm. He is a TEK TDI Rebreather Instructor with Submatix and can teach CCR up to 60m. Founder and owner of Nomad Ocean Adventures since 2004, he loves the ocean and the planet and does all he can to involve Nomad Ocean Adventures with environmental conservation. Being a photography and nature lover, he spends hours in the water taking photos of his underwater adventures.

WEBSITE: www.discovernomad.com
FACEBOOK: Nomad Ocean Adventures Musandam

BRAD MOODY (AUD Associate Professor of Digital Media) & **FEI CHIN KAW** FROM BFC TRAVEL MANAGEMENT



WOODMAN TAYLOR, Ph.D. (AUD Chair of Visual Communication & Association Professor of Art History) & **IBRAHIM AL-ZU'BI** (EDA Excecutive Director)

ESSA AL GHURAIR (EDA Chairman) & **IBRAHIM AL-ZU'BI** (EDA Excecutive Director)

PABLO JIMÉNEZ NOVOA | PRIZE FROM NOMAD OCEAN ADVENTURES

JAYME RUSH | PRIZE FROM LE MERIDIEN AL AQAH BEACH RESORT AND SPA, SUDHAGAR DUBRAMANIAM

STEVEN BOARD | PRIZE FROM NOMAD OCEAN ADVENTURES

RYLAN LEE (NOT PRESENT) | PRIZE FROM GRAND STORES, GOPAL SUDHAKARAN

KHALED SULTANI | PRIZE FROM CANON, SHADI BAKHOUR

JURGENS SWARTS | PRIZE FROM NOMAD OCEAN ADVENTURES, CHRISTOPHE CHELLAPERMAL

SIMON CROSHAW | PRIZE FROM GRAND STORES, GOPAL SUDHAKARAN

JOHN HAGER | PRIZE FROM NOMAD OCEAN ADVENTURES, CHRISTOPHE CHELLAPERMAL

MOHAMED ABDULLA (NOT PRESENT) | PRIZE FROM CANON, SHADI BAKHOUR

STEWART CLARKE | PRIZE FROM MILLENNIUM RESORT MUSSANAH & SEAOMAN DIVE CENTRE

ABDULLA ALMEHAIRAI | PRIZE FROM MTM MARINE LLC

SIMONE CAPRODOSSI | PRIZE FROM BFC TRAVEL MANAGEMENT

ALAA KHALIL | PRIZE FROM AL MARSA MUSANDAM

ANDY JONES | PRIZE FROM ATOLL SCUBA

KELLY TYMBURSKI | PRIZE FROM ANANTARA SIR BANI YAS ISLAND AL SAHEL VILLA RESORT & AL MAHARA DIVING CENTER

YOUSIF ALALI | PRIZE FROM PHILIPPINES DEPARTMENT OF TOURISM & MARCO VINCENT DIVE RESORT

KHALID OBAID | PRIZE FROM BFC TRAVEL MANAGEMENT

DAVID ROBINSON | PRIZE FROM TOURISM MALAYSIA, MOHAMAD TAIB

LEVENTE ROZSAHEGYI | PRIZE FROM PHILIPPINES DEPARTMENT OF TOURISM & AZURE DIVE & YOGA RESORT, CHINTAKA BANDARA

PABLO JIMÉNEZ NOVOA | PRIZE FROM BFC TRAVEL MANAGEMENT

UAE NATIONAL PHOTOGRAPHY AWARD | YOUSEF ALSHEKAILI

OVERAL DIGITAL ONLINE VIDEO WINNER | PABLO JIMÉNEZ NOVOA

OVERALL DIGITAL ONLINE COMPACT WINNER | JOHN HAGER

OVERALL DIGITAL ONLINE DSLR/MILC WINNER | SIMONE CAPRODOSSI

IYAD SULEYMAN | PRIZE FROM LE MERIDIEN AL AQAH BEACH RESORT AND SPA

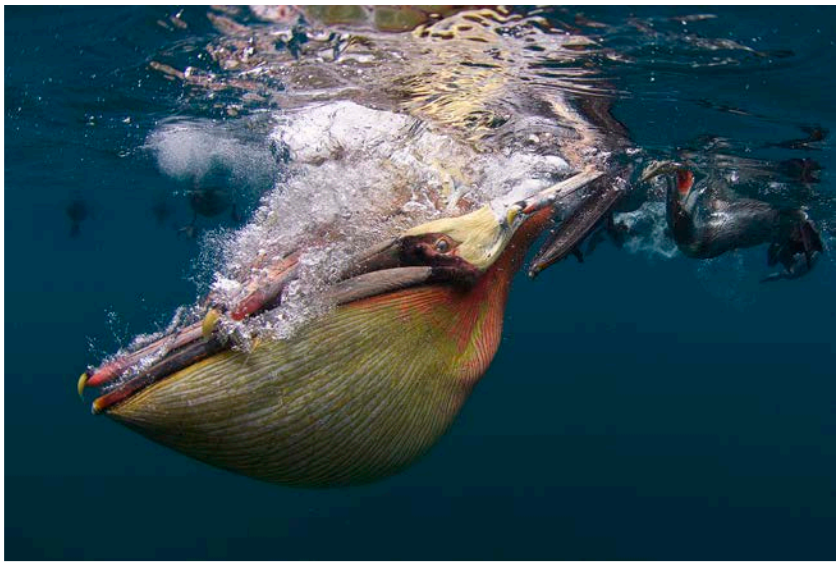
YOUSIF ALALI, MOHAMED ABDULLA AND KHALID OBAID

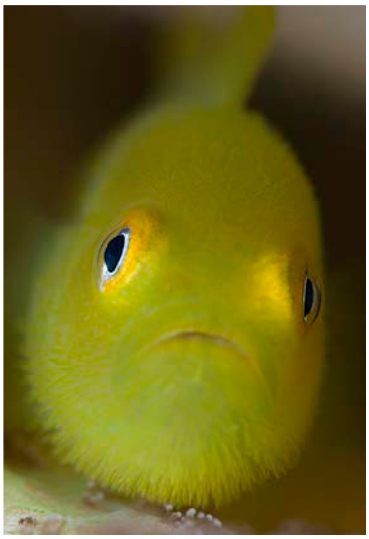
DIGITAL ONLINE

جمعية الإمارات للغوص

EMIRATES DIVING ASSOCIATION

PHOTOGRAPHY AND FILM COMPETITION





DIGITAL ONLINE 2016

EDA'S 8th ANNUAL UNDERWATER PHOTOGRAPHY AND FILM COMPETITION

COMPETITION OPENED:
Sunday, 3rd January 2016

SUBMISSIONS CLOSED:
Thursday, 28th April 2016 @ 11:59pm (GST)

AWARDS & EXHIBITION NIGHT:
Wednesday, 25th May 2016 | 7pm-10pm | AUD

DIGITAL ONLINE 2016 EXHIBITION TIMINGS: Open 26th-31st May 2016 | Saturday-Thursday, 9am-8pm | In the Rotunda Gallery, AUD

EVENT BY EDA

EDA
جمعية الإمارات للغوص
Emirates Diving Association

PRINTING SPONSOR

PRINT WORKS

EXHIBITION HOST

AUD | AMERICAN UNIVERSITY IN DUBAI
School of Architecture, Art and Design

PRIZE SPONSORS

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TOURISM MALAYSIA
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AZURE DIVE & YOGA RESORT
AL MARSA Musandam
Canon
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Le MERIDIEN AL AQAH BEACH RESORT FUJAIRAH
AL MAHARA DIVING CENTRE L.L.C
ANANTARA Al Sahel Villa Resort
MILLENNIUM RESORT
SEAOMAN Discover, Explore, Experience
OMAN SAIL
NOMAD OCEAN ADVENTURES
ATOLL SCUBA
MTM Marine LLC
Al Boom Diving
iQ-uv
www.iq-uv.com

WWW.EMIRATESDIVING.COM

EDA is a non-profit voluntary federal organization and is accredited by UNEP as an International Environmental Organization.

1st PLACE | LEVENTE ROZSAHEGYI | DSLR/MILC | WIDE ANGLE – 444
BAHAMAS

1st PLACE | DAVID ROBINSON | DSLR/MILC MACRO – 425
LEMBEH STRAIT, INDONESIA

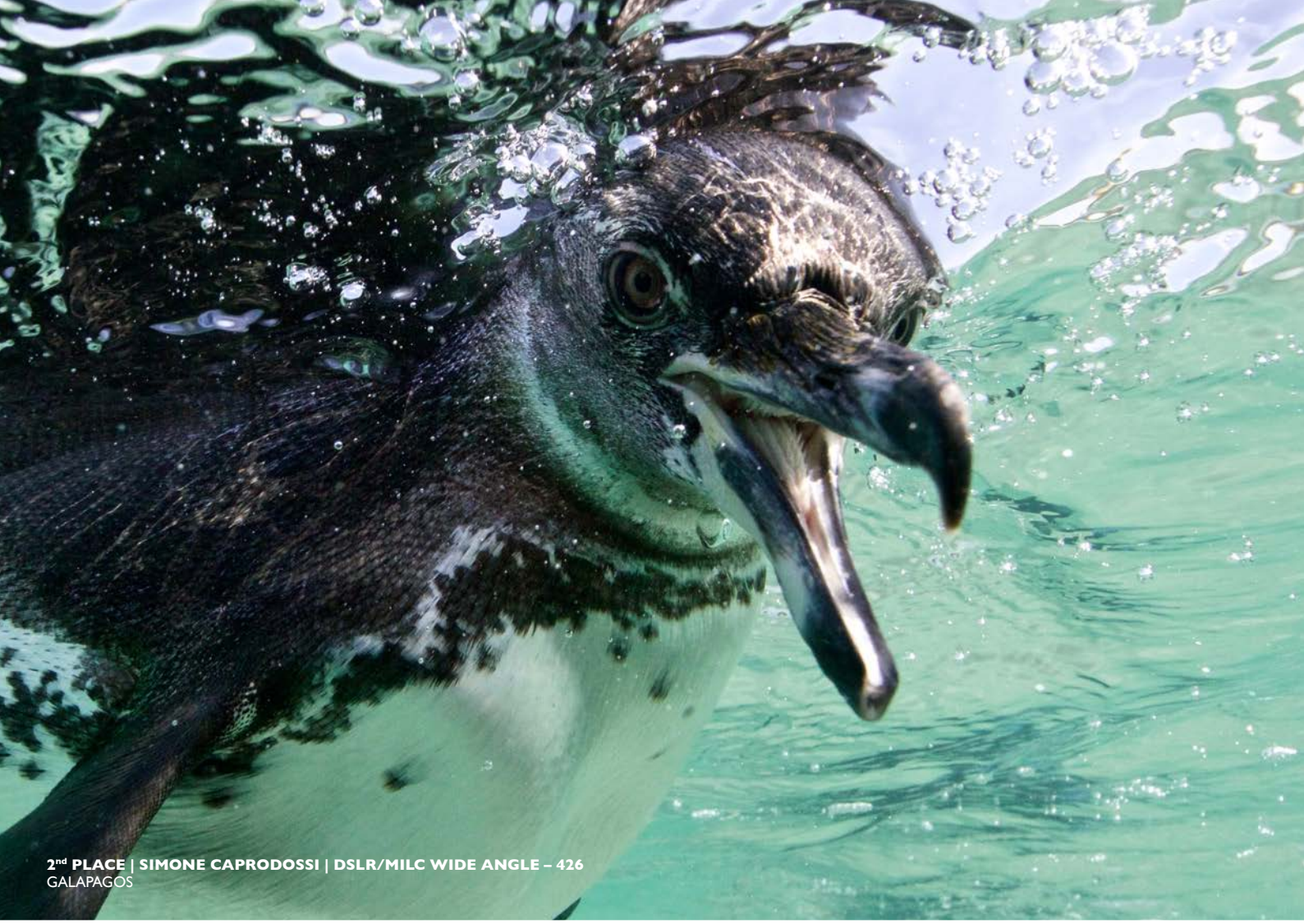
1st PLACE | YOUSIF ALALI | DSLR/MILC BLACK & WHITE – 410
LEMBEH STRAIT, INDONESIA

1st PLACE | RIMA JABADO | COMPACT – 420
LA PAZ, MEXICO

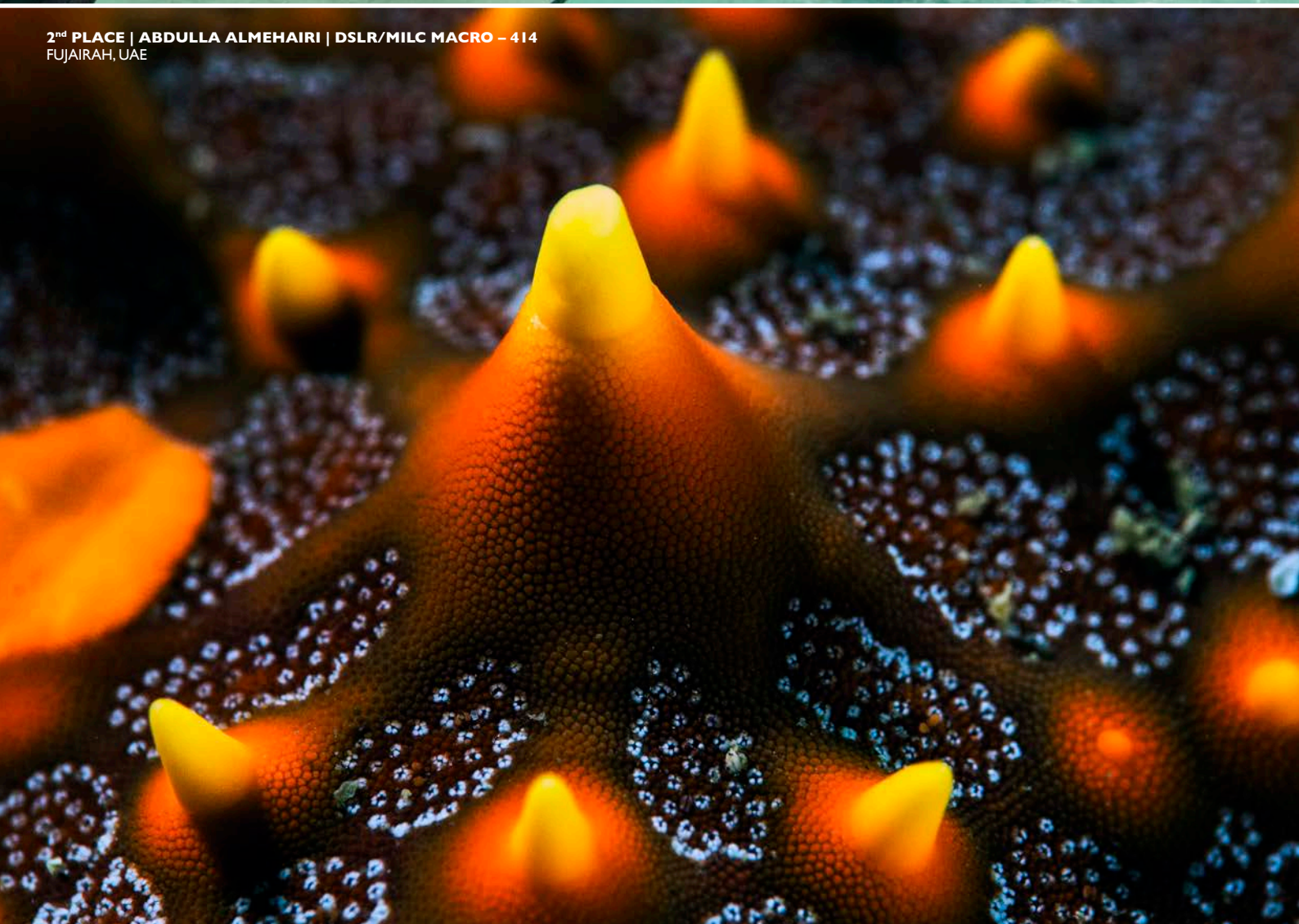
1st PLACE | KHALID OBAID | DSLR/MILC BEST OF THE UAE – 406
KHORFAKKAN, UAE

1st PLACE | KELLY TYMBURSKI | COMPACT BLACK & WHITE – 410
GUADALUPE ISLAND, MEXICO

1st PLACE | ANDY JONES | COMPACT BEST OF THE UAE – 396
HARD ROCK CAFE, MUSANDAM



2nd PLACE | SIMONE CAPRODOSSI | DSLR/MILC WIDE ANGLE – 426
GALAPAGOS



2nd PLACE | ABDULLA ALMEHAIRI | DSLR/MILC MACRO – 414
FUJAIRAH, UAE

2nd PLACE | STEWART CLARKE | DSLR/MILC BEST OF THE UAE – 400
FUJAIRAH, UAE

2nd PLACE | MOHAMED ABDULLA | DSLR/MILC BLACK & WHITE – 398
SS THISTLEGORM, RED SEA, EGYPT

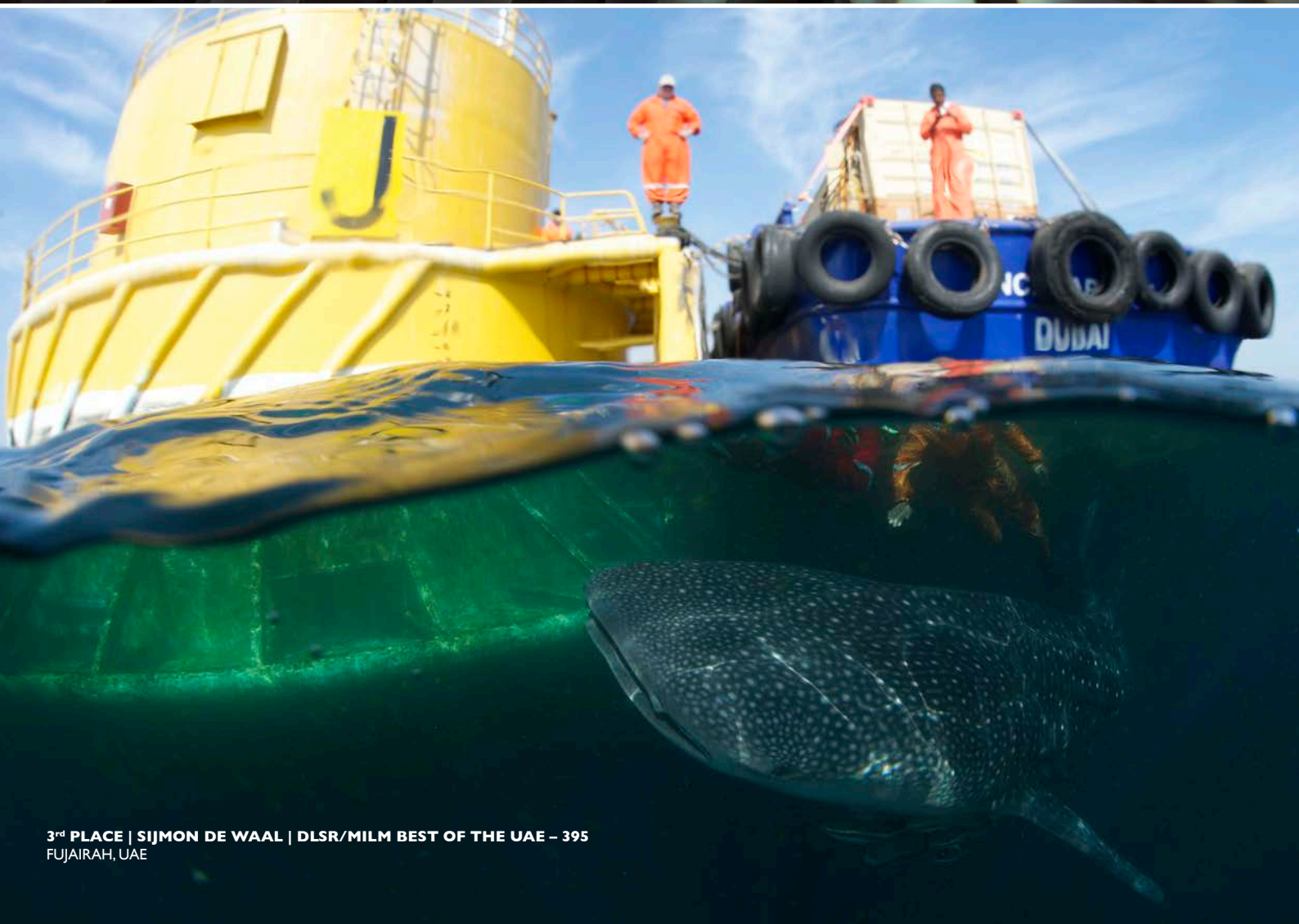
2nd PLACE | JOHN HAGER | COMPACT – 413
RAPID BAY JETTY, ADELAIDE, AUSTRALIA

2nd PLACE | SIMON CROSHAW | COMPACT BLACK & WHITE – 376
SOUTHERN RED SEA

2nd PLACE | JURGENS SWARTS | COMPACT BEST OF THE UAE – 367
BARRACUDA ROCK, MUSANDAM

3rd PLACE | IYAD SULEYMAN | DLSR/MILM WIDE ANGLE – 409
SIPADAN, MALAYSIA

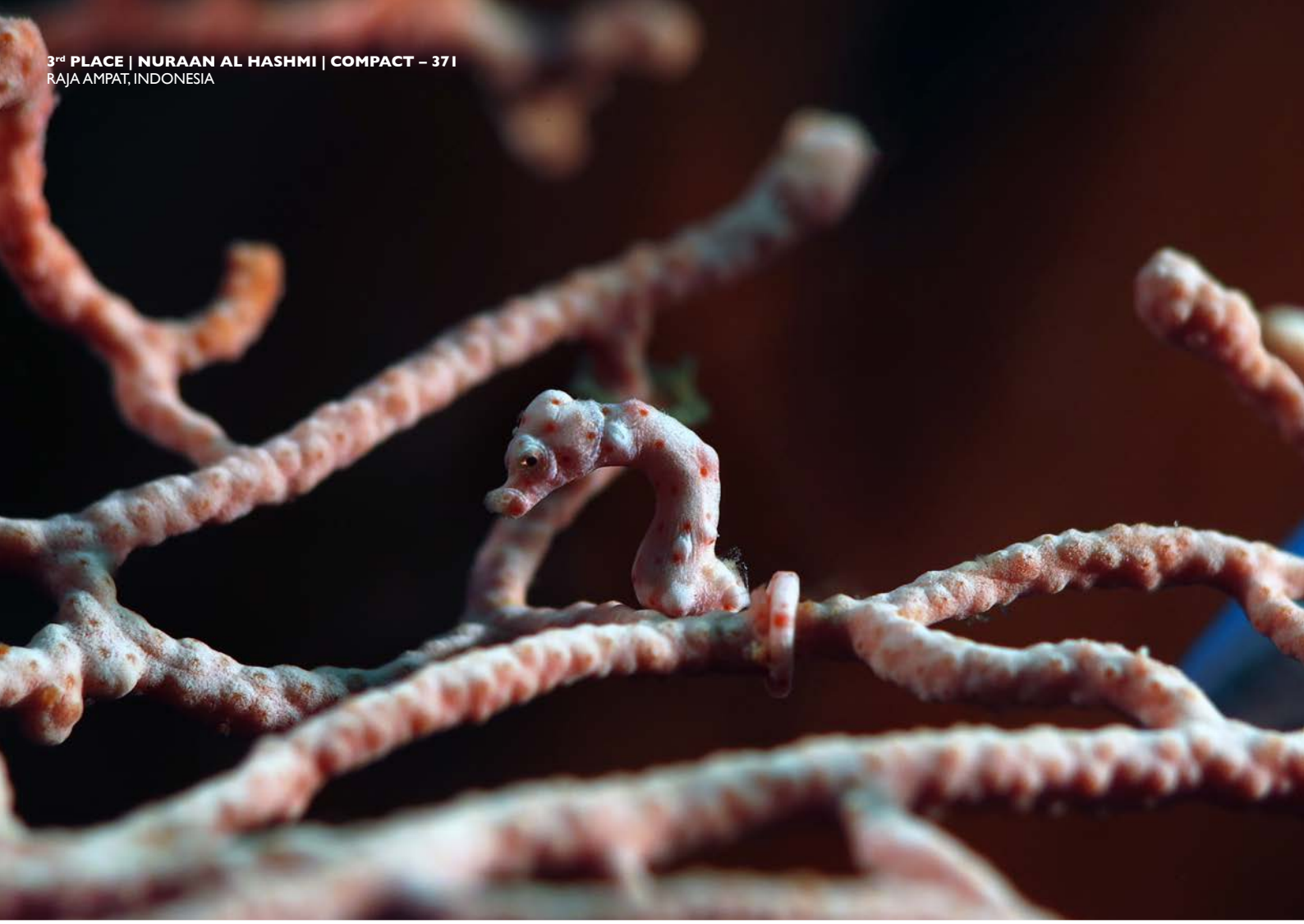
3rd PLACE | RYLAN LEE | DLSR/MILM MACRO – 392
ANILAO, PHILIPPINES



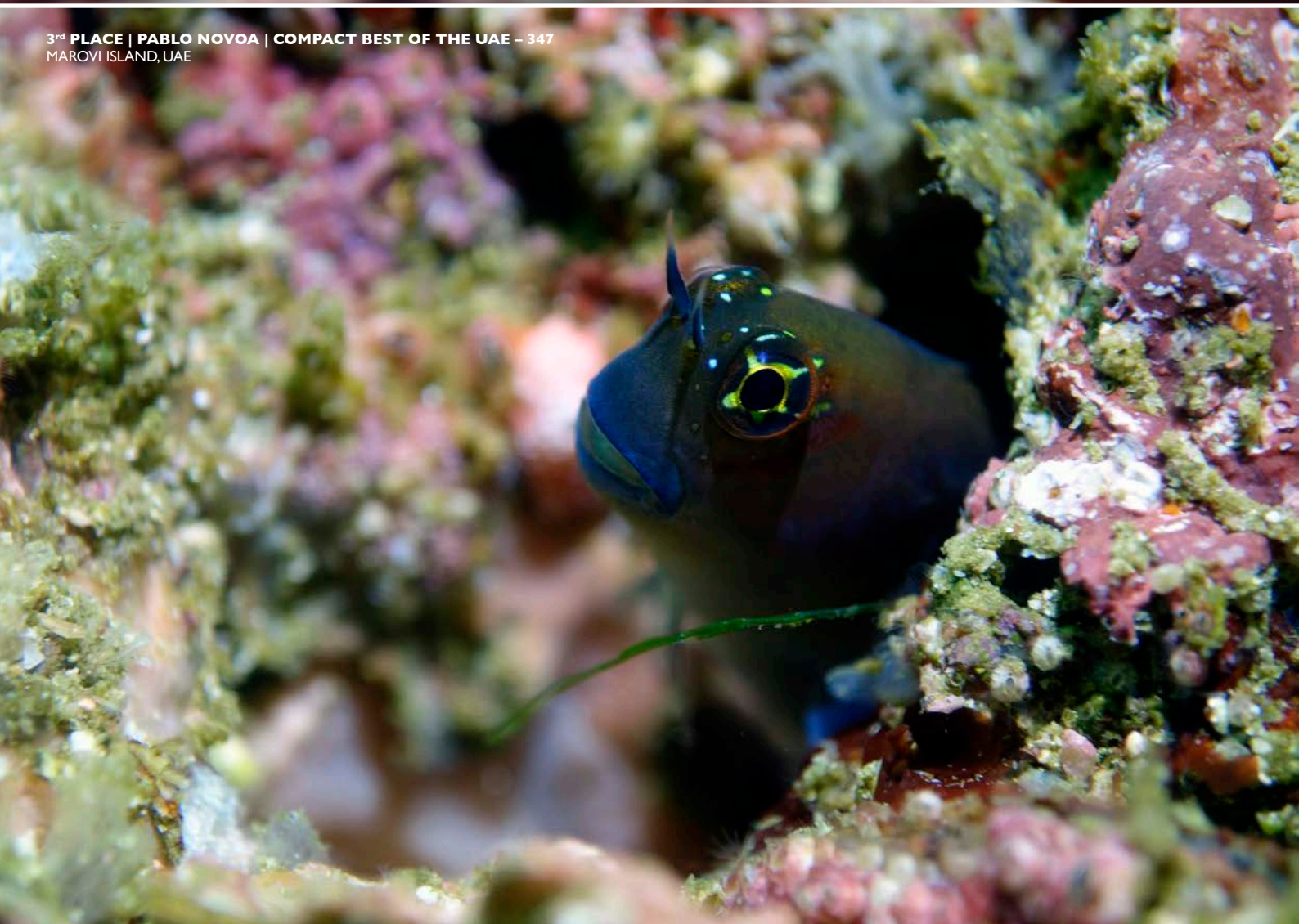
3rd PLACE | SIJMON DE WAAL | DLSR/MILM BEST OF THE UAE – 395
FUJAIRAH, UAE

3rd PLACE | STEVEN BOARD | DLSR/MILM BLACK & WHITE – 381
LIMA ROCK, MUSANDAM

3rd PLACE | JAYME RUSH | COMPACT BLACK & WHITE – 374
NORTH SULAWESI, INDONESIA



3rd PLACE | NURAAN AL HASHMI | COMPACT – 371
RAJA AMPAT, INDONESIA



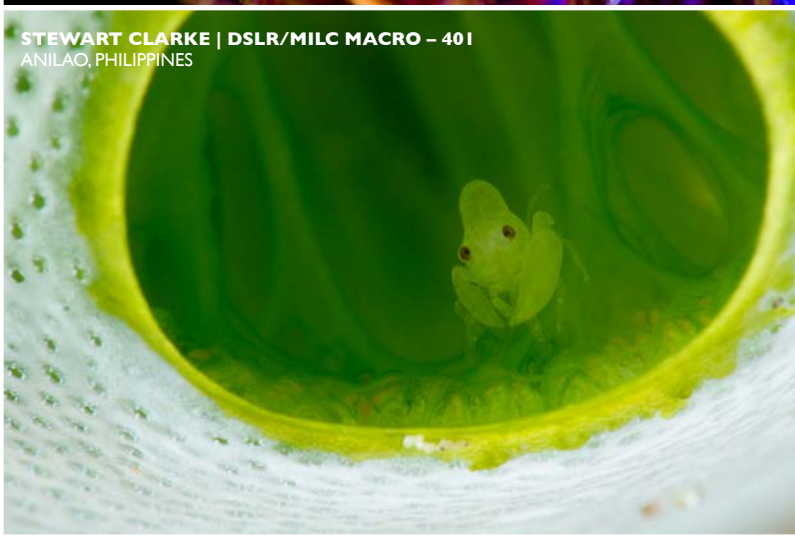
3rd PLACE | PABLO NOVOA | COMPACT BEST OF THE UAE – 347
MAROVI ISLAND, UAE

SIMONE CAPRODOSSI | DSLR/MILC MACRO – 416
LEMBEH, INDONESIA

MOHAMED ABDULLA | DSLR/MILC MACRO – 413
TULAMBEN, BALI, INDONESIA

YOUSIF ALALI | DSLR/MILC MACRO – 410
TULAMBEN, BALI, INDONESIA

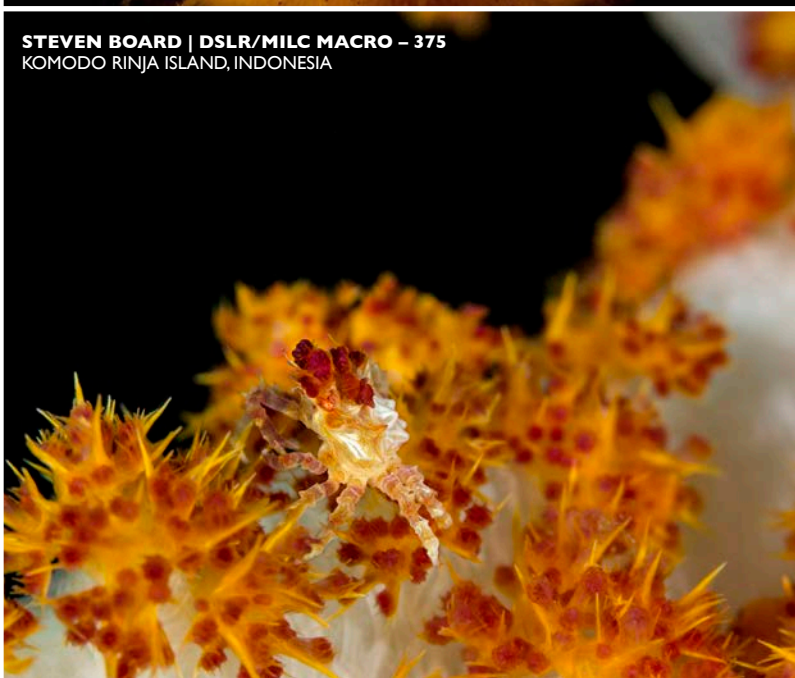
STEWART CLARKE | DSLR/MILC MACRO – 401
ANILAO, PHILIPPINES



KHALID OBAID | DSLR/MILC MACRO – 400
INDONESIA

ERWIN LOTA | DSLR/MILC MACRO – 382
LEMBEH, NORTH SULAWESI, INDONESIA

STEVEN BOARD | DSLR/MILC MACRO – 375
KOMODO RINJA ISLAND, INDONESIA



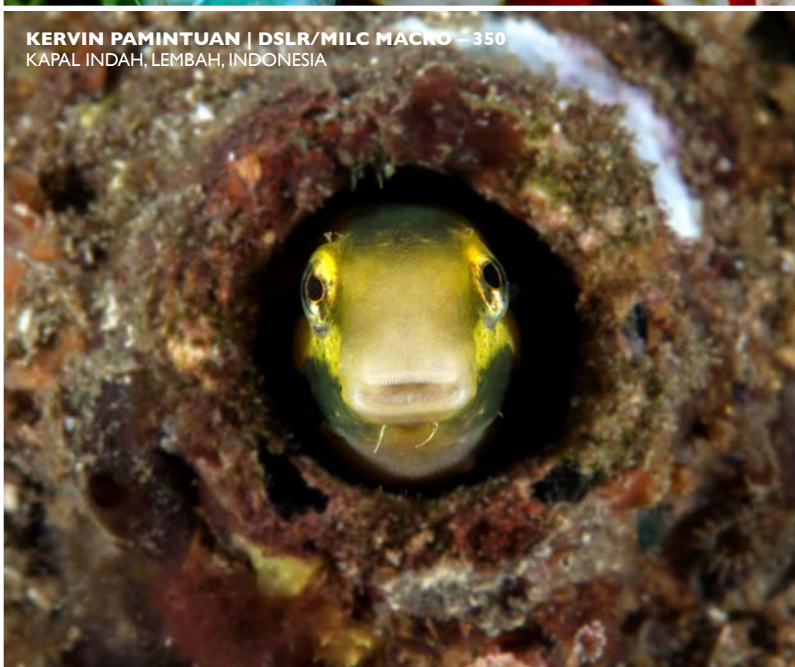
IYAD SULEYMAN | DSLR/MILC MACRO – 380
MABUL, MALAYSIA

PHILIPPE LECOMTE | DSLR/MILC MACRO – 378
NEW CALEDONIA

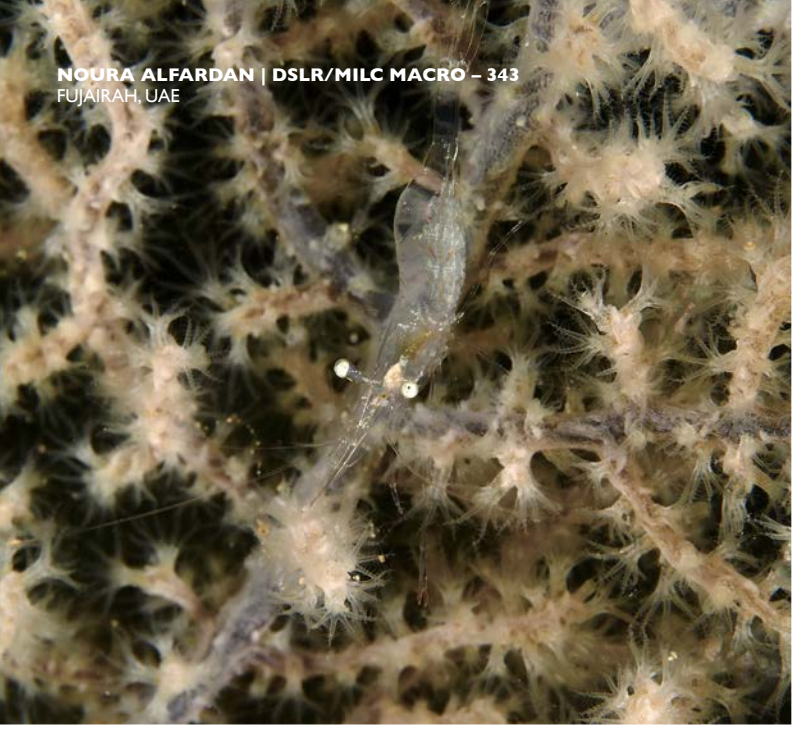
YOUSEF ALSHEKAILI | DSLR/MILC MACRO – 360
PHILIPPINES

PETER MAINKA | DSLR/MILC MACRO – 352
SIPADAN, MALAYSIA

AAMER ALHAMMADI | DSLR/MILC MACRO – 346
KHORFAKKAN, UAE



KERVIN PAMINTUAN | DSLR/MILC MACRO – 350
KAPAL INDAH, LEMBAH, INDONESIA



NOURA ALFARDAN | DSLR/MILC MACRO – 343
FUJAIRAH, UAE

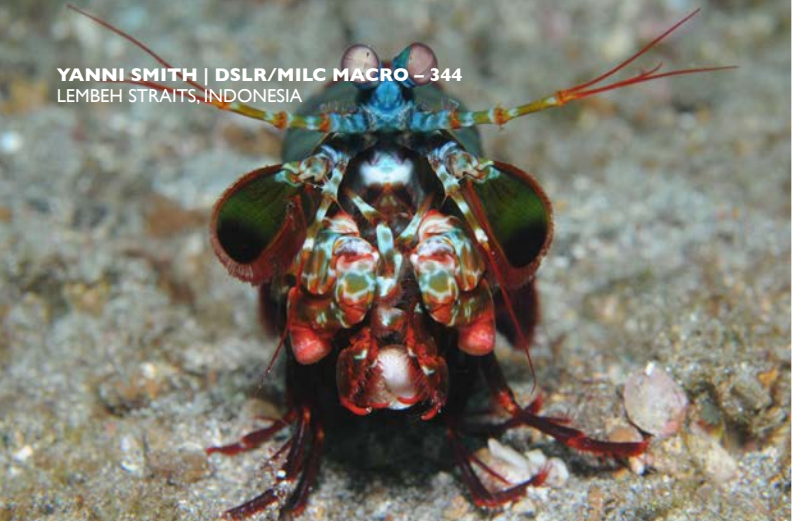
AHMED ALNAQBI | DSLR/MILC MACRO – 333
FUJAIRAH, UAE

KAREN CROSHAW | DSLR/MILC MACRO – 323
SOUTHERN RED SEA

IMADDEDDIN ALAEDDIN | DSLR/MILC MACRO – 312
FUJAIRAH, UAE

SALEH AL MANSOORI | DSLR/MILC MACRO – 310
DAUIN, PHILIPPINES

CHRIS COMBES | DSLR/MILC MACRO – 247
LIMA ROCK, MUSANDAM

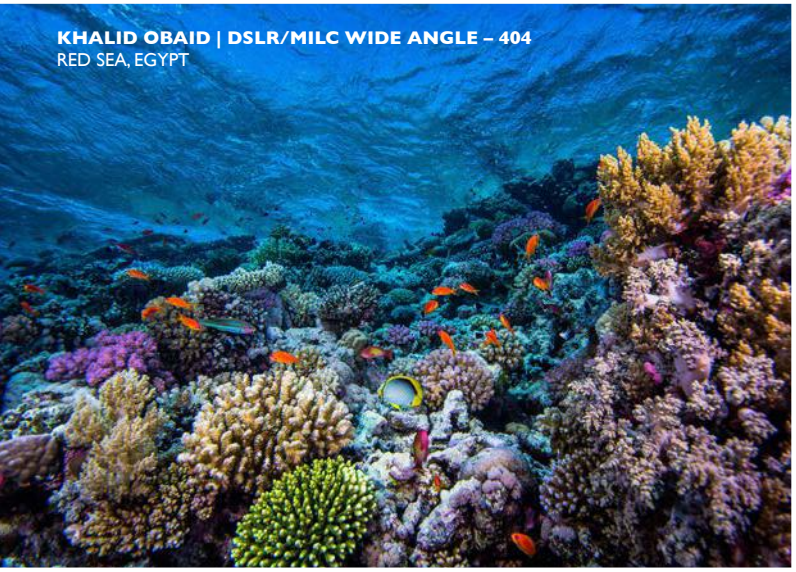


YANNI SMITH | DSLR/MILC MACRO – 344
LEMBEH STRAITS, INDONESIA

PABLO NOVOA | DSLR/MILC MACRO – 296
PUERTO GALERA, PHILIPPINES

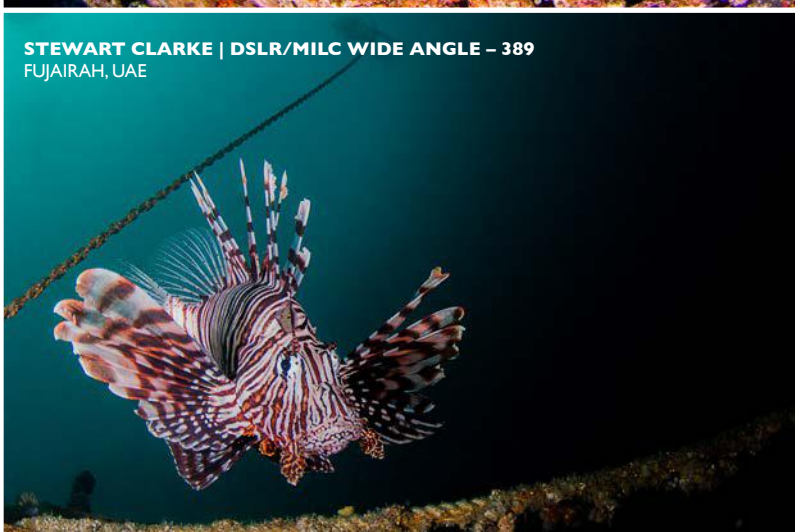
JAN WENGER | DSLR/MILC WIDE ANGLE – 406
SIPADAN, MALAYSIA

RYLAN LEE | DSLR/MILC WIDE ANGLE – 406
RED SEA, SUDAN



KHALID OBAID | DSLR/MILC WIDE ANGLE – 404
RED SEA, EGYPT

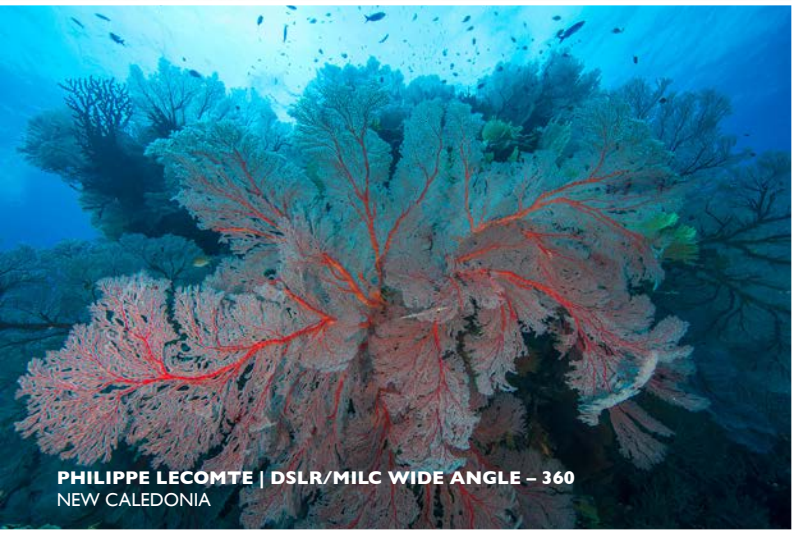
MOHAMED ABDULLA | DSLR/MILC WIDE ANGLE – 399
RAS MOHAMMED, EGYPT



STEWART CLARKE | DSLR/MILC WIDE ANGLE – 389
FUJAIRAH, UAE

STEVEN BOARD | DSLR/MILC WIDE ANGLE – 374
EASTERN DAYMANIYAT ISLANDS, OMAN

DAVID ROBINSON | DSLR/MILC WIDE ANGLE – 369
GALAPAGOS



PHILIPPE LECOMTE | DSLR/MILC WIDE ANGLE – 360
NEW CALEDONIA

KAREN CROSHAW | DSLR/MILC WIDE ANGLE – 337
SOUTHERN RED SEA

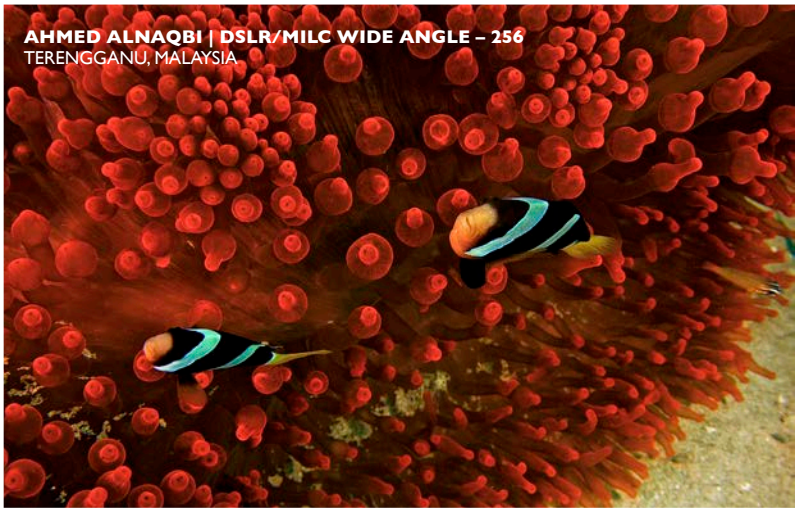
YOUSIF ALALI | DSLR/MILC WIDE ANGLE – 348
LEMBEH STRAIT, INDONESIA

YOUSEF ALSHEKAILI | DSLR/MILC WIDE ANGLE – 348
PHILIPPINES

SALEH AL MANSOORI | DSLR/MILC WIDE ANGLE – 304
PHILIPPINES

PETER MAINKA | DSLR/MILC WIDE ANGLE – 302
SIPADAN, MALAYSIA

CHRIS COMBES | DSLR/MILC WIDE ANGLE – 273
AQUARIUM, DAYMANIYAT ISLANDS, OMAN



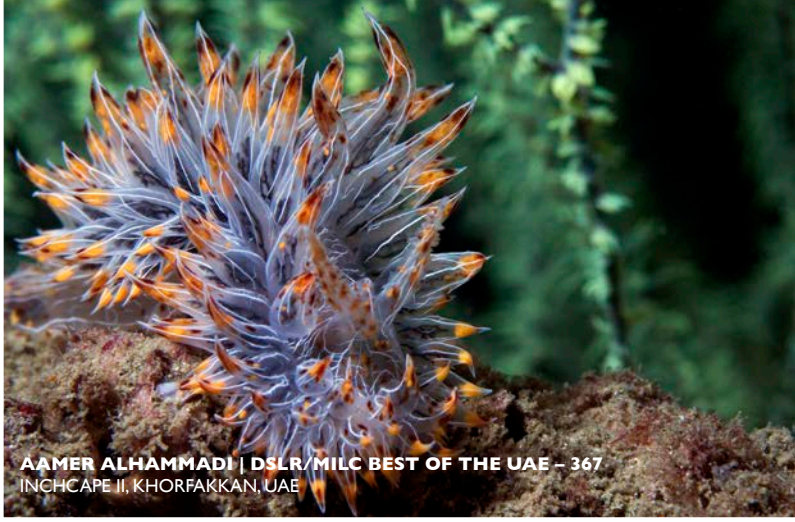
AHMED ALNAQBI | DSLR/MILC WIDE ANGLE – 256
TERENGGANU, MALAYSIA

DAVID ROBINSON | DSLR/MILC BEST OF THE UAE – 419
MUSANDAM

STEVEN BOARD | DSLR/MILC BEST OF THE UAE – 384
INCHCAPE II, KHORFAKKAN, UAE

IYAD SULEYMAN | DSLR/MILC BEST OF THE UAE – 398
DIBBA ROCK, UAE

SIMONE CAPRODOSSI | DSLR/MILC BEST OF THE UAE – 402
MUSANDAM



AAMER ALHAMMADI | DSLR/MILC BEST OF THE UAE – 367
INCHCAPE II, KHORFAKKAN, UAE

RYLAN LEE | DSLR/MILC BEST OF THE UAE – 355
KHASAB, MUSANDAM

KERVIN PAMINTUAN | DSLR/MILC BEST OF THE UAE – 347
MARTINI ROCK, FUJAIRAH, UAE

NOURA ALFARDAN | DSLR/MILC BEST OF THE UAE – 332
FUJAIRAH, UAE

CHRIS COMBES | DSLR/MILC BEST OF THE UAE – 329
LIMA ROCK, MUSANDAM

LEVENTE ROZSAHEGYI | DSLR/MILC BEST OF THE UAE – 315
OCTOPUS ROCK, MUSANDAM

PETER MAINKA | DSLR/MILC BEST OF THE UAE – 300
MUSANDAM

PHILIPPE LECOMTE | DSLR/MILC BEST OF THE UAE – 287
KHORFAKKAN, UAE

AHMED ALNAQBI | DSLR/MILC BEST OF THE UAE – 264
INCHCAPE 10, FUJAIRAH, UAE

SALEH AL MANSOORI | DSLR/MILC BEST OF THE UAE – 264
AL AQAH, FUJAIRAH, UAE

YOUSEF ALSHEKAILI | DSLR/MILC BEST OF THE UAE – 257
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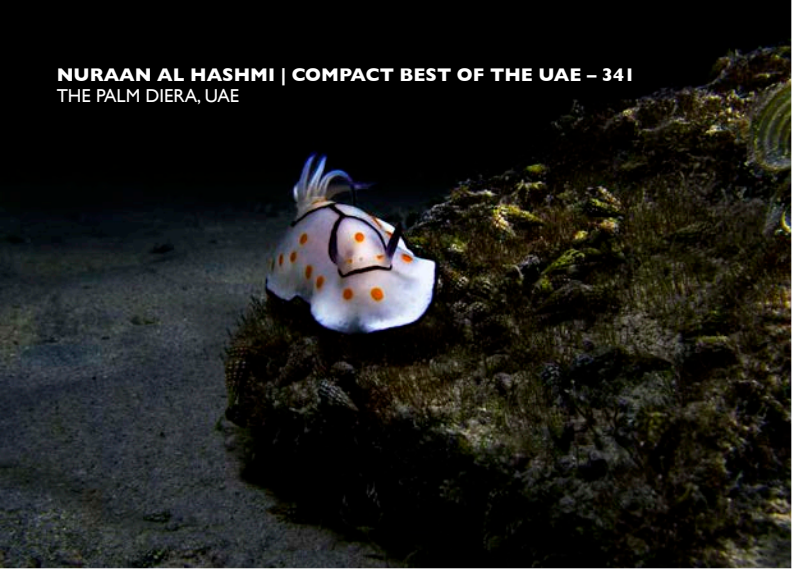
IMADEDDIN ALAEDDIN | DSLR/MILC BEST OF THE UAE – 227
FUJAIRAH, UAE

JOHN HAGER | COMPACT BEST OF THE UAE – 392
MUSANDAM

RIMA JABADO | COMPACT BEST OF THE UAE – 382
ABU DHABI, UAE



NURAAN AL HASHMI | COMPACT BEST OF THE UAE – 341
THE PALM DIERA, UAE

YANNI SMITH | COMPACT BEST OF THE UAE – 336
MUSANDAM

MIKE THIRLWALL | COMPACT BEST OF THE UAE – 331
OCTOPUS ROCK, MUSANDAM

HUSSEIN FARHAT | COMPACT BEST OF THE UAE – 331
OCTOPUS ROCK, MUSANDAM

KELLY TYMBURSKI | COMPACT BEST OF THE UAE – 321
OCTOPUS ROCK, MUSANDAM

CLAIRE BARKER | COMPACT BEST OF THE UAE – 318
MUSANDAM

MAITHa AL QADER | COMPACT BEST OF THE UAE – 301
INCHCAPE 1, FUJAIRAH, UAE

AHMED RAMADAN | COMPACT BEST OF THE UAE – 295
FUJAIRAH, UAE

MOHAMMAD GHARAIBEH | COMPACT BEST OF THE UAE – 290
CAR CEMETERY, FUJAIRAH, UAE

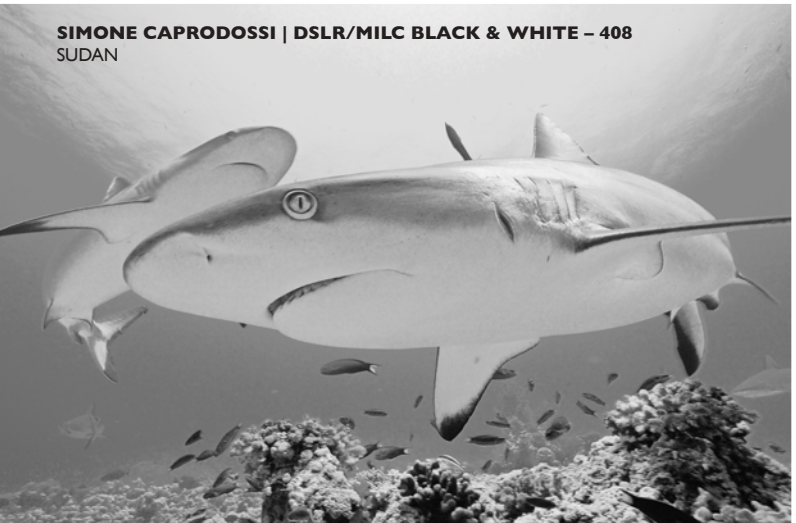
LYNETTE FERREIRA | COMPACT BEST OF THE UAE – 243
UAE

JAYME RUSH | COMPACT BEST OF THE UAE – 224
MUSANDAM

KHOLOUSI KHAYAL | COMPACT BEST OF THE UAE – 217
INCHCAPE I, DIBBA, UAE

HASSAN KHAYAL | COMPACT BEST OF THE UAE – 175
DIBBA, UAE

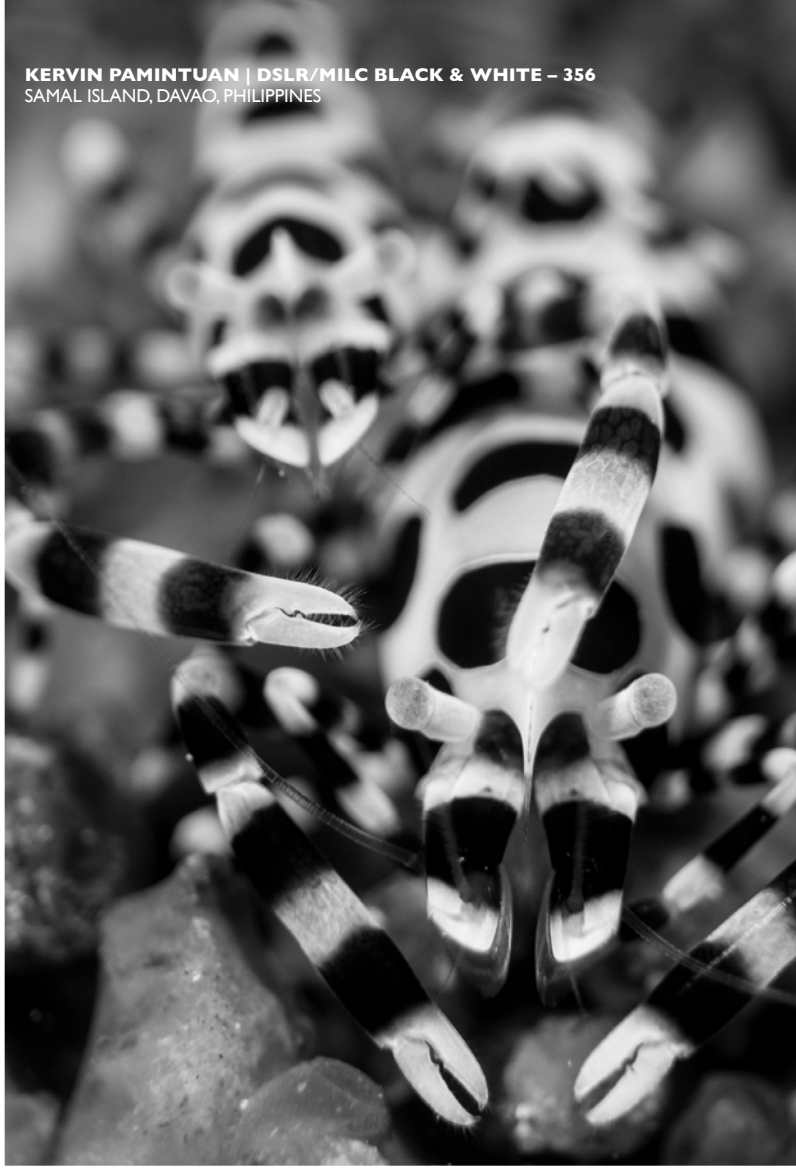
LEVENTE ROZSAHEGYI | DSLR/MILC BLACK & WHITE – 435
PACIFIC OCEAN HA'APAI, TONGA



SIMONE CAPRODOSSI | DSLR/MILC BLACK & WHITE – 408
SUDAN

SALEH AL MANSOORI | DSLR/MILC BLACK & WHITE – 376
DAUIN, PHILIPPINES

DAVID ROBINSON | DSLR/MILC BLACK & WHITE – 394
DJIBOUTI



KERVIN PAMINTUAN | DSLR/MILC BLACK & WHITE – 356
SAMAL ISLAND, DAVAO, PHILIPPINES

ERWIN LOTA | DSLR/MILC BLACK & WHITE – 358
LEMBEH, NORTH SULAWESI, INDONESIA

PHILIPPE LECOMTE | DSLR/MILC BLACK & WHITE – 352
AZORES

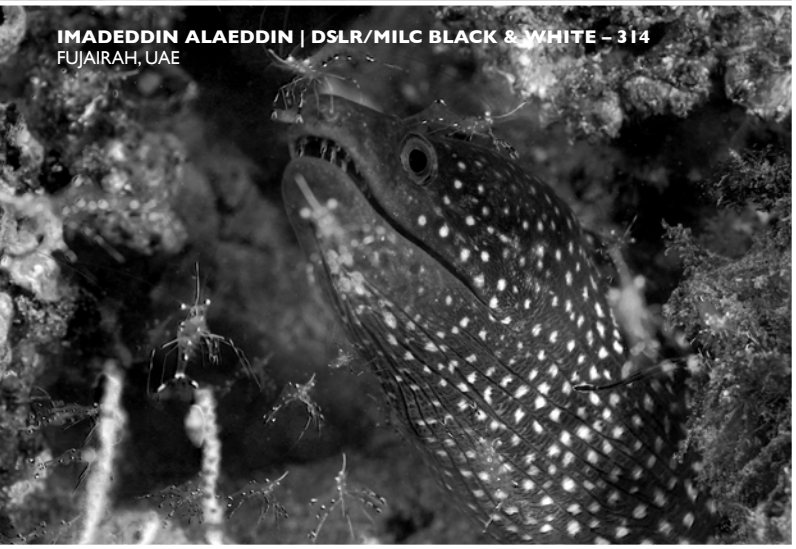
IYAD SULEYMAN | DSLR/MILC BLACK & WHITE – 349
SIPADAN MALAYSIA

STEWART CLARKE | DSLR/MILC BLACK & WHITE – 347
ANILAO, PHILIPPINES

KAREN CROSHAW | DSLR/MILC BLACK & WHITE – 350
SOUTHERN RED SEA

AHMED ALNAQBI | DSLR/MILC BLACK & WHITE – 337
PUERTO GALERA, PHILIPPINES

PETER MAINKA | DSLR/MILC BLACK & WHITE – 331
SIPADAN, MALAYSIA



IMADEDDIN ALAEDDIN | DSLR/MILC BLACK & WHITE – 314
FUJAIRAH, UAE

CHRIS COMBES | DSLR/MILC BLACK & WHITE – 301
AQUARIUM, DAYMANIYAT ISLANDS, OMAN

YOUSEF ALSHEKAILI | DSLR/MILC BLACK & WHITE – 292
BALI, INDONESIA

RYLAN LEE | DSLR/MILC BLACK & WHITE – 255
TUBBATAHA, PHILIPPINES

JOHN HAGER | COMPACT BLACK & WHITE – 407
RAPID BAY JETTY, ADELAIDE, AUSTRALIA

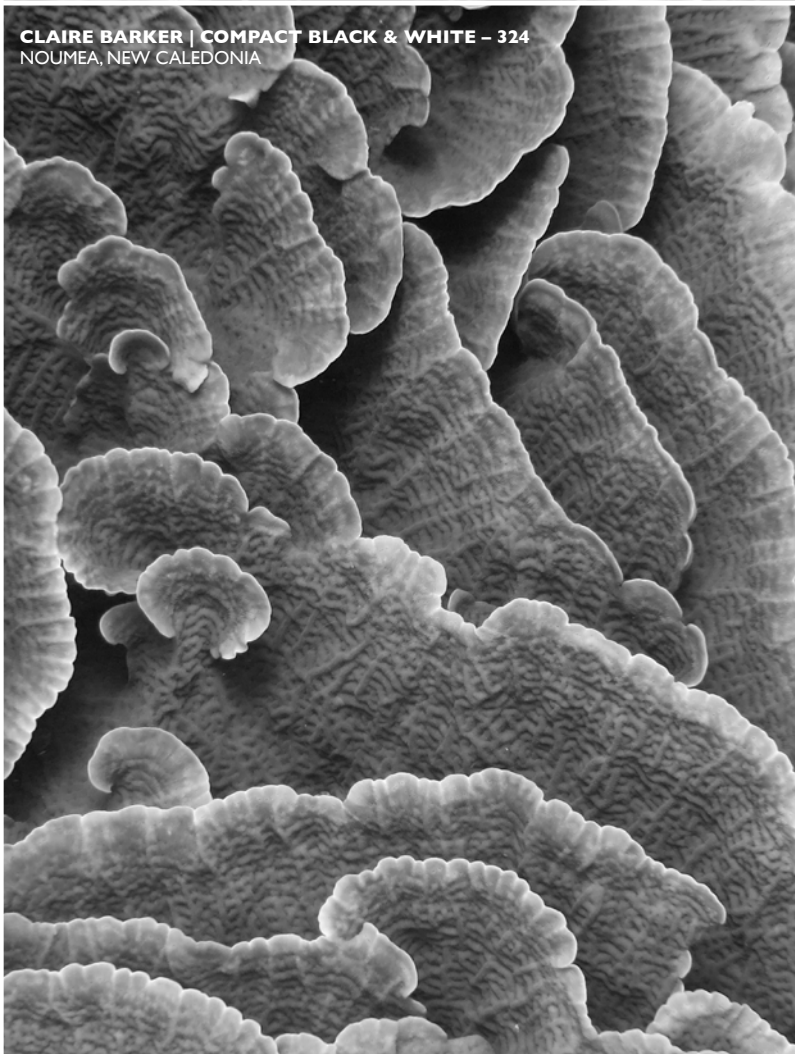
PABLO NOVOA | COMPACT BLACK & WHITE – 355
AQABAH, JORDAN

RIMA JABADO | COMPACT BLACK & WHITE – 343
DARWIN, GALAPAGOS, EQUADOR

KATHLEEN EBUEN | COMPACT BLACK & WHITE – 339
FUJAIRAH, UAE

LYNETTE FERREIRA | COMPACT BLACK & WHITE – 334
SOUTH AFRICA

YANNI SMITH | COMPACT BLACK & WHITE – 317
MUSANDAM, OMAN



CLAIRE BARKER | COMPACT BLACK & WHITE – 324
NOUMEA, NEW CALEDONIA

ANDY JONES | COMPACT BLACK & WHITE – 316
RAS MAROVI, MUSANDAM

HUSSEIN FARHAT | COMPACT BLACK & WHITE – 306
CAR CEMETERY, FUJAIRAH, UAE

JURGENS SWARTS | COMPACT BLACK & WHITE – 304
RAS MAROVI, MUSANDAM

MIKE THIRLWALL | COMPACT BLACK & WHITE – 303
INGLIS REEF, KIMBE, NEW BRITAIN, PAPUA NEW GUINEA

KHOLOUSI KHAYAL | COMPACT BLACK & WHITE – 287
LIMA ROCK, MUSANDAM

MOHAMMAD GHARAIBEH | COMPACT BLACK & WHITE – 264
CAR CEMETERY, FUJAIRAH, UAE

HASSAN KHAYAL | COMPACT BLACK & WHITE – 159
MUSANDAM

JUSTIN REDETZKE | COMPACT BLACK & WHITE – 145
MALDIVES

KELLY TYMBURSKI | COMPACT – 405
SIPADAN, MALAYSIA

ANDY JONES | COMPACT – 369
LEMBEH STRAIT, INDONESIA

MOHAMMAD GHARAIBEH | COMPACT – 357
MAGIC REEF, NUNGWI, ZANZIBAR

CLAIRE BARKER | COMPACT – 354
MATAURI BAY, NEW ZEALAND

KATHLEEN EBUEN | COMPACT – 350
TULAMBEN, INDONESIA

YANNI SMITH | COMPACT – 350
BUNAKEN, INDONESIA

PABLO NOVOA | COMPACT – 348
PUERTO GALERA, PHILIPPINES

JURGENS SWARTS | COMPACT – 330
MOROVI ISLAND, MUSANDAM

JUSTIN REDETZKE | COMPACT – 330
MALDIVES

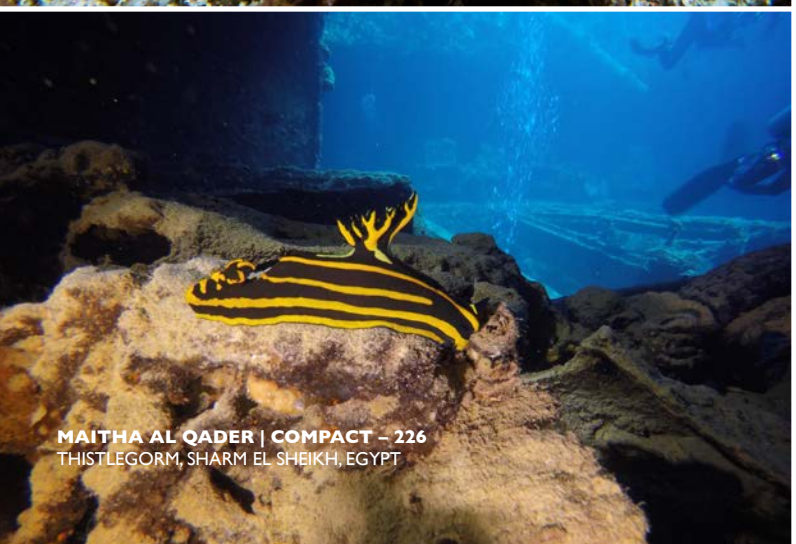
JO MARIE VALENCIA-COX | COMPACT – 325
PUERTO GALERA, PHILIPPINES

SIMON CROSHAW | COMPACT – 323
SOUTHERN RED SEA

MIKE THIRLWALL | COMPACT – 307
CRYSTAL RIVER, FLORIDA

HUSSEIN FARHAT | COMPACT – 301
LIMA ROCK, MUSANDAM

ANTHONY COX | COMPACT – 293
PUERTO GALERA, PHILIPPINES



MAITHA AL QADER | COMPACT – 226
THISTLEGORM, SHARM EL SHEIKH, EGYPT

AHMED RAMADAN | COMPACT – 279
FUJAIRAH, UAE

LYNETTE FERREIRA | COMPACT – 289
UAE

KHOLOUSI KHAYAL | COMPACT – 268
INCHCAPE 1, DIBBA, UAE

JAYME RUSH | COMPACT – 265
NORTH SULAWESI, INDONESIA

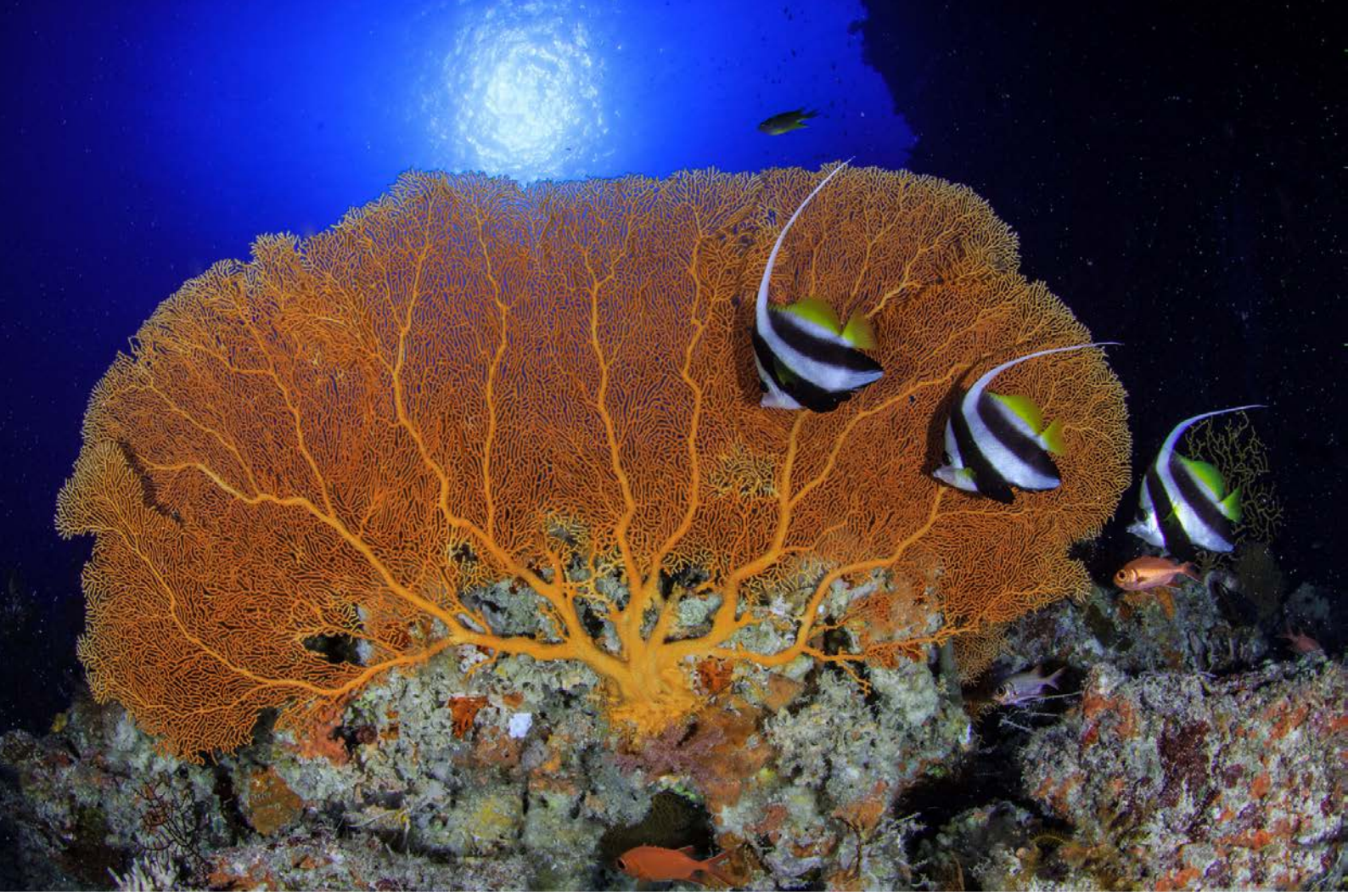
HASSAN KHAYAL | COMPACT – 219
MUSANDAM

PART ONE

WIDE ANGLE UNDERWATER PHOTOGRAPHY

FEATURE AND PHOTOGRAPHY **LEVENTE ROZSAHEGYI**

The series of articles to follow in the next few issues, are meant to just "touch the surface" of wide-angle photography.



Underwater photography can be an overwhelming and endless topic. Many great authors have written books on the topic and have broken it down through the various disciplines. Two of the most important topics are macro and wide-angle photography. When taking close up photos of small shrimps or nudibranches, the term macro is used. Macro is usually a very slow motioned activity and requires a lot of attention to detail. Wide-angle photography on the other hand, requires different equipment, a different environment and a focus on larger subjects.

The series of articles to follow in the next few issues, are meant to just "touch the surface" of wide-angle photography.

THE RIG

First off, let's talk about equipment. A semi professional underwater photography setup contains the following major components: a DSLR body, a wide-angle lens, an underwater housing, a dome port, arms and strobes.

Why is it called wide-angle? Well, simply because the lens used to take the photos are wide. Lenses can range from 8mm to 24mm. It is rare to find compact cameras with such a small lens, however there are sometimes a "wet lens" option for these cameras for wide angle, almost covering a 180 degree view. The smaller compact or semi compact cameras have the lens permanently attached to the camera, however the DSLRs (Digital Single Lens Reflects) have replaceable lenses. These days, DLSRs are quite good even in the lower-mid range, however there are conditions where you need more sensitive CCD lenses (this little piece of technology captures the image) to be able to take a decent shot, but we will talk about that later.

The most commonly used underwater lens is the Tokina 10-17mm lens due to its great coverage and for being in a reasonably lower price range. This lens is called a fish-eye lens due to the torsion to the image as if it were viewed from a fish's eye. I personally love this lens, it provides a very interesting perspective and unusual point of view.

POINT AND SHOOT WITH A DSLR? NOT QUITE…

Once your camera system is setup in the housing, you cannot change lenses again once underwater. There are a bunch of "O" rings that need to be taken care of; it normally takes up to an hour to set the rig up properly. If you don't do it properly, you risk flooding your camera and talking from experience, (every decent underwater photographer has done it at least once) it's not the best situation to be in, especially not when on a week's liveaboard trip. Not to mention the cost involved if you don't have insurance.

WITH OR WITHOUT "FLASH"

An underwater flash is called a strobe, with quite a few variations. If you are an advanced diver, you should have learnt from your instructor that the density of water absorbs color at depth.

Colors begin to disappear from these depths:
Red: 5m
Orange: 8m
Yellow: 12-15m
Green: 23-25m
Then it becomes blue. Very, very blue!

So how is it possible that some underwater photographs are still full of color? Imagine you are in a dark room and you can't see anything, until you switch a flashlight on. All of a sudden colors come up and objects become clear. The same thing happens underwater.

Not ready to make the investment in strobes? Do not despair – when not using strobes, you can do a lot with ambient light, and that's a science on its own. There are scenarios when ambient light is just perfect in the situation, such as when coming out of a cave. You may not need more light as the sun may be enough to light the background and give you a beautiful silhouette effect. Also, you don't need to use strobes when taking photos of Humpback or Sperm whales at the surface as you aren't at a depth where significant light is absorbed.

DEPTH OF FIELD

One very important concept in wide-angle compared to macro, is the depth of field. When using macro, the depth of field can create a great effect when the front part of your subject is sharp, and the background is blurry, thereby putting the focus of the shot on

the front end of your subject. Using depth of field incorrectly with wide-angle however, can create a confusing image due to incomplete focus or the image appears abstract. Depth of field is managed by setting up the "F-stop" accordingly. The F-stop refers to the size of the aperture window. The larger the number, the smaller the aperture opening becomes to let light through and vice versa. When the F-stop is small, the larger the aperture opening.

Why is this important in photography? When the F-stop is small and the aperture is large, more light can come through in a shorter period of time, hence we use faster exposure speeds to achieve similar results. When the F-stop is high, we need to allow more time for the light to come through, therefore more elements of the subject will be captured in the background and we will lose the depth of field, but this actually looks great underwater.

There are however, some scenarios when it makes sense to use more depth of field for a more artistic feel.

STROBE BASICS

Strobes are triggered by the camera itself via two options:

1. Fiber cable, using the built in flash of the camera.
2. Sync cable.

Both of these options have pros and cons. Fiber cables are small, light, easy to carry around and easy to setup. There are no issues when they get wet, however you do need to be careful not to break them.

Sync cables have additional parts to use with the housing such as the hot shoe, and a number of additional "O" rings.

Why would I choose one over the other? Imagine taking a photo with your compact camera at a wedding with the use of flash. You have to wait a few seconds for the camera to recharge the flash in order to be able to take another shot. This is similar to using a fiber cable. The camera itself may be designed to be capable of multiple rapid shots, however the strobe may not be able to react so quickly.

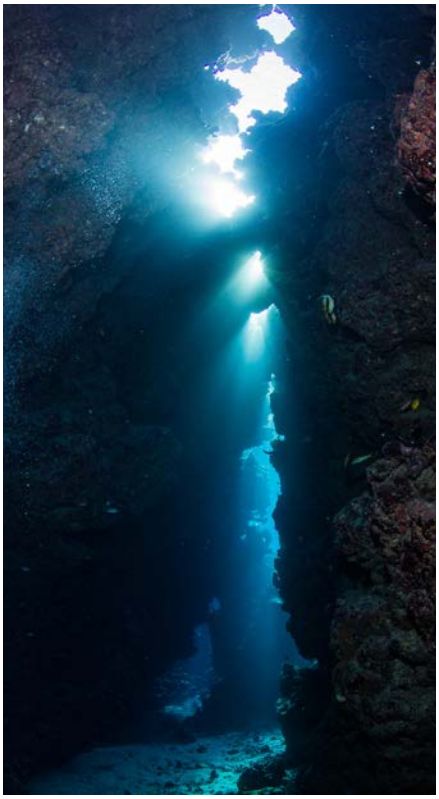
This is the big advantage of a sync cable. The flash has multiple releases without needing to recharge. I remember the look on our captain, Michael's face, when I came up from a dive. He looked at me and asked, "What was that lightning underwater?" I smiled as using the sync cable, I took about 11 continuous shots of a Hammerhead shark swimming by.

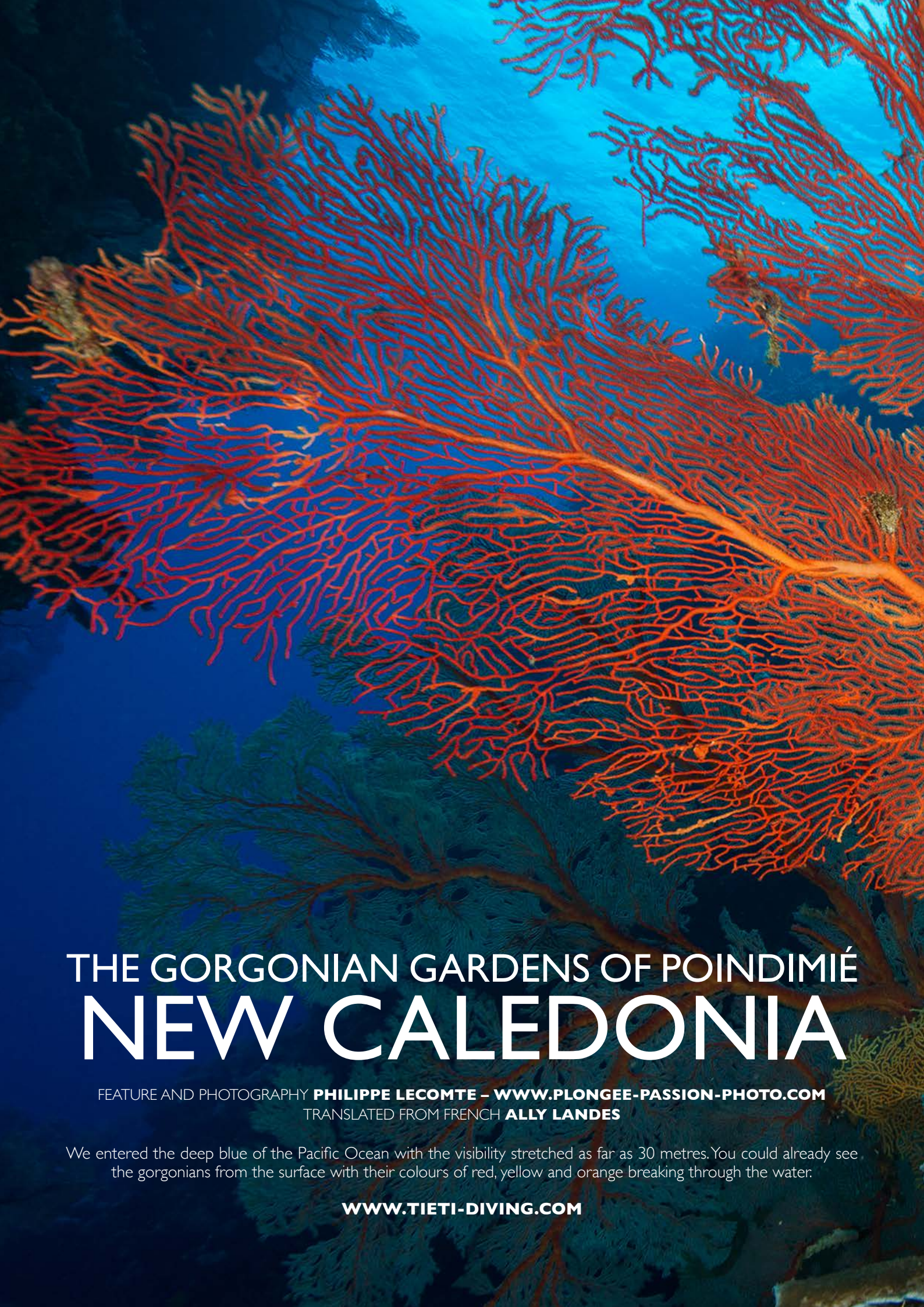
THE HOUSING

Housings are a critical part of this game; you have to get yourself familiar with the housing as the buttons are usually situated in different places compared to the body. Playing as much as possible with the settings and buttons at the surface to begin with, gives you more confidence once underwater and prevents frustration and wasted bottom time.

THE DOME PORT

Dome ports are the part of the setup that makes the rig look like a submarine, and where the image is captured from. There are different sized dome ports available, so you need to make sure the dome port you have selected fits your lens of choice.





THE GORGONIAN GARDENS OF POINDIMIÉ
NEW CALEDONIA

FEATURE AND PHOTOGRAPHY **PHILIPPE LECOMTE – WWW.PLONGEE-PASSION-PHOTO.COM**
TRANSLATED FROM FRENCH **ALLY LANDES**

We entered the deep blue of the Pacific Ocean with the visibility stretched as far as 30 metres. You could already see the gorgonians from the surface with their colours of red, yellow and orange breaking through the water.

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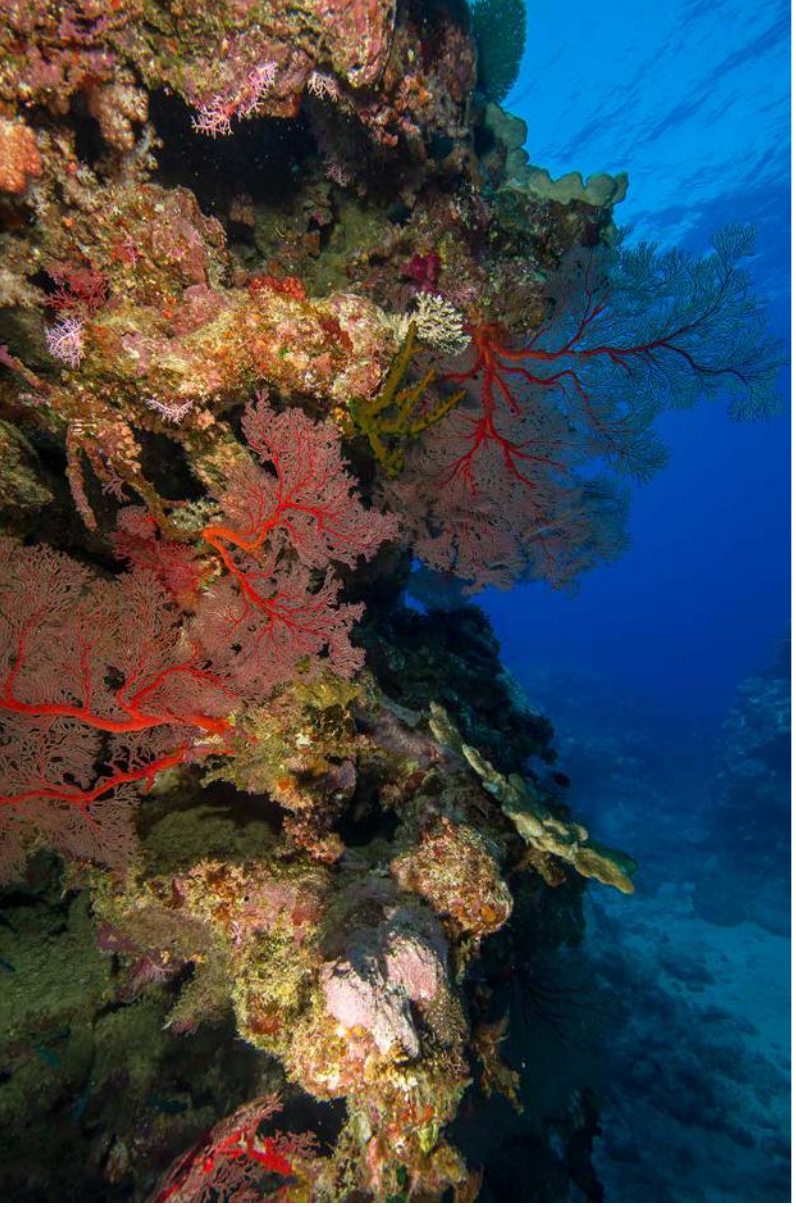


Who has not yet seen red gorgonian sea fans showcased on steep wall dives? Gorgonians are in fact an animal with a very slow growth rate, and they become more majestic as they age. Through my travels to the different seas and oceans of the Red Sea, Bali, France, Borneo and Sulawesi, I have often come across beautiful and large gorgonians. I have a great admiration for these complex structures as they gently oscillate in the currants. While clinging to the vertical walls of rock from a single stem, they have seen many a fish and diver pass them by. What if you were faced with a gorgonian garden of different colours? Could a place such as this, really exist?

I found myself back on the island of New Caledonia. The name of Poindimié is embedded on a stone at the entrance of this small village found after a 4 hour drive from the capital of Noumea, and faces head on to the Pacific Ocean. It is a small town in the northern province with a population of 4,800 inhabitants. The city stretches along the coastline with very few residents inland as the terrain is steep. With 2 high schools, a college, stadiums and various supermarkets, Poindimié at first seems isolated, but the locals welcome you with their big smiles and open kindness. Just across from the city, 20 minutes by boat, lies the coral reef. On this particular trip I chose to stay at the Tieti Hotel in the centre of town. This quiet and well-kept hotel has the choice of bungalows or individual rooms. You can relax and enjoy either the beach or pool after and between dives with Tieti Diving which is located just behind the hotel.

With the Picasso clownfish as their emblem, the dive centre is run by Laurent Cagnard. Laurent is a professional caving speciality and rebreather instructor. He has been responsible for the centre for 3 years. With 2 dives per day, he has accumulated himself more than 2,000 dives on the local dive sites. Guaranteed, Laurent will show you the best of these 50 sites, all accessible within 20-30 minutes by boat. The dive centre has two 6m semi-rigid inflatable boats equipped to host 6-8 divers.

New Caledonia has the largest lagoon in the world. Very few have explored it, let alone dived it due to its sheer size. The lagoon still has wonders yet to be discovered. This island is said to possess the largest endemic populations in the world, both on land and below the surface.

The lagoon of New Caledonia is known for its variety of fish and has one of the richest populations of reef fish. Of the 3,000 known species in the tropical Pacific Ocean, it houses about 1,200 of them.

To give a few examples, the pelagic marine mollusc of the cephalopod family Nautilidae, the nautilus is found here, as is the Caledonian mitten lobster (*Parribacus caledonicus*) and the pascalus anthias (*Pseudanthias pascalus*).

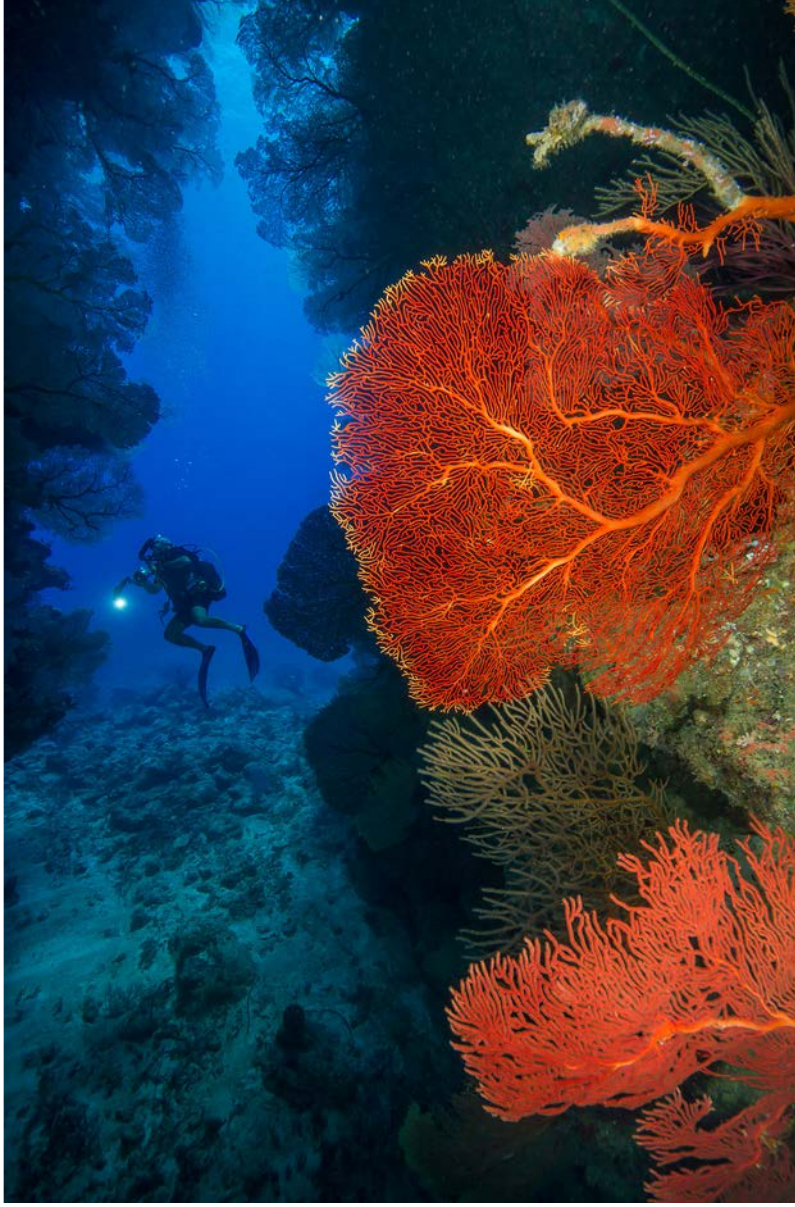
Many people think that gorgonians are a type of plant. They are quite another thing! The gorgonian is actually an animal: a polyp. Made up of thousands of them, they form a colony. The count has rounded them up to about 1,200 species. These polyps, with their 8 legs of various shapes, animate the water in their hunt to catch plankton. These animals do not need sunlight to grow. This is why you will see them at the entrance of vaults at great depths, in caves or other locations where the sun's rays cannot reach thus far.

Gorgonians need a daily water movement loaded with rich nutrients as part of their perfect living conditions for their growth. This makes Poindimié the unspoilt and unique place to swim amongst a maze of healthy sea fans.

There are 2 passes at this coral reef, one of 4km wide and the other, 7km. The bottom of these passes does not exceed 30 metres.







Amidst the passes, you will find multiple coral heads scratching at the surface. You will find an extensive settlement of gorgonians of all colours and at different depths. Due to the daily tides, they can feed in abundance.

These can be tough dives as there can quite often be very strong currents. You must take care not to touch the walls and other corals and sea fans, as they are very fragile and their growth, very slow.

Make sure to keep a look out into the blue and towards the bottom. You will probably see gray sharks, silvertip sharks and king mackerels. Laurent is onsite almost every day and will tell you about the different species that can be seen. He has seen thresher sharks, great hammerheads, mantas, whale sharks, dolphins and humpback whales, to name a few.

On arriving at the hotel from Noumea, with my buddy Xavier, we made our way directly to the dive centre to meet Laurent to discuss our dive schedule for our 4 days to follow. Having concluded my purpose to visit Poindimié, I decided to do 2 days of diving with my wide angle and the next 2 with my macro lens.

After a good nights rest, we made our way back to the dive centre for our 7am start with all our equipment. Laurent welcomes us into his 4X4 with the semi-rigid in tow on a 10 minute drive towards the jetty. The small marina is directly in front of a small island called Ilot Tibarama. Scientists have counted approximately 80% of plant species on the mainland of this unique island, hence why it was named the most beautiful island of New Caledonia.

We helped Laurent launch the boat to water, and then climbed aboard for our first trip out, headed to Pascaline. The wind blew from the southeast, but was predicted to remain stable throughout the day.

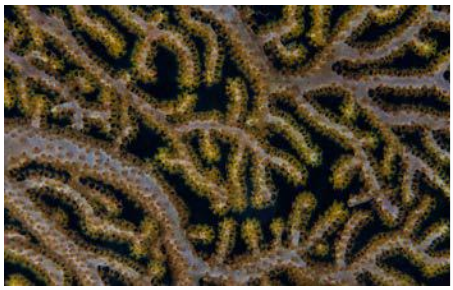
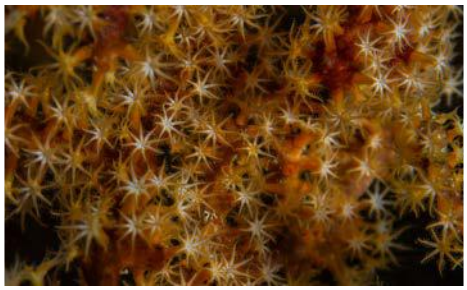
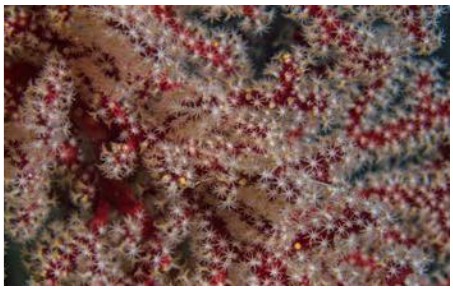
After a short briefing about the site and the direction in which to take, the 3 of us entered the deep blue of the Pacific Ocean with the visibility stretched as far as 30 metres. You could already see the gorgonians from the surface with their colours of red, yellow and orange breaking through the water.

Laurent took us straight down to 20 metres near a gorgonian wall. There, barely visible, was the entrance to a small tunnel that only regulars know about. We had to enter it gently as to not stir the sand in fear of disturbing the visibility. The area is covered in gorgonians making it very difficult to pick a photographic angle. At times, my 10mm fisheyes lens was too small to reproduce the colourful atmosphere that the corals' fans made you see and feel!

We headed towards the right, to a small canyon formed by two large coral heads, also covered with gorgonians. Laurent knew I was there on a photography mission, and with this respect, we moved slowly through the colourful maze. Within the architecture of all shapes, a pufferfish quietly slipped between the branches. Up ahead, a bright yellow fish posed in front of another bouquet of red gorgonians. After a twenty minute dive between diverse coral heads, Laurent led us directly to another tunnel.

It really does take the eye and experience of local divers to not get lost in this underwater realm. Having reached 40 minutes into the dive, Laurent waved us up to 10 metres to finish our first dive while revolving around the large coral where the boat was tied. It is during these special moments, you realize the beauty of these places are preserved due to the lack of human presence. The corals are intact and inhabited by the masses of multicoloured fish which make you turn your head in every direction. Once back on the boat, we could feel the need to go back in and do it all over again.

During the surface interval, we moved on to the next buoy only a few hundred metres

further south. The Ark, our next next dive site, clearly reveals the clear turquoise water of the passage below from the surface. Laurent explained how the dive would unfold. With a synchronized backward roll, we returned to the world of silence. With only a few hundred metres apart from the last site, the shapes and coral structures were completely different. Laurent's experience greatly facilitates these dives who without, we would not have seen the wonders of these caves and tunnels hidden at each corner.

As Xavier and I slowly followed our guide's lead, marveling at the beauty surrounding us, my buddy signaled to me. In the blue, just behind us, 3 kingfish just a few metres away from us were hunting. The dive time past so fast and in these sublime places, we tend to forget about everything except for what is directly before us. Laurent offered us the option to do a night dive around the island of Tibarama. He explained that Ausi, further south, had even more gorgonians to see than the previous two sites we had just seen. With weather permitting, the following day's destination was decided.

Unfortunately, as it so happens sometimes, things did not go to plan due to strong winds and we headed in the same direction as the previous day, to the dive sites of Phuket and Tub's and Co.

Once again, the gorgonians of Poindimié did not disappoint. We met with a Napoleon, a gray in the blue and other delights in crossing. These two days were devoted to intense wide angle photography and had been full of surprises. We visited 4 charming sites, making it a top destination to recommend without hesitation.

With the night dive still on the agenda, I set my camera up for macro shots. Laurent had simplified things by leaving the boat in the small marina as there was a proximity of only 2 minutes to get to the chosen dive site on Tibarama Island. After having double checked our equipment and lights, we hit the water. This particular site did not have as much colour, but life exploded from all angles. The clownfish were fast asleep tucked away in their anemones. Shrimps of all forms emerged from their crevices in search of their evening meals. A porcelain lobster walked along the white sandy bottom, making him impossible to miss, while nudibranchs slivered their way over the corals. While quietly submerged at 6-7 metres, Laurent led us to a small opening near the small lagoon. Here, other species of sea fans were clung to the wall, which rises to 12 metres. In the fault, electric file clams seemed to play with electricity from their lips. Time had yet again past far too quickly within the magical sights and it was time to head back up to the boat.

After a good night's sleep, I decided to devote myself to macro photography for the rest of the trip as I thought the opportunities were going to be endless with the proof from that wonderful start.

Aboard the boat, another diver joined our team. Laurent brought us to the site best known as, Bargibanti. At first glance, it looked just as nice as the ones before, but proved to be much more. Once in the water, Laurent asked us to follow him to a small rock at 18 metres where some red gorgonians flourished. Laurent approached one of them and began to carefully look amongst its branches to point to something. We had come to seek the beautiful and very small pygmy seahorse (*Hippocampus bargibanti*) which lives on only one particular species of gorgonian known as, Muricella.

On this single gorgonian, Laurent found 6 more seahorses. By local knowledge, Laurent knows several other spots where this unique species is found. After 15 minutes were spent around these fans, we slowly moved towards the larger coral heads where Laurent rested. Along the way, we disturbed a white tip reef shark that had been quietly laying on the white sandy bottom. Suddenly, my eye had been drawn to a quick and vivid moving colour belonging to a ribbon eel flowing in rhythmic motion, with her mouth wide open.

The rest of the dive constituted of circling the area filled with more gorgonians, anemones and other soft and hard corals. Among the multiple shelters, long-nose hawkfish, filefish, coral gobies, yellow and white nudibranchs and different species of blennies modeled for their close-ups. A dancing aeolid nudibranch balanced on a small sponge. A trumpetfish snuck up on its prey, hiding behind another gorgonian. While trying to photograph a coral ghost goby on red coral, Laurent pointed out that the goby's resting place was actually the rare coral, *Solenocaulon akalyx*. It is a coral of deep red with speckled branches of white. Along the way, hidden in a bubble-tip anemone, an almost transparent bubble coral shrimp looked up. At first, only its antennas were visible. On the whip coral, a pair of Zanzibar whip coral shrimp moved around in order to hide from my camera. A clownfish family made their way without hesitation among the poisonous tentacles of their anemone firmly clung to the rock. Half hidden on the edge of the anemone, I caught a porcelain crab filtering the water to recover microscopic larvae. With so many diverse creatures as equally interesting and unusual from one to the next, I gained a new collection of about 250 photos per day.

With only four days, divided in two between macro and wide angle lenses, it was not enough to cover all that the reef had to offer. This was perhaps one of the most beautiful places I had visited to date. To understand the magic, you would have to experience it for yourselves. Laurent and his team would be delighted to show you the beauty of the multiple sites found far from the maddening crowds so often faced everywhere else.

It was with much regret that Xavier and I had to leave Poindimié. Its simplicity, its beauty and tranquility were so relaxing and incredibly memorable. Another visit will be made at some point to instill more surprises which the ocean and its marine life entrusts in us.





DAYMANIYAT ISLAND TRIPPING

FEATURE AND LAND PHOTOGRAPHY **ALLY LANDES**
UNDERWATER PHOTOGRAPHY **SIMONE CAPRODOSSI**

There are 9 islands in the archipelago of the Daymaniyat Islands Marine Nature Reserve which is a UNESCO protected marine park. They are renowned in the region for their unique ecosystem, migratory birds and nesting turtles.

We're really very lucky to have the Daymaniyat Islands situated so close to the UAE. It's easy enough to make the most of a getaway weekend in Oman. The convenience of getting yourself over to the Millennium Resort Mussanah and dive these underwater island wonders with the Oman Sail's dive centre is second to none.

On this particular trip, we were joined by 7 of our scientist buddies, Dr David Robinson from Sharkwatch Arabia and the Dubai Turtle Rehabilitation Project, Dr David Rowat and his wife Glynis from the Marine Conservation Society Seychelles, Dr Simon Pierce and Dr Chris Rohner from the Marine Megafauna Foundation, Clare Prebble – Ph.D. Student with Marine Megafauna Foundation and Professor Jennifer Schmidt from the University of Chicago – Global Whale Shark Genetics Database who had all come on a stopover to Dubai from Doha, Qatar where they had presented their research at the 4th International Whale Shark Conference (IWSC) that had happened from the 16-18 May.

We had heard about recent whale shark (*Rhincodon typus*) sightings at the Daymaniyat islands and arranged to make a trip with the team through SEAOMAN from Oman Sail. We split ourselves – 9 divers – between the 2 4WDs and filled the remaining spaces with all our diving equipment and camera gear, and set out on the 4 hour road trip across the border (not forgetting to take the new road that detours around Hatta, but comes back) in the hope to dive with, and photograph some whale sharks with a bit of luck. The Millennium Resort Mussanah booked us all in to their hotel apartments that are conveniently located just above the dive centre with a view overlooking the marina. The nice thing about the apartments is that they are equipped with kitchenettes, so you are able to cater yourself if you so wish to stay in the comforts of your room during your stay.

THE DAYMANIYAT ISLANDS

There are 9 islands in the archipelago of the Daymaniyat Islands Marine Nature Reserve which is a UNESCO protected marine park. They are renowned in the region for their unique ecosystem, migratory birds and nesting turtles. Whale sharks, leopard sharks, large honeycomb moray eels and rays are often spotted and it's just a matter of being in the right place at the right time!

SEAOMAN DIVE CENTRE BY OMAN SAIL

The dive centre offers Nitrox so if you are certified to use it, it is advised to book your tanks in advance as it makes a world of difference if you have to drive back to Dubai, especially if you are the designated driver.

The dive boat leaves at 0800 daily and is back around 1600 after two dives. It takes 1 hour to get to the closest dive site, Sira, and 1.5 hours to get to Aquarium, the furthest one away. The dive boat is perfectly adapted to store all your equipment, it's spacious and comfortable. There is a smaller upper level with an elevated view which is a nice touch if there are many people aboard which means you can spread out.

As you are going to be out most of the day, you will want to think about having some lunch organised to take with you or it will end up being a very long day since last eating something at breakfast. That is, if you are a person able to eat first thing in the morning. The dive centre organises plenty of drinking water onboard, and they alternate with tea, coffee and biscuits one day and a selection of fruits another.

The hotel can arrange lunch boxes at AED85 each that consist of a bottle of water, a sandwich (vegeterian option available), some fruits, a small salad and a selection of pastries. You end up being the envy of other divers aboard if they haven't arranged food for themselves. The only thing you have to remember, is to go to the reception in the main hotel to pick your lunch boxes up, or you will delay the boat departure as we had done the first day. It won't make you popular.

THE DIVE SITES

1. AQUARIUM

11:09 | 23.3m | 26°C

★★★★

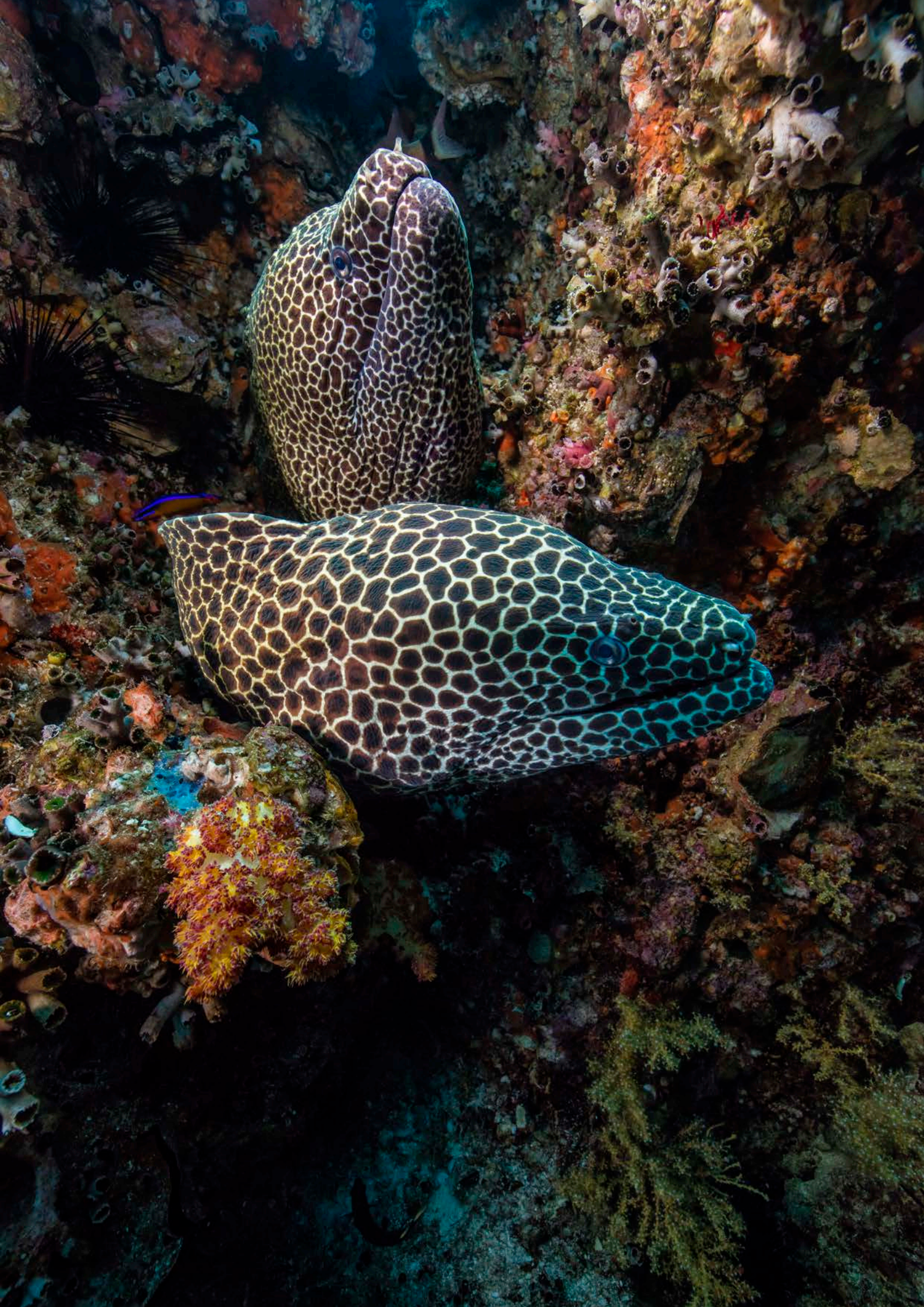
Our first day out and the visibility was fantastic! Clear views up to 30m.

We saw 3 hawksbill turtles (*Eretmochelys imbricata*) on this first dive and Simone always manages to get a few star poses from a few of them on our trips! A few minutes later, a couple of large honeycomb moray eels (*Gymnothorax favagineus*) peering out of a nook, entwined in conversation, gave us an approving right of passage. A school of ring-tailed cardinalfish (*Ostorhinchus aureus*) made for some fantastic shots too.

Towards the end of the dive, some curious batfish came over to hang around and get their photos taken in the awesome viz. It was a nice introductory dive to the trip.

Aquarium is the top rated dive site of the Daymaniyats and rightly so, however on this particular day, there weren't as many things to see as there have been when I'd dived it in the past. Everything you normally see here appears to be dosed on steroids. If you get to plan the trip as a long extended weekend and get an extra day in to dive Aquarium more than once, you will defintely see more of this dive site's magic.

No whale shark sitings yet, but word from one of the other dive boats was that two had been spotted earlier. The day before we arrived, six had been spotted, so here we were hoping!



2. SIRA

13:13 | 16.3m | 27°C

★ ★ ★ ★ ★

An epic start to this dive. It's the cuttlefish mating season and we dropped down on a whole load of them. There is nothing cooler than a cuttlefish, and if anyone says any differently, they haven't spent time hanging around these alien looking creatures and seen the functions of their vessel shaped bodies up close and personal. It's a good job there were lots of them around, as no one had to fight over photographing a subject. I may have got a little too close filming my pair and got the wrath of ink projected at me in the rude intrusion of the female's egg laying. It had not been my intention to disturb her in her labour and she had made it perfectly clear that I had.

There seemed to be a lot of scorpionfish on this particular dive, or I had just been made more aware of them when one very attractively camouflaged speciman, cushioned on the polyps of a soft coral, was situated just below me while filming yet another cuttlefish. Scorpionfish are not always the most interesting of fish to photograph, especially when they're bland in colour and look no different from their

backdrop resting place, but Simone managed to get a good shot of this one against the contrast of its throne. I then inevitably began to spot them throughout the rest of the dive, making sure not to place any of my body parts on one while filming in distraction.

Still no whale sharks, but, this was – in the end – the favourite dive of the trip.

3. DOC'S WALL

9:42 | 14.9m | 27°C

★ ★ ★

Visibilitly on the second day was not as great as the first day, but we were still veering towards 15+m. The water was a little bit more on the cloudy front this time around.

Big schools of snappers hung in the foreground of many of the seascapes just about everywhere, creating amazing formations in their poetic motion. Unfortunately the depth of field was lost in the photo and video opportunities due to the thick texture of the water, unless you could get right in between them. It was tough to get close though, as the closer you got, the further away they swam, being pesky and fidgety little models.

Crown-of-thorns starfish (*Acanthaster planci*) had moved into the area and we came across quite a few of these big purple monsters scattered about the hard corals. There was no obvious damage from them at this stage and with it being a reserved marine park, one assumes the municipality will tackle the problem if one arises.

Sadly, no whale sharks popped out to say hello on this dive either, but we were accompanied by some golden trevally (*Gnathanodon speciosus*) that are renowned for hanging out with the big fish. We kept our eyes out towards the blue, but it was just a cruel tease!

SURFACE INTERVAL ON JUNN ISLAND

There is no better way to do a surface interval than in crystal clear turqoise water, overlooking a white sandy beach! A pure joy and a touch of paradise. Your lunch break will never feel as good as that once you're back at work.

4. MOUSE TRAP

12:02 | 15.8m | 27°C

★ ★ ★

Mouse Trap is the closest dive site to the turtles' nesting beach and we saw 6-7 hawksbills feeding on the corals, which is where this article's particular cover shot comes from.

We finally got to see a medium sized black spotted stingray, also known as a marbled stingray (*Taeniurops meyeni*) hanging out under a small school of fusiliers. We would have easily missed it if Simone hadn't looked down and gone to get a shot of it, as it was below us as we were coming up to the shallows to hang out for our safety stops. Rays are regularly sighted at the Daymaniyats, but were scarce this particular weekend, as were the leopard sharks!

Once back up on the surface, the sea turned within seconds and started to churn up some mean waves. We had had flat calm seas up until this point and the call to close the day's dives was upon us. With a tough clamber back onto the boat, we patiently waited for the other dive group of filmmakers to come up from their dives. A group of cameramen from an agency in London were over for three weeks to capture footage for a Canadian television network and were testing the footage possibilites of their first day.

And we still didn't see any whale sharks! But all in all, it had been a great two days of diving.

It was a choppy ride back to the Millennium, but the rough sea did'nt slow the journey down. I had made sure to ask for late check outs so we could get back to showers and properly pack our gear away to make the long drive back to Dubai.

DRIVE OR FLY OVER

The choice is yours as to whether you prefer driving or flying over to Oman. If you fly, you lose out on a day of diving and you need to be aware the hotel is about an hour's taxi drive from Muscat's International Airport. With the option of flying, you get out of driving back tired with 4 or 5 hours of road ahead of you both ways! It really is a personal preference. We don't like missing out on the dives, so it's an easy choice.

OUR RECOMMENDATION:

The **Millennium Resort Mussanah** and **SEAOMAN Dive Centre** are located 85km north of Oman's capital city, Muscat and an hour closer to the UAE.

A very big thank you to both the Millennium hotel and SEAOMAN for hosting our trip and looking after us so well!

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DIVE CENTER

ENHANCING UNDERWATER COMMUNICATION
THE BUDDY WATCHER

FEATURE **CAREN LIEBSCHER** & **CRISTIAN PELLEGRINI**

Who isn't familiar with the situation of trying to catch and pull your dive buddy's fin tip to alert him of something you have seen or you want from him? You could either have a cramp in your leg or an empty tank which would both make this endeavor not an easy one, or you might just want to show him the Great White shark, the blue whale or the pygmy seahorse he just missed.

Five years ago, three start-up entrepreneurs and engineers from Southern Germany developed an ultrasound system, to improve and facilitate underwater communication between dive buddies in a silent manner. The device, called Buddy-Watcher, made its way to the finals of the 2015 Cyber-One Awards. It has the size of a dive computer and can be worn around the wrist. Experts from DAN Europe tested it to check if this can also be considered a valuable diving safety tool. Here is what they found.

SOPHISTICATED TECHNOLOGY

The Buddy-Watcher UW communication system operates with soundless signaling via ultrasound. The signal is transformed into a haptic-visual one, sparing other divers and the underwater environment nerve-wrecking noises. Devices need to be paired before the dive.

Call to the dive buddy can be made by pressing one of the two large keys. The ultrasound is immediately transmitted underwater, making the buddy's device vibrate. Vibration is coupled by red LED flashlights on the display.

COMPARISON WITH OTHER SAFETY ITEMS

This electronic device distinguishes itself from mechanical UW tools generating rattling noises by shaking pieces of metal, such as shakers or metal rods, also called "tank bangers". However effective metal noise may be underwater, the more intrusive is the cacophonous, noisy underwater concert that is caused by it. The Buddy-Watcher, instead, transmits its signal discreetly and selectively. Thanks to its characteristics, the device is indicated for divers with impared hearing, and may also be good for kids who are often distracted. Diving schools could use it for underwater training.

SPECIAL FEATURES

According to DAN experts, the ultrasound signal functions properly. The manufacturer warrants a range of 20 metres – a way too long distance for dive buddies! Waterproof up to 40 metres depth, it's suitable for recreational SCUBA divers but not for technical divers.

As the Buddy-Watcher alert is activated, the buddy knows that his attention is required, meaning that either the diving companion needs help or he wants to show or communicate something.

The master function enables sending signals from one device to several receiving devices at the same time. This feature is ideal for dive groups and for instructors, guides and divemasters looking after several students or clients. The group leader can grab the attention of all divers with a simple click, in order to practice skills or to communicate something else.

According to the buddy system, no diver should be distracted or without reach. However, we all know that this happens frequently. Statistics show that in about 40% of dive fatalities the dive buddy was out of reach. We like to think that a system such as the Buddy-Watcher could have prevented at least some of these fatalities.

SPACE FOR IMPROVEMENT

The Buddy-Watcher is not designed as a safety device or a buddy-finder, it is a communication tool. Consequently, it cannot retrieve a missing diver. Like each newly-developed product on the market, it is still improvable and extendable. DAN experts who tested it suggest to add a feature showing the precise location and the direction towards which the divers is going.

To avoid buddy separation, divers could also set a fixed distance between devices (3, 5, 7 metres or more). If buddies separated and went beyond this distance, the alarms of both devices would go off and remind them to stick together. This feature seems to be planned for a future release of Buddy-Watcher. Safety relevance would largely increase and could allow dive buddies to reunite even when visibility is poor.

DAN experts also point out that the buddy who makes the call does not receive a confirmation signal and doesn't know whether the receiver actually got it. He can only understand it from his buddy's reaction. In moderate or low visibility this could be problematic. Loosing sight of the buddy would push the diver to start a search and eventually surface if the search is not successful after one minute (diving rule!). It would be ideal to have a bidirectional communication, with the receiver confirming the call by pushing the same button, or to have at least two different buttons meaning different messages: one for grabbing the buddy's attention, and one for real emergencies. "Further developments are on their way", reassured engineer Eduard Sabelfeld, one of the product developers. And we believe him, as with the implementation of some features, such as localisation of buddy, larger range and greater depth, the Buddy-Watcher could be used as a valuable safety tool.

PRACTICAL INFO

At full loading capacity the battery (3.7 Volt, 900 mAh) will last for about four dives and can be recharged via USB cable. Transmission frequency is between 60-70 kHz. There are two sizes of wrist straps: a standard one and an XXL wrist strap especially designed for dry suits. One device costs about 100 Euros. Obviously, to use the Buddy-Watcher system at least two devices are necessary – and, of course, a dive buddy!

CONCLUSIONS

Overall, the Buddy-Watcher is a good UW communication tool addressed to recreational SCUBA divers, a sort of electronic shaker which could avoid buddy separation and thus prevent potential accidents. Clearly, using the device does not prevent divers from respecting the basic safety rules, such as staying within reach of your dive buddy and paying close attention to one another.

The call button is large and intuitive, and this could prove to be crucial in an emergency. Perception is not via the acoustic channel but haptic and therefore also suitable for divers with impaired hearing as well as for inattentive children. The vibration alarm is noticeable even through a dry suit or a thick layer of neoprene (up to 10mm). The wireless and ropeless system offers a comfortable, silent dive with selective and effective communication and without entanglement.

The use of the Buddy-Watcher is ideal when diving in good or medium visibility. Divers who want to communicate with their dive buddies without stressing out may enjoy the use of this device. Although this is "just" a communication tool, it has the potential to become a more comprehensive safety aid, when empowered with further features and functionalities.

PRODUCER: Free-Linked Ltd
DISCLAIMER: DAN is by no means connected to the producer, does not have a business agreement with Free-Linked Ltd, nor did it receive any compensation for testing the device and for writing about it. DAN experts were happy to test the Buddy-Watcher, as they would be testing any new item having the potential to act as a safety tool. If you want to submit a new item for review by DAN experts, please write to communications@daneurope.org

DAN®
DIVERS ALERT NETWORK EUROPE

DAN EUROPE TRAINS DUBAI POLICE ON HOW TO OPERATE HYPERBARIC CHAMBER

DAN Europe trained the Dubai Police Rescue Team on how to safely operate its hyperbaric chamber. This will allow faster and more effective treatment to scuba-divers experiencing difficulty in this region.

While there are several private hyperbaric chambers in Dubai, not all are easily accessible, nor in fact set-up or equipped to treat recreational divers, such as the one installed at the police rescue team's facility.

"Dubai is a diving hotspot for recreational divers but until three years ago, hyperbaric chambers weren't accessible to non-commercial divers. It was then, when we roped in DAN to assess our rescue team's newly installed hyperbaric chamber that the situation changed", says Captain Ismaeil Alhousani from the Dubai Police Rescue Team.

Three years ago, DAN Europe Vice President Mission & Operations Guy Thomas and Eng. Francois Burman, President from DAN Southern Africa, assessed Dubai's newly installed hyperbaric chamber and presented a technical and safety report for this facility.

"Following this safety report, we realised the new hyperbaric chamber operators needed specific training on how to operate it. Soon after the first attendant and operators' course was presented by DAN instructors, the team was indeed operational, and treated injured divers suffering Decompression Sickness in their own hyperbaric chamber. Before it was always difficult to get divers in a hyperbaric chamber in Dubai, leading to possible delays in treatment," said Guy Thomas.

The hyperbaric chamber facility is important in treating Decompression Illness. During this six-day course, 10 chamber attendants and operators from the Dubai Police Rescue Team learnt how to use the chamber and cope with emergencies in the (unlikely) event that something goes wrong while operating the chamber.

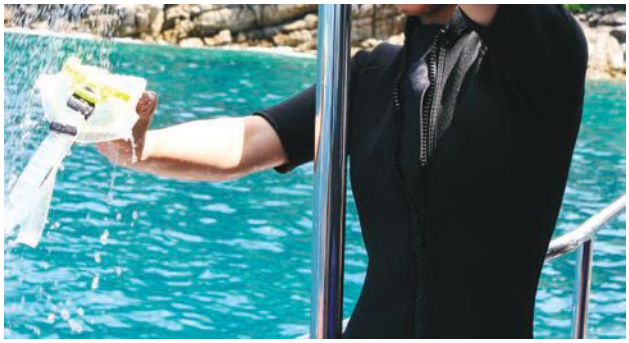
Mr Thomas said: "Although a good deal of the course is theoretical, we spent a lot of time focusing on safety and practical scenarios. For instance, how to cope with a patient with some medical emergency while being treated, or how to manage a sudden loss of power. Operating a chamber isn't exactly rocket science, but if something goes wrong, you have to react in seconds. This is exactly what was covered in this course. Participants were trained to ensure that every treatment is conducted in a safe way. All this was accompanied by a set of personalised slides and user manuals, tailor-made for their own facility."

The course was led by DAN Portugal Regional Training Coordinator Manuel Preto, assisted by DAN President & Founder Prof. Alessandro Marroni, a world leading hyperbaric specialist, Mr Thomas and Barbara Karin Vela, Medical Director of DAN in the UAE. The course took place last February 16-21.

DAN Europe is an international non-profit medical and research organisation dedicated to the health and safety of divers. For more information about DAN Research and diver safety projects, visit **www.daneurope.org**.

GERMOPHOBIA? JUST GIVE IT A REASONABLE THOUGHT
PROTECT YOURSELF – PROTECT OTHERS

FEATURE **CAREN LIEBSCHER**



As published in past articles of Alert Diver, microbes from different sources, transmitted via diving equipment, can be a true threat to scuba divers.

In fact, rented equipment and rinsing tanks can pool a high load of bacteria, fungi, viruses, and amoebas with the potential to spread diseases.

Don't think dive centers use bactericides in their rinsing tanks – because they probably don't.

Or let's put it this way: some may, some may not. And even if they did, after 20 divers have put their equipment into these tanks following a dive, the microbial load would simply be too high to be handled efficiently by the disinfectant.

Sinking your regulator in the same tank with other divers' neoprene suits won't actually clean it, considering the habit of some to relieve themselves during the dive. Most dive centers provide separate rinsing tanks, one for neoprene suits and boots, one for regulators and masks, one for BCDs and so forth. But still, the microbial load will add up the more divers put their equipment in there. As a result, a freshwater rinsing tank could quickly turn into a reservoir for a diverse circus of bacteria, viruses, and fungi. Considering the somewhat "international committee of divers" on a dive boat full of tourists of mixed nationalities, these microbes may be as diverse as their carriers – and therefore hard to be treated in case of an infection.

In times of global concerns about an ever growing microbial resistance against antibiotics – once an effective weapon against human pathogenic bacteria – this should make us think. Many great diving spots are located in less developed countries with lower hygienic, sanitary and health standards. In some countries you just can't drink tap water, so why would you rinse your regulator or your BCD bladder using the same water?

Rinsing tanks are actually there to protect the equipment from the corrosive effect of seawater, they cannot primarily protect against microbes. So you should simply rinse all your diving equipment separately with a hose and hang it somewhere to let it dry properly. If it is your own equipment, you can of course use disinfectants recommended by the manufacturer.

If the equipment is rented, you just have to rely on the dive center to clean it properly (which might happen, or not).

Why do we rinse diving equipment in freshwater tanks?
We mainly do this after diving in seawater. Salt has a very corrosive effect on all kinds of materials. In order to keep the equipment intact for as long as possible, we should rinse the salt off as best as we can. Therefore, disinfecting is something that needs to be done additionally.

What can you do to protect yourself from infections transmitted through the use of rental equipment?
First of all, you could use your own equipment and not share it with others – spouses excluded, for obvious reasons – and avoid using rinsing tanks that have been overused by many. You could also ask for a fresh refill, if the dive center doesn't do it anyway – many do. This concerns mainly mask, snorkel, regulator, BCD, neoprene suit, any equipment coming into contact with your mucous membranes. It can also be useful to use your own scuba tank and boots.

Remember, when using your own equipment, you are the sole user and therefore the sole contaminator. This way you can reduce the possibility of another person passing on pathogens (bacteria, viruses, fungi) to you.

And, dear instructors and dive masters, if you have to try your student's regulator for demonstrative purposes or checking on equipment malfunctioning above water, then at least rinse it quickly before returning it to the student to avoid icky moments and/or spreading germs.

THE BCD BLADDER – CLEAN IT AND DISINFECT IT THOROUGHLY

A BCD needs regular care. The bladder needs to be cleaned and disinfected also on the inside with a solution especially made for this purpose. A disinfectant can kill bacteria, viruses and fungi, which could originate from breathing air into your BCD, storing it in a warm place when it is still humid, or from other sources of contamination. Especially the BCD bladder and the oral inflator hose are prone to fungi and bacterial growth. Keep in mind that if you are using rental equipment, others may have blown in the BCD. Bladders that have not been maintained very well may grow a lot of fungi inside, so be aware of the fact that breathing from it may cause severe upper respiratory infections. Under normal circumstances, never breathe from a BCD. After disinfecting the BCD bladder with disinfectant and rinsing it several times with clean freshwater, it should be stored in a cool and dry place, with valves open.

As mentioned, you probably won't be able to change things if you use rental equipment, but you can certainly take care of your own equipment!

REGULATOR, MASK, SNORKEL, BOOTS

Just apply disinfectant on the outer parts of the mouthpiece, then rinse with freshwater. Allow the regulator to dry off completely by hanging it up in a cool and dry place. Do not store it curled up in a bag. Mask, snorkel, boots can be disinfected and rinsed similarly.

Use disinfectants properly – read instructions first. Disinfecting or sanitising the equipment must be done properly, in order not to damage the equipment, which could then put you in even greater danger. Don't soak for too long, and again, rinse thoroughly with freshwater after use.

TO PUT IT IN A NUTSHELL

- Own your own equipment – at least the essential parts that come into contact with your mucous membranes, the easiest barrier for pathogens to overcome.
- Use a recommended disinfectant and read the instructions for use first.
- Remove bacteria, viruses, and fungi by using a disinfectant which can actually kill them (e.g., EW80 Des or any equivalent product recommended by the manufacturer of your dive equipment or your favorite dive shop).
- Always dry off your equipment in a well ventilated, cool and dry area. Damp equipment stored in a dive bag is a great place for growing fungi. Storage in warm, humid places enhances bacterial growth.
- Under normal circumstances, never breathe from a BCD.
- You can also wash your neoprene suit with a light detergent and soak it in disinfecting solution.
- In case of rental equipment, choose the dive center wisely. If you feel it's unhygienic, find another one and dive with someone else.

YOU BETTER GET THAT EXAMINED

FEATURE **PAYAL RAZDAN**

THE DIVER

The diver was a generally healthy, 32-year-old woman with 130 lifetime dives. Her medical history included no allergies or other health problems. She had just completed her second dive on the second day of a dive series.

THE INCIDENT

During the dive, the diver's buddy collected what he thought was an empty moon snail shell. The divers did not realize that a juvenile giant Pacific octopus (*Enteroctopus dofleini*) had taken up residence in the shell. When the octopus crawled out after the dive, the diver picked it up with her bare hands to return it to the water.

Before she could put the octopus back in the water it bit her on the back of her left hand three times in the same place. She described the bites as surprising and feeling similar to bee stings. The wound bled moderately, and the diver rinsed it first with salt water and then 40 minutes later with soap and fresh water. Swelling appeared within 30 minutes and became severe within about an hour.

Approximately four hours later the diver made another dive. Upon surfacing she was nauseous and vomited (she had not previously experienced such symptoms after diving). The nausea resolved quickly, and the diver conducted five more dives over the next two days despite significant swelling and compromised mobility that lasted for about four days.

The diver wore a drysuit and neoprene wet gloves on every dive. When not diving she kept the wound dry and applied an over-the-counter antibiotic ointment to it. She also took an over-the-counter antihistamine and applied crushed aspirin to the skin surrounding the puncture site (not directly on the wound), but none of these practices provided any relief. Significant itching and pain reached their peak five to six days after the incident.

COMPLICATIONS

About three days after the bite, the wound became infected and developed into a dark, quarter-inch lesion surrounded by a raised red area. Black-green discoloration surrounding the lesion appeared about nine days after the incident. Moderate pain and significant itching and swelling lasted for more than a month.

The lesion took approximately seven weeks to heal, although pain, sensitivity to touch and itching lasted for three months, with minor flare ups still occurring four to five months after the incident, usually after exercise or early in the morning. Six months after the incident, a tissue nodule remained at the bite site.

DISCUSSION

Although blue-ringed octopus bites are known for being potentially deadly, bites by most octopus species are generally not problematic. Recently scientists have come to understand that all octopuses may be venomous to some degree.[3] The medical literature indicates that bites by octopuses of the same class as the giant Pacific octopus have resulted in ulcerations.[1,2,4] The small puncture wound developed into what appeared to be an ulcerous lesion, similar to one that developed following a common octopus bite documented in a 2011 medical case report.[1]

The delay in proper wound care may have been a complicating factor. DAN® recommends washing marine bites immediately with soap and clean water to minimize the risk of infection. Infection can impair healing and lead to significant tissue damage. Divers should not dive with open wounds because exposure to the aquatic environment can increase infection risk.

Monitoring the wound site is important since signs of infection can appear from within hours to several weeks following an injury. The immediate swelling the diver experienced may have been a consequence of the initial trauma, the exposure to myriad antigens that followed and/or toxins. Prolonged symptoms were most likely a result of infection.

The drysuit wrist seals may have been a secondary complicating factor. Although the swelling was probably the result of an acute inflammatory reaction, tight-fitting wrist seals may have compromised distal perfusion, further exacerbating symptoms.

In addition to inflammation of the affected area, other symptoms of infection include pain, redness and immobilization. These symptoms can be remembered using the acronym PRISH: pain, redness, immobilization (impaired function), swelling and heat (elevated warmth of the infected area). The cause of the diver's nausea upon completing the dive is unclear.

A third complicating factor in this case may have been the delay in medical care. DAN advises divers to treat wounds caused by marine life like any other animal bite and seek prompt medical attention. In this case, the wound was evaluated 10 days after the incident, delaying treatment that might have limited progression of the diver's symptoms.

Initially the physician prescribed a 10-day course of the antibiotic levofloxacin. Evolving symptoms and progressing discoloration, however, prompted the doctor to prescribe an additional antibiotic, amoxicillin and clavulanate (Augmentin®), for 10 days along with an antihistamine to manage itching.

This incident should serve to emphasize that timely treatment of wounds can reduce the risk of serious infection. Whenever possible, divers should photograph wounds, because images can help medical staff provide more effective and efficient care. Divers should understand that handling marine life may lead to injuries, some of which can result in serious complications.

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فريق الجمعية

Ramadan Kareem

Dear EDA Members,
Ramadan Kareem and hope the holy month of Ramadan will bring you and your families all the best.
Please note that EDA's official working hours will be from 9am to 2pm, Sunday to Thursday.
The EDA Team

EDA
جمعية الإمارات للغوص
Emirates Diving Association

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EDA
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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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