Inspiring People to Care About our Oceans Since 1995

DIVERS FOR THE ENVIRONMENT

WWW.EMIRATESDIVING.COM | MAGAZINE | JUNE 2018 | VOLUME 14 | ISSUE 2

DIGITAL ONLINE 2018 ANNOUNCES ITS WINNERS

SHARKWATER • **CLEANING UP PLASTIC POLLUTION** • REEF CHECK NEWS • **IYOR 2018**
ECO-FRIENDLY SUNSCREENS • **DIVING WITH BULLS** • EDA'S DIGITAL ONLINE BOOK REVEAL

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جمعية الإمارات للغوص
Emirates Diving Association

EMIRATES DIVING ASSOCIATION
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EDA
جمعية الإمارات للغوص
Emirates Diving Association

REGULARS

NEWS

KIDS CORNER

REEF CHECK

FEATURES

UW PHOTOGRAPHY

DIVERS FOR THE ENVIRONMENT

Please note that EDA's magazine, 'Divers for the Environment' includes articles written by individuals whose opinions', whilst valid, may or may not represent that of EDA's. The magazine is a platform for individuals to voice their opinion on marine and diving related issues. You are welcome to suggest an article for the next issue released in September 2018. Send all articles, feedback or comments to: **magazine@emiratesdiving.com**

COVER

PHOTO BY LEVENTE ROZSAHEGYI
Digital Online 2018 DSLR Wide Angle Entry

REDUCE REUSE RECYCLE

DIVING DESTINATIONS

HEALTH

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

EDITOR & DESIGNER

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

THE QUARTERLY CONTRIBUTORS

Meet the regular quarterly magazine contributors who share their passions, interests and the expertise of their fields for our readers. Want to contribute?
Email: **magazine@emiratesdiving.com**

JESPER KJØLLER
Professionally involved in the diving industry since he started diving in the early nineties, Jesper ran a successful Scandinavian divers magazine for many years. His articles and photos have appeared in books, magazines and websites all over the world. Today he lives in Dubai, involved in marketing but finds time to teach diving to Global Underwater Explorers.

NATALIE BANKS
Natalie Banks is a marine conservationist, spokesperson, researcher, scuba diver, writer and advisor. She has been sought for advise by Australian Governments and conservation organisations as well as having had articles published in international media outlets.

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**

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

FERNANDO REIS
Conservationist, environmentalist, shark expert, specialised in shark diver training and in shark advocation. Fernando Reis is the Founder and Executive Director of the Sharks Educational Institute which he set up in 2016.
www.sharksinstitute.org

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 email me at admin@dubaiblognetwork.com for information about my articles or just to say hello.

عـــــام زايـــــد

YEAR OF ZAYED

THE UNDERWATER RESIDENTS

IBRAHIM AL-ZU'BI
EDA Executive Director

Ramadan Kareem, I wish you and your families a Ramadan full of blessings.

I would like to welcome you all to the June issue of Divers for the Environment. Half of 2017 has already gone and we have been really busy in EDA.

March hosted the Dive Middle East Exhibition (DMEX) – The Leading Diving Exhibition in the Region, where the diving community of the UAE and the region meets alongside the Dubai International Boat Show (DIBS) to reveal diving updates and showcase the latest diving equipment on the market. This year DIBS moved to a new location at the Dubai Canal Jumeirah, anchored at the centre of the UAE's diving community with more than 154,000 certified divers, and DMEX celebrated its 12th year being co-located with the Dubai International Boat Show.

Last month, we held the 9th year cycle of Digital Online – EDA's Underwater Photography and Film Competition and announced this year's winners at the Awards Night and Exhibition Opening held at the American University in Dubai (AUD). I thank all of our underwater photography and video participants for sending EDA amazing photos and short films of the varied marine life from all the places they have dived. It is very inspiring and beautiful as always.

I want to congratulate all the participants for enriching EDA's photography library with such amazing imagery. I am sure you will all agree with me when you see the photos in this issue and in the special edition A3 coffee table book that we will soon be publishing – with previous year photo entries. I also want to thank the judges, the sponsors, and the EDA team for another successful EDA event towards promoting diving, not only in the UAE, but the whole region, and internationally.

This year, EDA focused on health and safety measures to offer further education for EDA Members by so far organising 23 DAN Emergency Oxygen Courses for Scuba Diving Injuries, and offered 8 Project AWARE Dive Against Debris Distinctive Specialities. We will make sure to continue doing this for the rest of the year.

I also want to take this opportunity to thank our EDA Members who continuously participate and support all our activities by either sharing their insightful diving experiences and underwater pictures with us or participating in the different clean up dives that we organise or support. Your insights and articles are imperative in recommending when and where to go diving as well as what to look out for on our trips. We hope your passion and enthusiasm for diving adventures continues, we look forward to seeing your next batch of underwater world snaps!

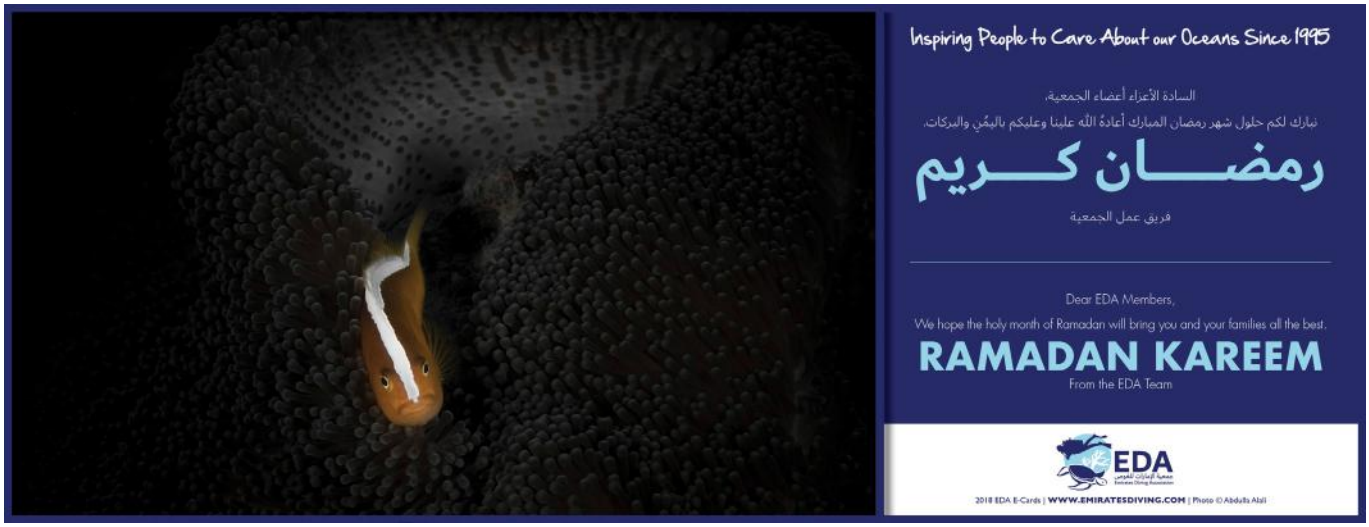
To all our "Underwater Residents" who attend DMEX, an EDA Movie Night at VOX Cinemas, or participate in Digital Online, or Beach or Dive Clean Ups; thank you for all your passions!

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

Happy reading & safe Diving! Enjoy the summer!

Ibrahim Al-Zu'bi

Ibrahim N. Al-Zu'bi



AN EDA MOVIE NIGHT WITH VOX CINEMAS

SHARKWATER

On Wednesday, the 9th May, EDA and VOX Cinemas teamed up to bring EDA Members the second EDA screening of 2018, Sharkwater by late filmmaker Rob Stewart.

FILM SYNOPSIS

For filmmaker Rob Stewart, exploring sharks began as an underwater adventure. What it turned into was a beautiful and dangerous life journey into the balance of life on earth. Driven by passion fed from a lifelong fascination with sharks, Stewart debunks historical stereotypes and media depictions of sharks as bloodthirsty, man-eating monsters and reveals the reality of sharks as pillars in the evolution of the seas.

Filmed in visually stunning, high definition video, Sharkwater takes you into the most shark rich waters of the world, exposing the exploitation and corruption surrounding the world's shark populations in the marine reserves of Cocos Island, Costa Rica and the Galapagos Islands, Ecuador.

In an effort to protect sharks, Stewart teams up with renegade conservationist Paul Watson of the Sea Shepherd Conservation Society. Their unbelievable adventure together starts with a battle between the Sea Shepherd and shark poachers in Guatemala, resulting in pirate boat rammings, gunboat chases, mafia espionage, corrupt court systems and attempted murder charges, forcing them to flee for their lives.

Through it all, Stewart discovers these magnificent creatures have gone from predator to prey, and how despite surviving the earth's history of mass extinctions, they could easily be wiped out within a few years due to human greed.

Stewart's remarkable journey of courage and determination changes from a mission to save the world's sharks, into a fight for his life, and that of humankind.

DIRECTOR ROB STEWART

Rob Stewart, born in Toronto, Canada, was an award-winning wildlife photographer and the director of Sharkwater.

Stewart began photographing underwater when he was 13. He became a certified scuba instructor trainer at age 18, and held a Bachelor of Science degree in Biology from the University of Western Ontario, and had studied Marine Biology and Zoology at universities in Kenya and Jamaica.

Stewart spent four years travelling the world as the chief photographer for the Canadian Wildlife Federation magazines, and logged thousands of hours underwater, using the latest in rebreather and camera technologies.

His work underwater and on land appeared in nearly every media form worldwide, from BBC Wildlife, Asian Diver, Outpost and GEO magazines to the Discovery Channels, ABC, BBC, night clubs and feature films.

Rob Stewart accomplished so much in his life, but there's still more to do. To honour Rob's memory, the Stewart family is collecting donations through WWF-Canada in order to continue his conservation work. You can help by visiting **wwf.ca/robstewartfund** and WWF-Canada will hold the proceeds in a fund to help carry on Rob's legacy.


VOX


VOX


EDA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SHARKWATER
THE TRUTH WILL SURFACE.
SHARKWATER PRODUCTIONS AND DIATRIBE PICTURES PRESENT A FILM BY ROB STEWART MUSIC BY JEFF BONA DIRECTOR OF PHOTOGRAPHY ROB STEWART UNDERWATER PHOTOGRAPHY ROB STEWART AND DAVID HANNAN
EDITING MICHAEL CLARKE BIK MORDEN JEREMY STUART EXECUTIVE PRODUCERS SANDRA CAMPBELL ALEXANDRA STEWART BRIAN STEWART WRITTEN DIRECTED AND PRODUCED BY ROB STEWART
FEATURING MUSIC FROM MOBY NINA SIMONE ALI FARKA TOURE THE RIDERLESS GEOFFREY ORYEMA APHEX TWIN AND PORTISHEAD
WWW.SHARKWATER.COM
WINNER CANADA'S TOP TEN
WINNER PEOPLE'S CHOICE
WINNER BEST OF THE FESTIVAL
WINNER BEST MUSICAL COMPOSITION
WINNER PRIX PLANETE THALASSA
WINNER PEOPLE'S CHOICE
WINNER SPIRIT OF INDEPENDENTS AWARD
WINNER BEST DOCUMENTARY
WINNER SPECIAL JURY AWARD

A RECAP OF DMEX 2018

27 FEB - 3 MARCH 2018 | DUBAI CANAL, JUMEIRAH

DMEX
DIVE MIDDLE EAST EXHIBITION

DIVE PHILIPPINES

PIER UNO

Anchored firmly at the centre of the UAE's diving community with 154,000 certified divers, DMEX celebrates its 12th year being co-located with the Dubai International Boat Show.

38% of DMEX visitors delay their purchases until they meet with industry experts at the event. Whether you are a world class diving destination, diving centre, equipment specialist or tour operator, DMEX is the perfect place to enter into an unrivalled audience of underwater adventurers.

DMEX RAFFLE

We would like to thank the Pier Uno Dive Resort and It's More Fun In The Philippines – Middle East for offering 2 raffle prizes to 2 lucky EDA members for 4 Nights and 5 Days accommodation with full board in a standard room for one, inclusive of 6 boat dives in Anilao, Philippines. A big congratulations to our lucky winners!

Out of 114 EDA member names entered into the raffle by showing up to this year's DMEX at the Dubai International Boat Show, we used Random.org to randomly pick 2 numbers:
#90 Yaqoob Hamad Al Rashdy
#108 Saleh Mohamed Al Braiki


SALE
SALE

Sea@
Deep


PADI

mares
just add water

PADI

DM
BEUCHAT



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BEST. BE PADI.



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AQUA LUNG

DIGITAL


WE ARE PADI
PADI
TEAM
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DUBAI INTERNATIONAL BOAT SHOW

SALE
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JOBE
YAMAHA


BEUCHAT

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just add water
PADI

WE ARE PADI

SALE
AQUA



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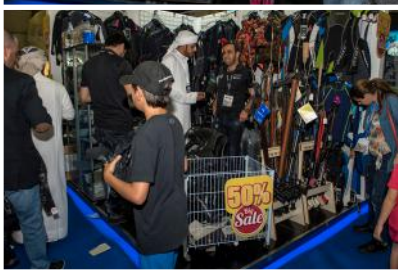
DOLPHIN

50% Sale
50% Sale

Zeagle

BEUCHAT
DOLPHIN

SPRING TIME WHIT ME

50% Sale

PADI


SEAC

Zeagle

SALE



EDA

DAN EMERGENCY OXYGEN FOR SCUBA DIVING INJURIES COURSE

EDA and PADI Course Director, Francis Uy offered Free DAN Emergency Oxygen For Scuba Diving Injuries courses to 13 EDA members through a first come, first served basis in January. The remaining 10 courses will be held in July.

13 JANUARY 2018

Congratulations to Hani Omar, Natalio Liares, Roderick Pearson, Jafar Djoyaeian, Sibylle Blumenthal, Rob Buurveld and Ahmed Zaghloul for completing the course.

20 JANUARY 2018

Congratulations to Paul Emous, Andres Benitez, Tariq Ahmad Al Hawai, Anney Lien, Hatem Fakih and Hassoun Youssef for completing the course.

WHY TAKE THIS COURSE

When a diving accident occurs, being able to recognise the problem and respond with the appropriate care can speed the diver's recovery and minimise lasting effects.

Oxygen first aid provides needed oxygen to body tissues, enhances the elimination of inert gases such as nitrogen obtained from breathing gases, and helps shrink any gas bubbles that may have developed during ascent – bubbles that contribute to decompression sickness and arterial gas embolism. Supplemental oxygen also can help minimise or eliminate existing symptoms and reduce further injury until medical services are engaged.

WHAT YOU WILL LEARN

This course will teach you the techniques of emergency oxygen administration for suspected diving injuries and nonfatal drowning. You will learn the fundamentals of recognising dive-injuries along with response and management.

You will learn about:

- Atmospheric gases
- Respiration and circulation
- Decompression illness
- Oxygen and diving injuries
- Oxygen safety

You will develop the following skills:

- Oxygen equipment identification, assembly and disassembly.
- Scene safety assessment.
- Initial assessment.
- Use of Demand inhalator valve, Non-rebreather mask.
- Use of Bag-valve mask, Manually triggered ventilator.
- Creation of an Emergency assistance plan.

MAKING WAY FOR CHANGE
TEAM BUILDING DIVE CLEAN UPS

With the rise of summer temperatures on our doorstep, EDA's Beach Clean Ups are now on hold until October when the weather will start cooling down again. Team Building Dive Clean Ups are now on the rise and many more will take place after the month of Ramadan.

BOOK A DIVE CLEAN UP

Dive clean ups are open for bookings, send us an email or give us a call with the date of your choice and the number of participants in your team and we'll help organise your event through a dive centre and supply you with the materials needed for you to run your activity.

BAIN & COMPANY MIDDLE EAST, INC.

GHANTOOT, DIVERS DOWN
26th of April (7 Divers) + Beach Clean Up

Underwater Clean Up Total: 3 kg
Plastic Materials Collected: 33
Glass Materials Collected: 3
Metal Materials Collected: 4
Wood Materials Collected 1
Cloth Materials Collected: 1
Beach Clean Up Total: 67 kg

Bain & Co. submitted their underwater data online to Project AWARE's Dive Against Debris programme.

"The clean up was so organised and we had a great experience overall. Nicola and Tasha were super friendly and they added to the experience! We had fun cleaning both above and below the surface – very satisfying to collect 70 kg of trash and help the environment be a better place for it!"
Yasmin Abougazia – Bain & Company Middle East, Inc.

ENOVA

FUJAIRAH, DIVERS DOWN
4th of May (7 Divers, 7 Snorkellers)
Dive Site: Snoopy Island

Underwater Clean Up Total: 18 kg
Plastic Materials Collected: 97
Glass Materials Collected: 4
Metal Materials Collected: 10
Cloth Materials Collected: 3
Item of Concern Collected: Car Battery

EDA submitted Enova's data to the Ocean Conservancy's International Coastal Cleanup programme.

"The clean up event was a great success! Thanks again for the support."
Carina Scharf – Enova

Take the Pledge: Make a Difference!

'TOGETHER WE MAKE A DIFFERENCE'

1,490 KGS OF WASTE COLLECTED DURING UNDERWATER CLEAN UP CAMPAIGN IN ABU DHABI

BY **ENVIRONMENT AGENCY – ABU DHABI (EAD)**

Abu Dhabi, 9th March 2018: To mark the 'Year of Zayed', an underwater clean up organised by the Environment Agency – Abu Dhabi (EAD), in partnership with Emirates Diving Association (EDA) and the Abu Dhabi International Marine Sports Club took place off the Abu Dhabi Corniche on Saturday to raise awareness about our natural environment and the importance of keeping our seas clean of waste. This activity is the second diving clean up organised by EAD under the theme 'Together We Make The Difference'.

Over 1,490 kilograms of marine debris waste were collected by 50 divers from several entities in Abu Dhabi, in addition to a number of divers from other emirates. Waste removed included plastic bottles, aluminium cans, food wrapper containers, abandoned fishing lines and construction materials.

Commenting on the underwater campaign, Dr. Sheikha Salem Al Dhaheri, Executive Director of Terrestrial and Marine Biodiversity Sector said, "There is an imminent need for us to keep beaches and dive sites clear of debris. The sensitive waters, species and underwater inhabitants must be looked after for future generations to come and for the sake of conserving our natural habitats. Toxic materials, plastics and waste can not only inhibit normal growth and reproduction, but also have fatal effects on marine species and the ecosystems they live off."

"Organising clean up campaigns is just one of many initiatives we are taking to allow for our seas and landscapes to be a safe haven for different species and for the course of nature to take place", added Dr. Al Dhaheri.

The clean up campaign contributed to the clearing of marine debris litter which otherwise would have detrimental effects on UAE marine life, potentially harm our fragile biodiversity and affect swimmers and fishermens' livelihoods.

The campaign was organised with the support of other entities such as the Critical Infrastructure and Coastal Protection Authority, the Abu Dhabi Municipality, Abu Dhabi Police, Tadweer (The Center of Waste Management), New Medical Center Speciality Hospital, Emirates Diving Association, Abu Dhabi Divers Team and Seven Emirates Diving Team.

500 KGS OF WASTE COLLECTED
DURING EASTERN MANGROVE CLEAN UP CAMPAIGN

BY **ENVIRONMENT AGENCY – ABU DHABI (EAD)**

Abu Dhabi, 24th April 2018: The Environment Agency – Abu Dhabi (EAD), in partnership with the Anantara Eastern Mangroves Hotel, the Emirates Diving Association and Al Mahara Diving Center organised a clean up campaign on Saturday to clean the water and offshore of the Eastern Mangrove area.

Located in the heart of Abu Dhabi city, the Mangrove National Park is one of the most important nature reserves within the Sheikh Zayed Protected Areas Network. The Park, which is the closest mangrove forest to Abu Dhabi City, is home to many migratory birds, and a unique destination for picnics and nature lovers.

The clean up, which began at 4 pm and ended at 6 pm saw the participation of more than 150 volunteers from different governmental and private organisations in Abu Dhabi. Among these entities were the Center of Waste Management – Abu Dhabi (Tadweer), Abu Dhabi Municipality, Traffic and Patrols Directorate – Abu Dhabi Police, the Emirates Nuclear Energy Corporation (ENEC), Abu Dhabi Fund for Development, NMC Speciality Hospital – Abu Dhabi, Spark Security Services and a number of volunteers from the community.

The two hour clean up resulted in removing 500 kgs of waste from the shore and water using kayaks, which included mostly plastic, wood waste, metal and glass.

This campaign was one of a series of clean ups organised by EAD for 2018 under the theme 'Together We Make The Difference' to clean beaches, dive sites, deserts and other habitats in different locations of Abu Dhabi to ensure that our natural environment is safe, clean and healthy, and to involve the community in environmental conservation.

Commenting on the clean up, Khansa Al Blouki, EAD's Acting Director of Environmental Outreach said, "Mangroves are an important part of Abu Dhabi's natural ecosystem which extends over 150 km² of natural and planted mangroves. They provide a rich natural habitat and safe breeding grounds for several fish species, sea snakes, turtles and commercially important shrimp, snapper, grunt fish and sea bream. Sea birds also find safe nesting and egg laying areas in the vast mangrove forests".

Al Blouki also said, "Mangrove forests prevent the coastline erosion caused by waves and ocean currents, and play an important role in reducing carbon emissions, thereby contributing to lessening the impacts of climate change. In the past in the UAE, mangrove wood was a major source of food and fuel, and was also used for building houses and ships because of its durability and high resistance to rot and termites".

She mentioned that, "Choosing the Eastern Mangrove area to be cleaned within our series of clean up campaigns was to highlight the importance of this ecosystem and to focus on the environmental legacy of the late Sheikh Zayed bin Sultan Al Nahyan, who was the first to initiate a massive afforestation programme of mangroves which substantially contributed to their increase over the past decades."

Eng. Saadi Al-Haddadi, Head of Projects Division at Tadweer said, "Tadweer always participates and supports activities and campaigns that aim to raise the community's awareness and encourage its members to practice and adopt eco-friendly habits and behaviour. This clean up campaign is also in line with Tadweer's mission to raise awareness among members of the community about the importance of maintaining a clean living environment".

WHO SAID MERMAIDS DON'T EXIST?

Speaking of my own experiences with scuba diver training, it wasn't until I was on my PADI Divemaster course in 2012 that I had a female Instructor. After hundreds of boat trips, in multiple countries, it is still common to find myself as one of a few female divers. However, as a female dive instructor in a male dominated industry, it is exhilarating to know there is an ever-growing number of women in the scuba diving business.

From the inspirational Dottie Frazier, the first female Scuba Instructor in 1955 and legendary Oceanographer, Dr. Sylvia Earle, to Gemma Smith, the first women ever to dive the world famous Antikythera Shipwreck, there are a growing number of global icons for women to follow in the diving world. We have become pioneers in all aspects of the diving industry, from instructors, to scientists, technical divers, oceanographers, filmmakers, marine biologists and environmental scientists; achievements spanning 70 years. The list of influential women in diving is so large, it is difficult to mention everyone in this one article. In the UAE alone, we have myself and Michela Colella, PADI Course Directors and multiple female divers supporting the diving industry and our environment. To mention just a few, I've worked with Hannah Campbell, PADI Instructor and Project Manager of a Marine Sanctuary, Yanni Smith and Erika Hoonhout both PADI Instructors and Environmental Scientists, and Annie Halloran, PADI Instructor and currently studying to become a Marine Biologist.

There are now multiple platforms empowering and educating women in diving. 'Girls That Scuba', run by Sarah Richard now has nearly 55,000 followers/users; it's the largest community of female scuba divers in the world. With the introduction of 'PADI Ladies Day' in 2015, scuba divers from around the world have come together to celebrate women in diving, share their love for the ocean and encourage others to get involved. Last year there were around 900 PADI Ladies Day events in 85 countries.

This year we celebrate women in diving by running two events on PADI Ladies Day on Saturday the 21st of July. At Divers Down Fujairah, we will be running a Ladies 'Pool Party' including a scuba refresher and pleasure dives for those that are looking to get back into diving, or the Discover Scuba Diving experience for those that wish to try diving.

In Dubai, I will be hosting a social evening for women in the UAE. Event plans are still to be confirmed.

If you are interested in joining us either in Fujairah or Dubai, please email me: **Nicola.l@diversdownuae.com**

SANDY BEACH DIVE CENTRE

How do you define a day well spent? Picture this: The day breaks with the sun rising behind Snoopy Island, greeting divers as they arrive for the first dives of the day. After a couple of hours spent in communion with Fujairah's underwater world, the boat returns to Sandy Beach where hungry divers can enjoy a relaxed lunch at Snoopy Lounge, situated atop the dive centre. Following a quick doze on the beach or a cheeky paddle in the shallows, a shore dive around Snoopy satisfies your dive quota for the week, resetting both mind and soul for the days ahead. Not forgetting the dive junkies or the late risers, the afternoon boat excursion provides ample opportunity for underwater adventures. Returning pleasantly spent to the shore, a trip to the pool for a cool-down dip or a post-dive drink at the beach bar rounds off the day nicely. Whether now settling down for the night in a beach bungalow, joining in for a Snoopy night dive, or driving home through the beautiful Fujairah mountains: it was a perfect day of diving.

Introducing the newly opened Sandy Beach Dive Centre, offering both boat and shore diving in Al Aqah, Fujairah. Owned by Pierre Du Toit – a long-time diver and UAE Resident – SBDC looks to capture the hearts of divers through focus on personal connection and environmental awareness. As a sport that embodies closeness; divers venture beneath the water with a buddy – be they friend, family, or complete stranger – and share in the wonders of the underwater world. Come and experience diving as it should be: a place to meet people, above and below the surface. From pleasure diving to full education courses, availability ranging from introductory diving through to technical courses are on offer; there is something for everyone to try.

"I envision SBDC as a place where divers come to meet each other and the ocean. It is a home for instructors who wish to teach their students, for students to build confidence, and for divers to find connection with the sea. As ambassadors of Snoopy Island, environmental awareness is important to us; we encourage our divers to participate in regular Dive Against Debris dives as well as emphasise the importance of excellent buoyancy" – Pierre Du Toit.

Situated on the beach not 100m from Snoopy Island, SBDC boasts ease and convenience of diving that cannot be found anywhere else. Twice daily boat trips can be supplemented with walk-in shore dives to Snoopy Island; the perfect place to explore the UAE's marine wildlife at leisure, or practice a host of dive-related skills. From the tiny magenta eggs of the Sergeant Major, to behemoth whale sharks – Snoopy Island showcases the best of East Coast diving, a convenient 5 minute swim from shore. Coupled with full access to Sandy Beach Hotel & Resort facilities, diving through SBDC unlocks access to world-class diving, a fun, family orientated environment and a diver education centre that facilitates learning through environmental awareness and safe and responsible dive practices.

A world away from the typical socialite scene, Sandy Beach Dive Centre invites a possibility to learn, connect, and relax. Take a break from the norm, come find us at the Sandy Beach Hotel & Resort – Let's go diving!

SANDY BEACH DIVE CENTRE
Website: www.divesandybeach.com
Facebook: divesandybeach
Instagram: @divesandybeach
Landline: +971 9 244 5050
Mobile: +971 54 407 5475
Email: info@divesandybeach.com

ONE MILLION LESS ITEMS OF TRASH IN OUR OCEAN THANKS TO AN ARMY OF ACTIVIST DIVERS

BY **PROJECT AWARE**

Happy Dive Against Debris Volunteers

California, Rancho Santa Margarita, March 28, 2018 – A unique global citizen science survey in which scuba divers around the world remove and report marine litter has reached a milestone this week, with organisers announcing one million items of trash removed from the ocean.

The #OneMillionLess milestone was announced by Project AWARE, a global non-profit organisation working to create positive change for the ocean through community action. As part of Dive Against Debris, a global marine debris survey launched in 2011, 49,188 divers from 114 countries have taken part in an effort both to clean up the ocean and build evidence to shine a light on the global marine litter crisis.

Recreational and professional divers have retrieved objects varying from sunbeds to batteries and shoes, as well as vast quantities of plastic bags, cutlery and bottles. The data collected captures essential information for scientists to estimate debris that has sunk to the seafloor. It also supports work to find solutions to save vulnerable marine life and ensure the future of a clean and healthy ocean.

This milestone comes at a time of unprecedented focus on the issue of plastic pollution and its impact on the health of the ocean. Scientists estimate some 20 million tonnes of plastic waste could enter the ocean every year. 2017 saw the United Nations and national governments step up efforts to eliminate plastic waste. The European Commission for example recently adopted the first-ever Europe-wide strategy on plastics, part of the transition towards a more circular economy to keep plastics and their value in the economy, avoid waste and reduce marine litter.

Volunteers involved in Dive Against Debris have provided data which is helping convince decision-makers to adopt more stringent policies on plastics. Almost 70 percent of all items reported through Dive Against Debris were plastics. In December 2017 the Vanuatu Government announced a ban on the import and local manufacturing of non-biodegradable plastics, based on studies done by environmental groups including local dive centre Big Blue.

Project AWARE, this week hailed the engagement and dedication of divers globally in highlighting the issue as well as making a huge contribution to clean up marine trash and save wildlife. Danna Moore, Project AWARE's Director said, "Divers dive because they have a deep love for the ocean and the life it supports. They are, more than any of us, confronted daily with the damage that human activity is having on marine life. We have an army of activists out there working to change things, and we salute every one of them on this amazing achievement".

Moore urges more divers to get involved and calls on governments and industries to act urgently to adopt measures to reduce plastic waste and penalise ocean polluters. The non-profit organisation is asking divers to remove and report one million more pieces of rubbish by end of 2020 and help highlight the true extent of the marine debris problem.

Key Statistics on Dive Against Debris:
One million pieces of rubbish removed and reported since 2011

- 49,188 - Scuba divers
- 5,351 - Surveys
- 114 - Countries around the world
- 5,597 - Entangled or dead animals
- 64% - Plastic waste
- 307,064 kgs / 676,959 lbs - Total weight

AL MUBARAK RELEASES ENDANGERED TURTLES OFF BU TINAH ISLAND
PART OF PRESERVING SHEIKH ZAYED'S ENVIRONMENTAL LEGACY

BY **ENVIRONMENT AGENCY – ABU DHABI (EAD)**

Abu Dhabi, April 25, 2018: As part of marking The Year of Zayed in 2018, H.E. Razan Khalifa Al Mubarak, Secretary General of the Environment Agency – Abu Dhabi (EAD), participated in the capturing, tagging and releasing of four endangered Green turtles off Bu Tinah Island, an internationally recognised sanctuary for turtles in the Indian Ocean and prime real estate for some of Abu Dhabi's most amazing creatures.

Each of the four turtles released represent one of the values celebrated during this Year of Zayed. The values are Wisdom, Respect, Sustainability and Human Development. This was done to help promote the late Sheikh Zayed bin Sultan Al Nahyan's values that continue to live on through the generations.

Before releasing the turtles, Al Mubarak attached a satellite transmitter to each of them and obtained tissue samples (DNA), which will then be analysed to better understand the feeding and nesting turtle populations of Abu Dhabi.

Of the seven species of marine turtles in the world, two predominantly occur in Abu Dhabi's waters: the critically endangered Hawksbill turtle and the endangered Green turtle. These two species extensively use Abu Dhabi's waters for foraging food and one species, the Hawksbill, nests on the sandy beaches of several offshore islands. Turtles and their habitats are key indicators of the health of the environment, but at the local and regional level, the number of foraging habitats and nesting grounds are continually declining due to an increase in urbanisation and industrialisation.

HE Razan Khalifa Al Mubarak, Secretary General of EAD said, "The late Sheikh Zayed bin Sultan Al Nahyan, Founding Father of the UAE, was considered one of the world's greatest conservationists. His environmental vision long preceded the present day global conservationists' movement and his passion for nature was unparalleled. The marine environment, in particular, held an emotional value to him. He considered it a treasured part of our heritage, our present and our future. Under his leadership, some of the most impactful wildlife release programmes in the world became a reality. Examples of this include the Sheikh Mohammed Arabian Oryx Release Programme and the Sheikh Zayed Falcon Release Programme, both of which EAD has been continuing to run for several years. Since its establishment, EAD has worked to preserve Sheikh Zayed's environmental legacy and we will continue to do so."

The tagging and release took place on Bu Tinah Island, which is also home to coral reefs, dugongs, natural mangroves, dolphins, ospreys and Socotra cormorants. Located in Abu Dhabi's Al Dhafra region, the island lies within the Marawah Marine Biosphere Reserve, the region's largest and first UNESCO designated marine biosphere reserve and one of the 19 protected areas under the Sheikh Zayed Protected Areas Network. The Island received international fame in 2011, thanks to the diversity of wildlife that exists on it and the ability of these different organisms to survive under extreme temperature and salinity but also after it managed to be a finalist in a global competition entitled 'New 7 Wonders of Nature.'

JUNIOR DIVERS AND MARINE ENTHUSIASTS BUILD AN ROV WORKSHOP

FEATURE AND PHOTOGRAPHY **AL MAHARA DIVING CENTER**

When you bring PADI Junior divers and tech-Davy kids together, you will be surprised by the amazing end results. This month Al Mahara Diving Center, Abu Dhabi provided an opportunity to teach the youths how to design and build an underwater remote operating vehicle. The workshop was inspired by a Nautical Archaeological Society instructor, Ian Cundy whom came to Abu Dhabi a couple of years ago to teach the Marine Archaeological Recorder course. He had taught university students how to build an underwater ROV. So the idea was born to develop an interactive and practical workshop for youths on how to design and build an underwater ROV.

The workshop was led by Peter Mainka, a PADI Master Instructor and assisted by Alistair Russell and was held at the Al Mahara Diving Center at the Beach Rotana Hotel.

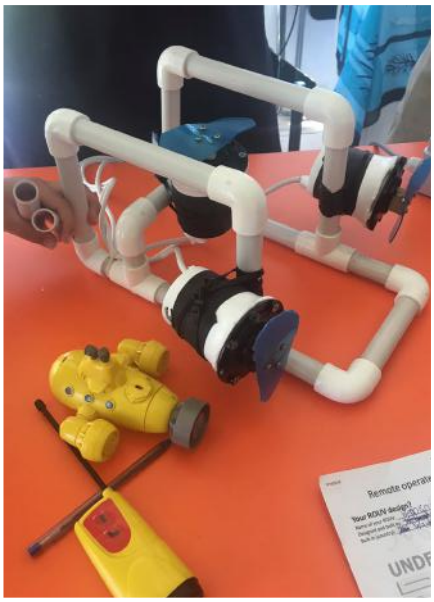
The 3 hour workshop began with an introduction about ROVs, the history, application and design. It was followed by dividing the group into teams of three and having each teach design and build an ROV using the materials that were supplied. The materials included 3 thrusters, PVC piping, a remote control box, an artery source, 18m of cables and lots of positively buoyant materials for buoyancy adjustments. .Just like a marine lab, the teams gathered all their materials and built their prototypes. Once completed, all the units were tested in the sea. During the in-water test, the Junior ROV creators continued to modify their designs to ensure better buoyancy control while manoeuvring the units through the water.

The next workshop will include mounting accessories such as GoPros and lights, and practicing operations.

Here's what some of the kids said about the weekend:

"It was a lot of fun and we have to add more power next time." Xander

"It was really awesome, thank you." Adrian



DIVEHEART MALAYSIA MAKING WAVES – IMAGINE THE POSSIBILITIES

FEATURE AND PHOTOGRAPHY **HJ. SYED ABD RAHMAN SYED HASSAN** AMBASSADOR, DIVEHEART MALAYSIA

Diveheart is an organisation started in Chicago USA with the objective to build confidence, independence and self-esteem in the lives of children, adults and veterans with disabilities through scuba diving, scuba therapy and related activities. The programme is to instill the "can do" spirit in participants, inspiring them to take on challenges that they may not have considered before. Using zero gravity and the adventure paradigm, we help participants believe that if they can scuba dive, they can do anything. With the programme, we've discovered the forgiving, weightless wonder of the water column which provides the perfect gravity-free environment for those who might otherwise struggle on land. Underwater, we're all equal.

Diveheart works with individuals who have a variety of disabilities, including physical and developmental disabilities, vision and hearing impairments, amputations, traumatic brain injuries, Post Traumatic Stress Disorder and more. Diveheart seeks to help its participants "Imagine the Possibilities" in their lives.

It all started in Orlando Florida at DEMA 2012 when Syed met Jim Elliot, the President and Founder of Diveheart to discuss the interest in training PWD in Malaysia.

4 Years later in March 2016, Jim Elliot was invited by the Late Charles Rowe and Syed Abd Rahman, the Founder and Director of Kids Scuba which supports Diveheart in Malaysia. They both hosted Jim and Tinamarie Hernandez, the Executive Director of Diveheart to Conduct a Diveheart Scuba Experience in Kuala Lumpur with some PWD in a swimming pool environment assisted by Charles Rowe and Kids Scuba dive professionals.

Diveheart in Malaysia has been making waves since the regular monthly pool scuba training Programmes for PWD trained by Syed Abd Rahman in working closely with the University Malaya Medical Center Kuala Lumpur, and the UMMC Rehabilitation unit for Spinal Cord Injury SCI Patients.

After months of intensive underwater therapy training involving the sports of scuba diving, October 2016 saw the first batch of 4 SCI patients from UMMC graduate as PADI scuba divers in Tioman Island Pahang with Kids Scuba Diveheart volunteers and Mr. Jim Elliot flew in from Chicago to conduct Diveheart training and oversee the PWD open water dives.

The Malaysia International Dive Expo (MIDE) has extended its full support to Diveheart Malaysia, we have been featured at MIDE in the 2016, 2017 and 2018 exhibitions held at the Putra World Trade Center Kuala Lumpur. Diveheart SCI PWD divers from UMMC were recognised and invited to share their scuba diving experiences on stage to the audience as role models, to express 'Imagine the Possibilities' for the PWD community.

In August 2017, Diveheart Malaysia was invited and given the opportunity to train a team of dive professionals from the University Malaysia Terengganu (UMT), and the Marine Research University in the east coast region of Malaysia for the Diveheart Adaptive Diver Buddy Course. UMT became the first university in Malaysia to have qualified the Diveheart Adaptive Diver Buddy Team (ADB).

When Syed Abd Rahman visited the Diveheart World Headquarters in Chicago in November 2017, Kids Scuba was awarded the Diveheart 5 Star Dive Center in acknowledgement of the generous support and dedication to the Diveheart mission in enhancing the lives of individuals with disabilities through scuba, and for its excellence in providing high quality Adaptive Diver Training in Malaysia. This was truly an achievement for a dive centre in Asia in supporting the water therapy and underwater sports involving scuba diving.

Diveheart Malaysia and the Kids Scuba dive team Malaysia lead by Syed Abd Rahman went to the renown Sipadan Island back in December 2017, Sabah to conduct the Diveheart Open Water Diving Programmes. One of our PWD PADI scuba divers, Riza Faisal enjoyed the beautiful dives in Mabul and Sipadan Islands assisted by many Diveheart volunteers and the Borneo Divers Mabul Resort dive professionals. Riza said, "Truly an amazing, awesome underwater zero gravity experience!".

Another milestone, Diveheart Borneo was launched in March 2018 with the support of Premier Marine Scuba Center, a PADI Dive Center in Kuching Sarawak (the first in the Borneo region) lead by Mr. Ernest C Teo. During the Diveheart Adaptive Buddy Diver Training Programme, 6 medical professionals and rehab physiotherapist scuba divers from the Kuching General Hospital were trained by Syed Abd Rahman for the Diveheart Adaptive Dive Buddy (ADB).

Diveheart activities are driven by diving agencies, volunteers, facilitated by dedicated dive centres and funded by sponsors and caring friends. PADI Asia Pacific Office in Sydney Australia extended a PADI Scholarship to the selected PWD Diveheart candidates from the University Malaya Medical Center UMMC to be certified as a PADI Scuba Diver Trained under the direct Supervision of Syed Abd Rahman of Kids Scuba.

For the specialised scuba training involving PWD, the Diveheart programmes provide supplemental instructions, guidelines and protocol to handle people with disabilities such as visually impaired, hearing impaired, amputees, paraplegic and quadriplegic. One of the ADB participants in Borneo, Ms. Caroline said, "The programme made us realise how brave and challenging it can be to dive with these special abilities and good team work is vital".

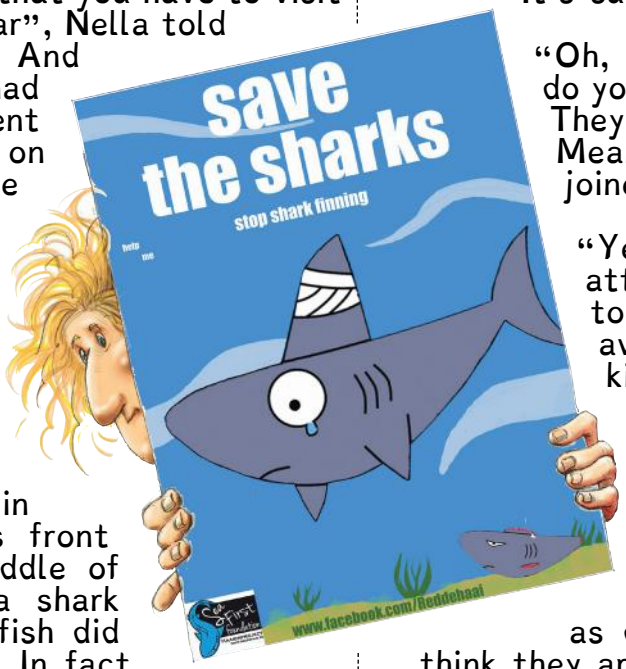
For those who are interested to be trained as an Adaptive Diver Buddy (ADB) or to be a Diveheart volunteer, they may contact Kids Scuba the PADI 5 Star Dive Center located at Tropicana Kajang Heights Recreational Hub, about 30 minutes from Kuala Lumpur or Syed Abd Rahman on +6019-3176705, please email **syed.rahman@diveheart.org**.

Diveheart volunteers may not have to be scuba divers as there are many areas in and out of the water they can be of assistance to.

SAVE THE SHARKS

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

"Safe diving means that you have to visit the doctor every year", Nella told Fred and Skubba. And so their mothers had made an appointment and they were on their way to see the doctor together. It was quite busy in the streets. People walked out of shops with heavier loads than when they went in. They also saw some strange posters hanging in some of the shops front windows. In the middle of a big blue page, a shark swam, but the big fish did not look dangerous. In fact, it made you feel rather sorry for it and very sad. The shark had a bandage around his dorsal fin and it wept. Why was that? The poor thing.



Further down the street, they saw two girls hanging the very same poster up.

"Shall we ask them?" Fred asked.

Both boys hurried over to the girls. One of them turned around and looked at them.

"Why are you hanging these posters?" Skubba quickly asked.

"We are hanging them because we want to protect the sharks," the girl replied.

"But sharks are strong. Can they not protect themselves?" Skubba asked. He had always seen sharks as big and strong hunters. Such large animals can take care of themselves, can't they?

"Normally they can, but people catch 100 million sharks every year. Some are eaten, a bit like we eat fish, but most of them are only killed for their fins. The fins are cut off and the finless shark is then thrown back into the water. The shark suffers and dies a terrible death and we don't want that! The fins only serve to thicken a soup and have no taste at all. It's such a waste!"

"Oh, that's terrible. But why do you want to protect sharks? They kill people, right?" Meanwhile, the second girl joined them.

"Yes, sometimes sharks attack people, but never to eat them. There is an average of about 7 people killed by sharks each year. That is very little compared to the 40 people who die struck by lightning, or the 150 who die each year because a coconut falls on their heads. Sharks are not as dangerous as most of us think they are."

The boys had to think about that. The second girl took over the defense of sharks, "Sharks are important for our seas because they eat the sick and the weak. They ensure only healthy fish survive and so they keep our seas healthy. We do not want sharks to go extinct!"

The girls were very convinced of their case. They wanted to chat a little longer, but the boys had their appointment with the doctor to get to. Skubba and Fred were given two posters which they had to promise to hang up when they got home. Fred would certainly look for more information about sharks on the internet.

Skubba was already thinking about how he could protect sharks as a diver. He strangely felt less afraid of sharks now. He felt sorry for them. They deserve to be protected.

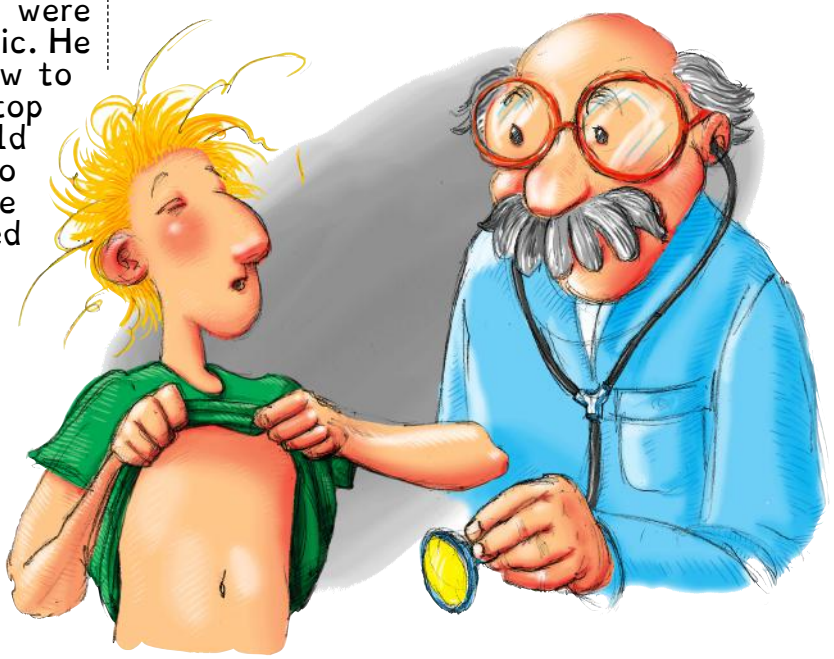
Would he be able to see a shark when he dives? Hopefully the girls project succeeds so sharks do not become extinct before he gets a chance to see them. Better still would be for them to swim in the seas forever. Maybe he and Fred could help?

Reflecting on this encounter and new information, they walked on to their doctors appointment.

A VISIT TO THE DOCTOR

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

Skubba had not noticed that they were standing in front of the doctor's clinic. He had been thinking so hard about how to protect sharks that Fred had to stop and snap him out of it, or he would have probably walked straight into the front door. They pressed on the clinic's doorbell. The door responded and opened with a "beep". They stepped inside, into the waiting room. There was no one else there so it would not be long before it was their turn.



Fred had spent the previous evening trying to find out why Skubba had to see a doctor before he could dive. He did not find very much information out though. He also wanted to see what checks and tests the doctor was going to do. He had only understood that there would be something to do with the ears.

Skubba had told him that if he went to the bottom of the deep part of a pool, his ears would hurt a bit. In the pool they had told him that he had to pinch his nose and make his cheeks bulge. And that helped. While diving, the water pressed on the outside of the eardrums and that could only go away by pressing on the inside too. That pressure had to come from the air in the lungs to the ears via a tube.

"Tube? Is there a tube in our head?" Fred needed to know more about it. That tube even had a name: the Eustachian tube.

Fred always needed to know things and he didn't like waiting to find out. Skubba was not comfortable with it either, especially as Fred always had the answers to his questions, but today he had no answers to what Skubba really wanted to know. Why did he have to see a doctor? It was too late to get up and leave and without this visit, Skubba was not allowed to continue diving. He really wanted to learn to dive!

The time spent in the doctor's waiting room made them even more nervous. On one of the tables there was a selection of diving magazines so they started to look through one to think about something else.

"See that big shark? What a beast!"; "What is that thing? Is that for diving?"; "You have to see this big lamp! It must give a lot of light!"

With all the magazine pictures to look at, they soon forgot all about their fear of the doctor's examination.

Then the door to the doctor's office opened. Someone came out and said goodbye. The doctor followed his patient out and came to the doorway and invited the boys in.

The doctor looked much friendlier than they had imagined. He did not wear a white apron like that of their school's doctor when they had their school medical check ups. Maybe there was nothing to be afraid of? There were no weird devices in the room. There was a hard bed with a large roll of kitchen paper over it, a large desk lamp and a scale on the floor. But other than that, the room did not look like a strange medical lab at all.

Their fear disappeared and gave way to curiosity and a little excitement. What would happen next?

And then the doctor spoke. "So, are you both youth divers?"

PLASTIC POLLUTION IN OUR OCEANS

BY **KINGS' SCHOOL DUBAI YEAR 5 STUDENTS**

BY **AAMINAH KHAN**

Plastic seemed like a marvellous invention when it was created. However, is it really helping us? Plastic is indestructible, which means that it will never disintegrate. More than 8 million tonnes of (single-use) plastic is dumped into our oceans every year. Year 5 at Kings' Dubai School decided that they wanted to make a difference to the environment and visited the Emirates Marine Environmental Group (EMEG). Year 5 planted mangroves, attended a very informative talk about marine conservation and participated in a beach clean. The amount of rubbish we found was atrocious and we now realise what a big change it is we need to make.

Throughout the trip it became apparent that plastic is a huge problem and the next generation need to change their habits. Carrying out the beach clean up helped to raise our awareness, hosting or taking part in a beach clean up is not the only way to save our environment. Everyone could help by informing others to limit their use of plastic. Movie screenings could also be held to show the harmful effects of plastic. One of the easiest ways to help is by giving a donation to a foundation, such as the Plastic Oceans Foundation, who clean our oceans and recycle plastic.

If we do not change our attitude and take action against the use of plastic, our oceans will turn into a plastic soup. Magical sea creatures will cease to exist. The ocean will die. Fifty per cent of our oxygen comes from the ocean! This fifty per cent will disappear into thin air if we do not make a change! Change needs to happen! If not, we will perish and survival will be impossible. There would be no one to blame except us. Humans would be the cause of this catastrophe. According to www.plasticoceans.org, 'every second breath we take is from the ocean'. Imagine if this ocean did not exist.

The ocean has given us beauty. The ocean has given us magnificent marine life, calming waves and pristine beaches. These beaches are tranquil places for us to eat, play, read, relax and most importantly have fun. Much of our marine life could vanish if we do not stop littering and throwing plastic into our oceans. Sea creatures are becoming entangled in nets and swallowing floating plastic bags and bottles. Plastic is killing everything in its reach and destroying a vital part of the world we live in.

We, as a year 5 group, have promised to reduce the amount of single-use plastic we use every day, from water bottles and bags to pens. Furthermore, we are planning to target restaurants, who use plastic in their food delivery or take-away services.
Would you take part in a three minute beach clean up or buy a stylish pair of Adidas Parley trainers made from recycled plastic? Even a small attempt by each person will mean 7 billion attempts to make a difference to our environment. Every effort helps!
We can have a positive impact on our world, but we must make a change right now, at this very moment. As Sylvia. A. Earle wrote, 'No water. No Life. No blue. No Green'.

BY **NINA HATTERSLEY**

On the 22nd April, Year 5 from Kings' School Dubai decided to go on a trip to EMEG (Emirates Marine Environmental Group) for a beach clean, environmental talk and planting of mangroves. The whole year group collaborated together and they did an excellent job.

Plastic is now entering every level of the food chain. Right now 12.7 million tonnes of plastic enters our oceans every year. That is a truck full of plastic per minute. Over the last ten years we have produced more plastic than in the last century. Even though the ocean is essential to all human beings, animals and plants. We are destroying it with the pollution of the most used material, plastic.

We are producing 300 million tonnes of plastic every year – only 9% of all the plastic that has been produced has been recycled. A plastic bag has an average working life of only 15 minutes. When Year 5 went on their beach

clean they found a staggering amount of plastic bags, although when they tried to pick it up it crumbled in their hands. This does not mean that the plastic bag is not there anymore, it has just disintegrated into smaller pieces and become micro-plastic which is extremely dangerous for marine life.

If we do not act soon we might be experiencing a life that no one will enjoy. All the plastic that is in our ocean does not vanish. It might sink, float or alternatively wash up on a beach. It might break down into smaller pieces but it does not disappear.

We need your help to spread awareness and make a difference now. By 2050 there could potentially be more plastic in the ocean than marine life. The oceans we love and enjoy spending time in are getting destroyed so we need to change. We are harming coral reefs, habitats for animals and their protection against predators. Help us, help the oceans!

Every second breath we take comes from the ocean. If we do not spread awareness then we as humans could feel the impact too.

BY **AGATA SAVELYEVA**

What would it be like having to live without half the oxygen on earth? We, as humans, are making this horrific nightmare come true because we are dumping half of our plastic into the ocean. 12.7 million tonnes of rubbish are getting shoved into the ocean. That much litter is equivalent to a truck full of litter each minute when we (year 5 teachers and students at Kings' School Dubai) heard this shocking statistic, we were horrified! We decided we had to do something about it. We visited EMEG and took part in a beach clean up, we planted mangroves and listened to a talk. Whilst collecting litter from the beach we were horrified about the amount of plastic that there was on just one small stretch. During the talk, we learnt that since 1950, only 9% of the plastic has been recycled. We took the anti-plastic pledge and swore to minimise the amount of single-use plastic we use and are designing initiatives at our school to ensure we are practising and educating others about single use plastic.

PLASTIC STATISTIC

"Every second breath is from the ocean." This quote is true since the ocean produces half of the air on our earth (the trees and other greens produce the other half). Even though the ocean is essential to all life on earth, humans are destroying it using the notorious, non biodegradable material called plastic. This material was only invented 68 years ago (1950). Since then, only 9% of all the plastic we produced has been recycled and although there are also other types of litter, plastic is 95% of all the ocean pollution.

DID YOU KNOW…

Did you know that 100.7 billion plastic bottles were sold in 2014 alone? That is equal to 351 bottles per person! An average plastic straw's life is only a few minutes. After it has been disposed into the garbage bin, it either goes into a landfill or the ocean. "No problem" you are probably thinking. "It is only a straw". This is a massive mistake that humans are making. We are under-estimating the amount of plastic that we are using. One straw is not a huge amount, however if everyone uses one straw, then a total of 7.6 BILLION STRAWS is.

WHAT YOU CAN DO

If these shocking statistics horrify you, then here are a few things that you can do:

- Stop using straws! In the UK and the US alone, 550 million plastic straws are thrown away each day.
- Avoid plastic bags. Over 500 million plastic bottles are thrown away worldwide each year.
- Stop plastic packaging. Up to 1 trillion plastic bags are discarded each year all over the world.
- 100,000 tonnes of synthetic rubber (gum) is thrown out worldwide, so don't chew it.

PLASTIC IS NOT FANTASTIC

Another shocking fact is that we are eating our own plastic! This is because when we dump it into the ocean, the fish eat the garbage. Then when we eat the fish, we are technically eating our own trash. So, what are you waiting for? You can take action and do little things, and those little things will add up to big things.

Some ways of taking action are:

- Raising awareness, not everyone knows what is happening to our oceans.
- Go on a short beach clean up.
- Reduce, reuse and recycle single-use plastic.
- Support Adidas Parley. Stylish and yet environmentally friendly.

Save our oceans… Save the world!

AL MAHARA DIVING CENTER AND REEF CHECK UAE

HAVE PLENTY OF EXCITING EVENTS COMING UP TO KEEP YOU COOL THIS SUMMER

BY **REBEKKA PENTTI**

REEF CHECK ECODIVER

Training Course
DATE: 31st May – 2nd June
VENUE: Al Mahara Diving Center, Beach Rotana Hotel Abu Dhabi

Reef Check is a global organisation combining education and research to help protect reefs and oceans. As a Reef Check surveyor you can contribute to reef conservation efforts and dive for minimal costs while helping with surveys! At the successful completion of this course you will be awarded with the Reef Check International EcoDiver card. As a Reef Check EcoDiver and a Reef Check UAE volunteer, you will be able to participate in monthly survey dives which will help us understand the threats our local marine ecosystems are facing by collecting valuable data. Upon completion of the course you will also join a team of thousands of volunteer Reef Checkers around the world. You may choose to apply your new skills elsewhere because Reef Check is operational in over 90 countries worldwide!

WORLD OCEANS DAY

Underwater Clean Up
DATE: 8th June
VENUE: Intercontinental Hotel Abu Dhabi Marina

Come and join us for an underwater marina clean up for World Oceans Day 2018! This event is hosted by Al Mahara Diving Center, The Intercontinental Hotel Abu Dhabi and Reef Check UAE.

UNDERWATER CLEAN UP

Dive Trip to Abu Dhabi's Local Sites
DATE: 9th June
VENUE: Al Mahara Diving Center, Beach Rotana Hotel Abu Dhabi

We love our beautiful local dive sites, but unfortunately on most dives, we often witness plastic pollution and discarded fishing gear. So on Saturday the 9th of June, a day after World Oceans Day, Al Mahara Diving Center and Reef Check UAE would like to invite you to make a difference in our local marine environment by conducting a couple of underwater clean up dives at our most popular dive sites!

REEF CHECK SURVEY

For Certified Reef Checkers
DATE: 15th June
VENUE: Al Mahara Diving Center, Beach Rotana Hotel Abu Dhabi

Please email **environment@divemahara.com** for more information or to register!

PADI WOMEN'S DIVE DAY

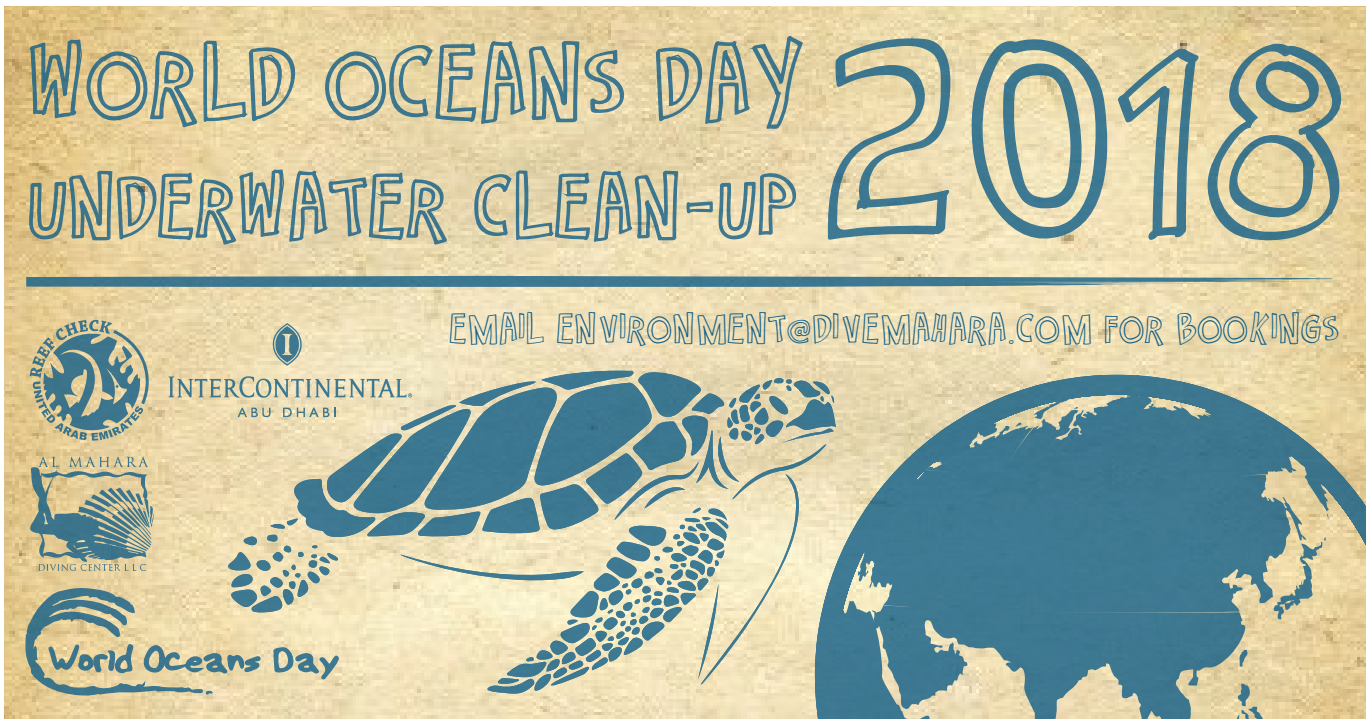
DATE: 21st July

To celebrate PADI Women's Dive Day 2018, we will be running Discover Scuba Diving try dives for ladies only! Ladies, invite your friends to come and explore the wonders of breathing underwater! Please email **info@divemahara.com** to register!

REEF CHECK WEEKEND

DATE: 24th – 25th August

We will conduct surveys at Abu Dhabi's natural coral reefs and possibly run another Reef Check EcoDiver course. Please get in touch if you are interested in getting involved!



FIRST TWO RC TRAINERS IN OMAN TAKE LEAD IN REEF CONSERVATION

BY **BIOSPHERE EXPEDITIONS**

The very first two Omani Reef Check Trainers have just been certified and can now train their compatriots in Oman and elsewhere. This is the first time in the history of Oman that its citizens have assumed a leading role in reef science and conservation.

The two historic trailblazers, Jenan Anwar Alasfoor and Ali Saleh Ibrahim, are graduates of an international placement programme run by global conservation NGO Biosphere Expeditions. Alasfoor and Ibrahim initially took part in expeditions run by Biosphere for the last 10 years to assess the health of Musandam reefs. Their participation was co-funded by the Anglo-Omani Society, and their training was supported by the Marine Conservation Society. They both graduated from the expedition as Reef Check EcoDivers and went on to take a leading role in the first ever community based reef survey in Oman in 2017. Alasfoor also became the head of budding NGO Reef Check Oman in the same year. Alasfoor and Ibrahim then expanded their survey experience and remotely completed a marine biology course at the University of Exeter (UK). It is thus only fitting that the next step be the historic achievement of certification as Oman's very first Reef Check Trainers.

"I am so proud to be a Reef Check Trainer now," said Alasfoor. "I intend to train other Omanis and build a community based survey programme. Anyone interested in joining me should look at the Reef Check Oman website and contact me. The more Reef Checkers we have, the better! And even if you are not a diver, we need help – and we can also work towards making you a diver with the support of our partners Grand Hyatt Muscat as well as Euro Divers Oman".

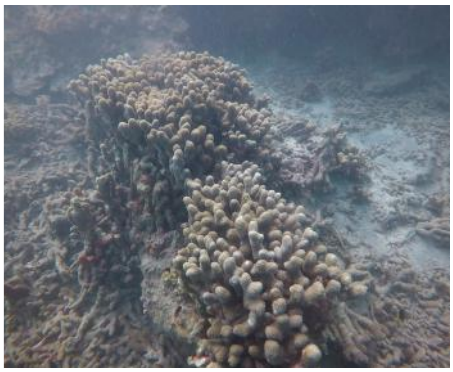
Ibrahim thanked "Biosphere Expeditions and all the other partners that have helped to get us to this point. The reefs of our country are a hidden jewel that requires urgent protection. The more Omanis we can get involved, the more civil society will notice, which is crucial if we are to protect our country's beautiful reefs. But they are not only beautiful, they are also vital for livelihoods, traditional ways of life and to protect our shores from damage. Please join Jenan and I in fighting for their survival."

Dr. Matthias Hammer, founder and chief executive of Biosphere Expeditions, concludes that "this is exactly what our placement programme is all about – empowering local people to run their own conservation programmes. Congratulations to Jenan and Ali for their historic achievement. We hope it is another stepping stone towards a true community based reef conservation programme in Oman."

The next annual Musandam Reef Check expedition will take place from 25 November – 1 December 2018. Divers from Oman and the rest of the world are encouraged to participate, be trained as citizen scientists and Reef Check EcoDivers, and help with coral reef conservation in Oman. More information about the expedition is available at **www.biosphere-expeditions.org/musandam**.

RC COORDINATORS JOIN FORCES WITH STUDENT VOLUNTEERS TO ASSESS HURRICANE IMPACT ON CARIBBEAN REEFS

PHOTOS BY **BRITTANY HOLBROOK**



In late January, a team of scientists led by Reef Check Executive Director Dr. Gregor Hodgson surveyed the reefs of Nevis and Dominica to determine the effects of Hurricanes Irma and Maria on the Caribbean islands. Dr. Hodgson joined forces with long-time Reef Check Caribbean Coordinators Jim Hewlett and Arun "Izzy" Madisetti and a group of four student volunteers – Brittany Holbrook, Brooke Day, Marissa Hassevoort, and Morgan Anderson. Vaughn Sturge, a dive master and EcoDiver from Nevis, also participated. The trip was the first phase of their investigation to find out exactly what happened underwater last September. The work was funded by the Geneva based Oak Foundation and US National Science Foundation.

From the air, the formerly lush tropical forests of Dominica looked like matchsticks spilled from a box. On the ground, the team drove past miles of collapsed telephone poles, destroyed homes and blue tarps covering damaged roofs. The team was nervous about what they'd find below the surface – could the coral reefs survive the high winds, huge waves and flooding that decimated hotels and killed more than 30 people?

After seeing the terrible damage on land, the team expected to see similar destruction underwater. While they did find some reefs formerly comprised of fragile branching coral species had been flattened, they were pleasantly surprised to discover that most of the reefs surveyed only suffered moderate damage, with about 15% of the corals broken or killed. After 10 days of surveys, the team concluded that the major threats to the health of reefs in Nevis and Dominica are overfishing and rising seawater temperatures.

"Coral reefs are the most sensitive ecosystem in the world to global warming. They're being destabilised by over-fishing and killed off by climate change," Hodgson said. "It's a mystery to piece together what happened after these two massive hurricanes swept over reefs that aren't being monitored often."

The team spent every day carrying out surveys using two main techniques. The first, called the 'manta tow', is a slow motion sled ride. The observer clings on to a flat board stopping every few minutes to record the level of damage among other parameters and the coordinates.

At certain points, they stopped to deploy a team of divers to do a more detailed Reef Check survey involving counting fish, shellfish and other invertebrates, and finally the corals that provide the foundation for the ecosystem, recording the counts on waterproof paper.

In the face of some difficult and dangerous situations, the team proved they were up to the task. One day Marissa was stalked by a barracuda and had to 'walk on water' to get back to the boat, and on another day, the boat engine broke, producing spectacular black clouds of diesel smoke. In exposed coastal areas waves were often 10 feet high making it difficult to tow a diver. During lunch breaks the boat crew taught the students how to fillet the invasive lionfish to make ceviche.

After completing the surveys, Hodgson wrote up a summary report to help the World Bank and the Fisheries Department of Dominica to determine what funding would be needed to restore the damaged reefs. After returning to Los Angeles, Hodgson began the process of analysing the results in more detail with the help of the field team and other scientists.

The results showed that in a few areas, the hurricanes wiped out patches of fragile finger corals, sea fans, large barrel sponges and gorgonians, leaving rubble and dead corals scattered on the sea floor. However, most areas only suffered minimal damage, likely due to the mound-shaped corals being adapted to wave action over time.

In fact, not all the changes were bad – the hurricanes ripped out a lot of algae that had been overgrowing and killing the corals. In the short term, this will open up space allowing coral larvae to settle and grow back.

"The hurricane damage wasn't as bad as we all expected, but the goal of Reef Check is to assess all human impacts," Hodgson said. "I was surprised how few fish were counted and how small they were in both Nevis and Dominica."

Fishing down the food chain results in algae-eating fish like doctorfish getting fished out. Without these herbivores, some reefs had already been converted from coral reefs to sponge and algae reefs. "It's very sad," Hodgson said. "Between coral bleaching and overfishing, we've lost a dramatic amount of reefs in the past four years all over the world. We need to wake up soon or we won't have reefs."

Global warming caused the Caribbean to heat

up 1 or 2 degrees Fahrenheit during the last El Niño (2014-16). While a one degree F rise in temperature is nothing for most animals, corals are super sensitive so they "bleach," then many die. Luckily, the reefs in Dominica and Nevis have not yet been affected much by bleaching. Hurricanes also derive their destructive energy from the heat of ocean water. The hotter the water, the higher the possible wind speeds. Wind speeds in Dominica reached 180 mph – enough to pick up a car and toss it like a toy. The stronger the wind, the bigger the waves – and it is the wave energy that can rip up a coral reef.

Coral reefs are the most at-risk ecosystem in the world. Unless the world can get a handle on global warming, increasingly more powerful hurricanes will cross the Caribbean killing more coral, and higher water temperatures will increase the chances of coral bleaching and death. The loss of coral reefs will reduce the amount of fish and coastal protection, damage the tourism industry, and potentially limit the number of future pharmaceutical discoveries of "drugs from the sea".

"We see the pattern with the warming ocean," Hodgson said. "Yet one billion people depend on food from coral reefs."

But it's not too late. If the damaging conditions are reversed, the reefs and fish will come back in as little as five years. Hodgson believes solutions include restricting fishing through the creation of marine protected areas, developing sustainable aquaculture on the islands to grow more fish for local consumption and exporting fish and algae to sell to other countries. Reef Check aims to educate and empower the public to care more about the ecosystem by training volunteer divers.

"We train divers because we want them to care about the ocean. You care about what you know," Hodgson said. "You go in the ocean, you see it, you love it. You can't love what you don't know."

INTERNATIONAL YEAR OF THE REEF 2018

The International Coral Reef Initiative has declared 2018 as the third International Year of the Reef (IYOR). The initial IYOR was designated in 1997 in response to the increasing threats on coral reefs and associated ecosystems. The hope was to increase awareness of the value of and threats to coral reefs, and to promote conservation, research and management efforts on a global scale. Over 225 organisations in 50 countries and territories participated, publishing over 700 articles in papers and magazines and undertaking hundreds of scientific surveys. This effort was repeated 11 years later, when 2007 was designated as the second IYOR.

The goals of the 2018 IYOR are to:

- Strengthen awareness globally about the value of, and threats to coral reefs and associated ecosystems;
- Promote management partnerships among all shareholders: government, the private sector, academia, and the local community;
- Identify and implement effective management strategies for conservation, increased resiliency, and sustainable use of these ecosystems;
- Share information on best practices in relation to sustainable coral reef management.

Below are just some of the events and activities Reef Check teams and partners around the world have scheduled to celebrate IYOR. Contact rcinfo@reefcheck.org if you would like to have your event listed.

IYOR 2018
INTERNATIONAL YEAR OF THE REEF

COUNTRY	WHEN	WHERE	EVENT	ORGANIZER/ PARTICIPANT	MORE INFO
Barbados	July 4-8 2018		2018 Dive Fest	Barbados Blue	divefestbarbados.com
Belize	June 13-27 2018	San Pedro, Ambergris Caye	Survey Trip	Middlesex Community College Bedford, MA	
Colombia	May 11-14 2018	Santa Marta	Santa Marta Reef Check Expedition	Corales de Paz	http://www.coralesdepaz.org/programas/santa-marta-reef-check/
Egypt	August 11 - September 22 2018	Dahab	Dahab Reef Monitoring	Red Sea Environmental Centre	Scholarship is available- click here for details
Italy	April 2018	Ancona University	Chasing Coral film screening	Reef Check Italy	postmaster@reefcheckitalia.it
Italy	April 2018	Ravenna University	Chasing Coral film screening	Reef Check Italy	postmaster@reefcheckitalia.it
Italy	April 2018	Chioggia	Chasing Coral film screening	Reef Check Italy	postmaster@reefcheckitalia.it
Indonesia	March 3 2018			Reef Check Indonesia	
Indonesia	October 2018	Bangka, North Sulawesi	Reef Check Italy EcoExpedition	Reef Check Italy	postmaster@reefcheckitalia.it
Malaysia	March 3 2018	10 locations	Beach Clean-ups	Reef Check Malaysia	www.reefcheck.org.my
Malaysia	May 4-6 2018	Kuala Lumpur	Malaysia International Dive Exhibition	Reef Check Malaysia	www.reefcheck.org.my
Malaysia	September 15 2018		International Coastal Clean-Up Day	Reef Check Malaysia	www.reefcheck.org.my
Philippines	March 2018		Community coral reef assessment training	Southern Leyte University	

RARE SPECIES SIGHTED IN CALIFORNIA
NEW SPECIES ADDED TO RCCA SURVEY PROTOCOL

BY **JAN FREIWALD, SELENA MCMILLAN** AND **DAN ABBOTT**

Reef Check California's (RCCA) 2018 survey season is just about to start, but we have already made some interesting observations during recent dives. RCCA staff have observed several species outside of their normal range, suggesting that certain species are expanding their historically southerly ranges northward. These sightings are likely the result of the recent warm water and El Niño events that have occurred in recent years. In 2016, RCCA reported the first sighting of a crowned sea urchin (*Centrostephanus coronatus*) in central California (Freiwald et al. 2016). This species of sea urchin was previously only found as far north as the Northern Channel Islands and has a historical distribution ranging from the Galapagos Islands in the south to Southern California in the north. In March of this year, during a dive in Point Lobos State Marine Reserve, our Southern California Regional Manager, Dr. Selena McMillan, documented a crowned urchin for the second time in central California. On a reef in Whalers Cove, a common dive destination, she observed a crowned urchin among purple and red sea urchins, which are typically found in the region.

This is not the only observation of typically southern species on the central coast in recent months. During a recent training dive for students from California State University Monterey Bay, Dan Abbott, RCCA's Central California Regional Manager, and others saw a female rock wrasse (*Halichoeres semicinctus*) at the breakwater in Monterey. This fish species is not commonly found north of Point Conception, which marks the northern range boundary of many species found in southern California. While southern species have been observed in central California from time to time, in recent years these observations seem to have become much more common in the Monterey/Carmel Bay region.

During a recent dive, Kate Vylet, RCCA's Climate Change Monitoring Coordinator, and Dan Abbott saw an even less common fish species in central California. They found a Finescale Triggerfish (*Balistes polylepis*) sleeping in the sand near a reef along the Monterey Peninsula. Though triggerfish are primarily found on coral reefs, the finescale triggerfish has a wide geographic range, including the entire North American west coast, but it is rarely seen in central California. This fish has become more common in southern California recently, where similar increases in its abundance have been observed after previous El Niño events. This is why RCCA has added this species to its species list and is teaching volunteers now to look for it anywhere during their survey dives.

Another species that has become increasingly common in southern California is the Largemouth Blenny (*Labrisomus xanti*). This species' historical range expanded northward into central Baja California, Mexico and was first reported in California in 2015, near La Jolla (Love et al. 2016). Now they are fairly common at Santa Catalina Island and are being seen throughout southern California. Evidence of their reproduction has also been observed in larval collections off the coast of Palos Verdes (Milton Love, personal communication). RCCA has added Largemouth Blennies to its species list and is now documenting their densities and potential range expansion in southern California and statewide should they start showing up even further north.

RCCA has also added a new kelp species to its surveys this year. We have observed changes in the composition of kelp in many of our southern sites in recent years, noticeably the emergence of feather boa kelp (*Egresia mensiesii*) in place of or among giant kelp (*Macrocystis pyrifera*). The feather boa kelp is native but is usually found at very shallow depths and in the intertidal. With the warm water events that have occurred, we have observed this species' expansion into deeper, subtidal waters. We will now be counting individuals and stipes of individuals to estimate densities of this alga within the kelp forests that we survey.

NEARLY 2,700 KG OF TRASH COLLECTED FROM MALAYSIA'S BEACHES

BY **REEF CHECK MALAYSIA**

Participants took part in a beach clean up on the 3rd of March and collected nearly 2,700 kg of trash from Malaysia's coastline. The analysis revealed that plastic bottles and other plastic items accounted for a significant proportion of the trash collected, providing further evidence that urgent action is needed to address plastic pollution in our seas.

The clean up was conducted at 16 locations around Malaysia and involved over 500 people from 20 organisations. Together they cleaned trash from 15 km of coastline, filling nearly 400 trash bags. The trash collected included 15,874 plastic beverage bottles, 6,884 plastic bags, 2,368 cigarette butts…and 203 diapers.

Julian Hyde, General Manager and clean up organiser for Reef Check Malaysia (RCM), said, "We have been concerned about marine debris for some time. This clean up shows just how big the problem is. Imagine if this were extrapolated to the whole of Malaysia."

The clean up is the first in a series of activities celebrating the International Year of the Reef (IYOR) 2018, and will hopefully raise awareness of the problem of marine debris, plastic in particular. Further events are being prepared for World Oceans Day and Coral Triangle Day, and in September RCM hopes to organise a nationwide clean up event with partners and participants around Malaysia.

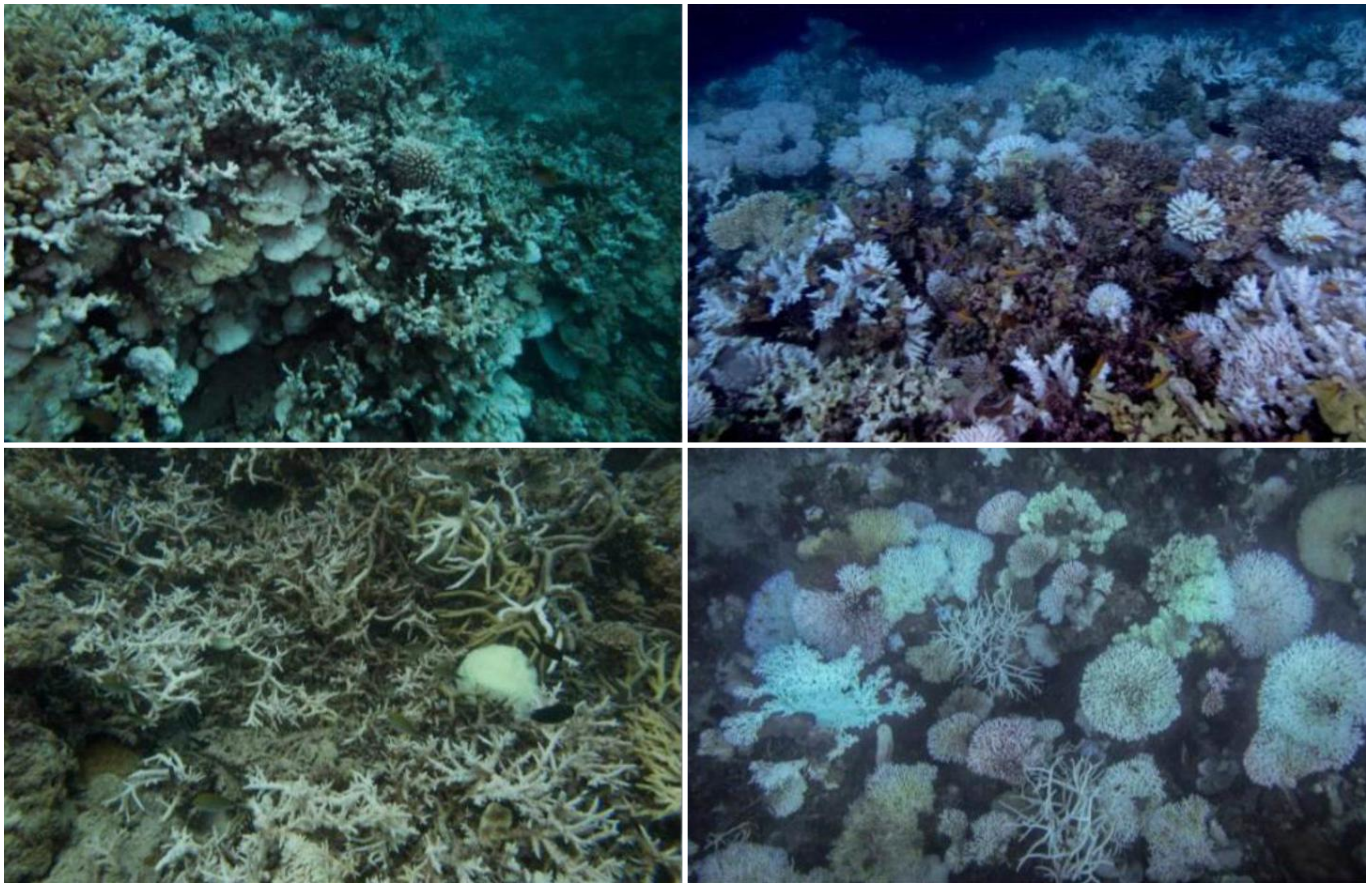
More importantly, the hope is to persuade government and other stakeholders to take action. Possible solutions include: a deposit scheme for plastic drink bottles; improved recycling schemes; barriers on rivers to stop trash from reaching the ocean; and re-purposing plastic into useful products, providing revenue to coastal communities.

Hyde said, "This clean up has proven that it is possible to mobilise large numbers of people to solve a problem, and we are grateful to all the people who joined in to make it a success. But we need to go beyond this – hopefully eventually to stop having to do beach clean ups altogether by stopping the trash from getting there. We call on all players to get involved – government, food & drink companies, resorts and other tourism operators – everyone has a role to play if we are to find sustainable solutions to this problem."

CORAL REEFS IN CRISIS

REQUIRE COMPREHENSIVE REMEDIATION STRATEGIES

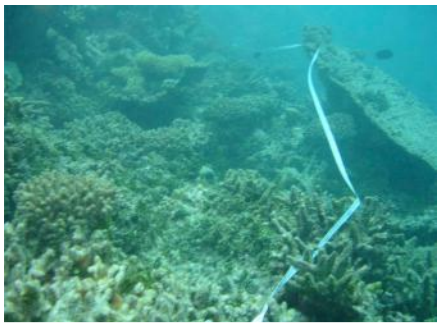
BY **DR. JEAN-LUC SOLANDT,** MARINE CONSERVATION SOCIETY & COORDINATOR FOR REEF CHECK MALDIVES



As a result of climate change and other anthropomorphic stressors, coral reefs are suffering a decline in both species populations and diversity, according to Dr. Jean-Luc Solandt, who presented Reef Check Maldives/IUCN findings at the recent three-day European Coral Reef Symposium attended by almost 600 delegates in Oxford, England. Solandt reported the following key points of the conference:

- Corals are in crisis, with increasing evidence of a shift to *Porites genera* rather than *Acropora genera* in the Indo-Pacific.
- Bleaching can actually lead to resilience in some corals and in the zooxanthellae clades; researchers have observed evidence of acclimatisation to further warming events by the coral hosts themselves.
- Some corals (Porites, such as Thailand's intertidal brain corals) can "shrink down" into the calix better than others can to avoid thermal stress.
- Modelling has shown that the Great Barrier Reef can recover from last year's bleaching, as there are node reefs (3% of the system) that have not bleached that may resupply up to 47% of the whole complex with larvae.
- Ecosystem function can be maintained when 50% of the biomass and diversity of reef fish are exploited on reefs.
- Many reefs show algal abundances coincident with localised wave-induced upwelling, a newly described natural phenomenon.
- Reef conservation efforts worldwide must persevere through stakeholder interaction, identifying new opportunities, and fostering capacity building efforts.
- Corals show incredible breeding "plasticity," with incredibly sophisticated brooding, sperm selection and timing of spawning. 'Pushing' evolution by exploiting thermal tolerances and through forced fertilisation of individuals can lead to greater thermal tolerances.
- Grouper spawning populations are in trouble in the Maldives, even in isolated atolls away from larger population centres.
- Coral reef restoration is far costlier than is preventing damage/collapse in the first place, with projections of over US$150K for protecting a hectare of Thailand's reefs.

"Much of the upshot of this," continues Solandt, "is that many scientists are desperate to find academic ways to solve the current problems. However, the necessary scale of remediation, or putting things in practice that could mitigate at whole-reef scale or national/regional scale, is not being invested in so far. A mega project that takes into account (bullet points) 4,6,7 and 8 above may be able to provide the mechanisms to support recovery in resilient ecosystems."



FEATURE CREATURE
GIANT MANTA RAY *(MANTA BIROSTRIS)*

FEATURE **IUCN RED LIST 2017** PHOTOGRAPHY **SIMONE CAPRODOSSI**

RED LIST CATEGORY & CRITERIA: VULNERABLE

Scientific Name: *Manta birostris* (Walbaum, 1792)

Common Name(s): English – Giant Manta Ray, Chevron Manta Ray, Oceanic Manta Ray, Pacific Manta Ray, Pelagic Manta Ray
Spanish – Manta Cornuda, Manta Diablo, Manta Gigante, Manta Raya, Manta Voladora

Justification:
The Giant Manta Ray (*Manta birostris*), the largest living ray, has a circumtropical and also semi-temperate distribution throughout the world's major oceans, however within this broad range, actual populations appear to be sparsely distributed and highly fragmented. This is likely due to the specific resource and habitat needs of this species. Overall population size is unknown, but subpopulations appear to be small (about 100–1,000 individuals). Only recently separated from the Reef Manta Ray (*M. alfredi*), little is currently known about this ray except that it is elusive and potentially highly migratory.

The degree of interchange of individuals between subpopulations is unclear but is assumed to be low as there is currently no data that supports such interchange despite active efforts to do so. As such, the decline of these small subpopulations may result in regional depletions or extinctions with the reduced possibility of successful recolonisation. To aggravate this situation, this species has a very conservative life history with an extremely low reproductive output (one pup per litter). These biological constraints would also contribute to its slow or lack of recovery from population reductions.

Currently this species has a high value in international trade and directed fisheries exist that target this species in what is certain to be unsustainable numbers. Artisanal fisheries also exist that target this species for food and medicine. Individuals are also taken as bycatch in everything from large-scale fisheries to shark control programmes/bather protection nets.

The rate of population reduction appears to be high in several regions, as much as 80% over the last three generations (approximately 75 years), and globally a decline of 30% is strongly suspected. Sustained pressure from fishing (both directed and bycatch) has been isolated as the main cause of these declines. Certain monitored subpopulations appear to have been depleted, such as in the Philippines, Indonesia, and parts of Mexico and are believed to be decreasing in other areas such as India and Sri Lanka as a result of sustained pressure from fishing. Of particular concern is the targeting of this species at critical habitats or well-known aggregation sites where numerous individuals can be targeted with relatively low catch-per-unit-effort.

Dive tourism involving this species is a growing industry and it has been demonstrated that sustainable tourism significantly enhances the economic value of such species in comparison to short-term returns from fishing. Tourism related industries can also negatively impact individual behaviour, entire populations and critical habitat for this species, thus the responsible development of these industries is recommended.

Range Description: Circumglobal in tropical and temperate waters, this species has a widespread distribution. The Giant Manta Ray has been documented to occur as far north as southern California and New Jersey

on the United States west and east coasts, respectively, Mutsu Bay, Aomori, Japan, the Sinai Peninsula, Egypt and the Azores Islands in the Northern Hemisphere and as far south as Peru, Uruguay, South Africa and New Zealand in the Southern Hemisphere.

In a few locations, including Mozambique, the Giant Manta Ray is sympatric with the Reef Manta Ray. When they occur together these species typically exhibit different habitat use and movement patterns (Marshall et al. 2009, Kashiwagi et al. 2011).

The Giant Manta Ray appears to be a seasonal visitor to coastal or offshore sites. While this species seems more solitary than the Reef Manta Ray, Giant Manta Rays are often seen aggregating in large numbers to feed, mate, or clean. Sightings of these giant rays are often seasonal or sporadic but in a few locations their presence is a more common occurrence. Observations of the Giant Manta Ray at aggregation sites such as the Similan Islands, Thailand; northeast North Island, New Zealand; Laje de Santos Marine Park, Brazil; Isla de la Plata, Ecuador; and Isla Holbox, Mexico, indicate that this species is a regular seasonal visitor, with sightings only during specific, predictable times of the year (Duffy and Abbott 2003, Luiz et al. 2009, A. Marshall pers. obs. 2011).

Observations of the Giant Manta Ray frequenting remote seamounts in Isla Socorro, Mexico, Malpelo, Columbia and off some remote islands (Cocos Island, Costa Rica; Galápagos, Ecuador; Laje de Santos, Brazil) show a degree of philopatry to these sites but also indicate that these mantas make migrations away from these areas during parts of the year (Rubin 2002, Luiz et al. 2009, A. Marshall unpubl. data 2011). In other areas, such as southern Mozambique, the Giant Manta Ray is seen sporadically throughout the year although individuals are not commonly re-sighted over time (Marshall 2009).

Population: This species is not regularly encountered in large numbers and, unlike the Reef Manta Ray do not often appear in large schools (>30 individuals) when feeding. Overall they are encountered with far less frequency than the smaller Manta species, the Reef Manta Ray, despite having a larger distribution across the globe.

Due to the global nature of their individual distributions, absolute population sizes will always be difficult to assess. Currently, the overall total global population sizes of both these species are unknown, but subpopulations appear, in most cases, to be small (less than 1,000 individuals). The degree of interchange of individuals between subpopulations is unclear but is assumed to be low, as there are currently no data that support such interchange, despite active efforts to do so (A. Marshall et al. unpubl. data 2011).

Photo-identification studies at major aggregation sites in southern Mozambique (Marshall 2009); southern Brazil (Luiz et al. 2009); Revillagigedo Islands, Mexico (Rubin 2002); the Ogasawara Islands, Japan (Yano et al. 1999a, Kashiwagi et al. 2010); the Maldives (G. Stevens unpubl. data 2011); Isla Holbox, Mexico (S. Hinojosa-Alvarez unpubl. data 2010); Isla de la Plata, Ecuador (M. Harding unpubl. data 2010) have databases of less than 300 individuals, with many of these studies having been underway for the last 10–20 years. A semi-exhaustive study of Japan-wide photographic records confirmed that the known main aggregation in Ogasawara Islands (42 known individuals during 1995–1998 study) represents a part of a fairly isolated population (Kashiwagi et al. 2010).

A mark-recapture population study in southern Mozambique over five years from 2003 to 2008 estimated the local population during that time to be 600 individuals (Marshall 2009). Flight surveys and re-sightings data of individuals at Isla Holbox, Mexico have estimated that roughly 100 manta rays use this area during every season (S. Hinojosa-Alvarez unpubl. data 2010).

While the Giant Manta Ray is widely distributed and appears to be a migratory species, regional populations appear to be small considering the scale of their habitat. Individuals most commonly show a degree of site fidelity to specific regions, as well as critical habitats within them, such as cleaning stations and feeding sites. Preliminary satellite tracking studies and international photo-identification matching projects have suggested a low degree of interchange between populations.

While there is a distinct paucity of information on population numbers or trends, local populations are likely to be in decline in areas where they are fished, or are under threat from anthropogenic influences e.g., India/Sri Lanka (Pillai 1998, Anderson et al. 2010), Indonesia (White et al. 2006), Philippines (Alava et al. 2002) and the west coast of Mexico where encounter rates have dropped significantly over the last five years or anthropogenic mortality has been elevated.

Overall, the rate of population reduction appears to be high in several regions, up to as much as 80% over the last three generations (approximately 75 years), and globally a decline of >30% is strongly suspected.

Current Population Trend: Decreasing

Habitat and Ecology: The Giant Manta Ray occurs in tropical, sub-tropical and temperate waters of the Atlantic, Pacific and Indian Oceans. Commonly sighted along productive coastlines with regular upwelling, oceanic island groups and particularly offshore pinnacles and seamounts. The Giant Manta Ray is commonly encountered on shallow reefs while being cleaned or is sighted feeding at the surface inshore and offshore. It is also occasionally observed in sandy bottom areas and seagrass beds.

A global investigation of major aggregation sites revealed that the Giant Manta Ray may be a more oceanic and a more migratory species than the Reef Manta Ray (A. Marshall et al. unpubl. data). Rare or seasonal sightings of the Giant Manta Ray at locations such as northern New Zealand (Duffy and Abbott 2003), southern Brazil (Luiz et al. 2009) and Uruguay (Milessi and Oddone 2003), the Azores Islands, the Similan Islands, Thailand (A. Marshall unpubl. data 2011) and the eastern coast of the United States (Bigelow and Schroeder 1953), suggests that this species undergoes significant seasonal migrations.

Despite this data, preliminary satellite tracking studies and international photo-identification matching projects have suggested a high degree of fragmentation between regional populations of this species, suggesting that movements across ocean basins may be rare. Satellite tracking results have been able to reveal that the Giant Manta Ray is capable of large migrations (over 1,100 km straight line distance) and have monitored individual movements across international borders, across large bodies of water, and into international waters (A. Marshall et al. unpubl. data 2011, R. Rubin pers. comm. 2009). Satellite tracking studies using archival PAT tags have registered movements of the Giant Manta Ray from Mozambique to South Africa (a distance of 1,100 km), from Ecuador to Peru (190 km), from the Yucatan, Mexico into the Gulf of Mexico (448 km). This species is capable of deep dives and has been both seen at depth and tracked down to depths exceeding 1,000 metres (A. Marshall et al. unpubl. data 2011).

The Giant Manta Ray reaches disc widths (DW) of at least 700 cm, with anecdotal reports up to 910 cm DW (Compagno 1999, Alava et al. 2002). Size at maturity for the Giant Manta Ray may vary slightly throughout its range, but males in southern Mozambique mature at approximately 400 cm DW while females appear to mature well over 400 cm DW (Marshall 2009). In Indonesia, data from fisheries dissections suggest that in that region male Giant Manta Rays mature at 375 cm DW, while females may mature by approximately 410 cm DW (White et al. 2006).

The Giant Manta Ray appears to be a relatively long-lived species. Although the actual longevity of the species remains unknown, photographic databases have re-sighted individuals up to a 20 year period (Rubin 2002, G. Kodja unpubl. data 2010). Natural mortality is thought to be low (other than in juveniles), although limited predation from large sharks does occur (Marshall 2009).

Generation time is suspected to be 25 years based on conservative estimates of life history

parameters from the Reef Manta Ray. Female mantas are thought to mature at 8–10 years of age and longevity is estimated to be at least 40 years. Generation time is the average age of adults which can be approximated as halfway between age at first maturity and maximum age. Thus female mantas may be actively breeding for 30 years and the age at which 50% of total reproductive output is achieved would be approximately 24–25 years.

Copulation has been documented off the Ogasawara Islands, Japan and is believed to occur in the summer months (Yano et al. 1999b). Two pregnant individuals have been registered and photographed in southern Mozambique although a breeding season at this location has not been established (Marshall 2009). There is little information on the reproductive biology or ecology of this species although reports of litter size are consistently of a single offspring (Coles 1916, Beebe and Tee-Van 1941, Bigelow and Schroeder 1953).

Systems: Marine

Generation Length (years): 25

Movement patterns: Full Migrant

Use and Trade: The meat is often sold as food, the liver for medicine and branchial filter plates (gill rakers) from Manta and Mobula spp enter international trade and fetch high prices in Asia where they are used for traditional Chinese medicine (Zhongguo yao yong dong wu zhi xie zuo zu bian zhu 1983). Meat from the Giant Manta Ray is also often used for shark bait or attractant in Mexico. Limited use of epidermis for leather products has been verified.

Giant Manta Rays are sometimes caught and transported to aquariums for use in display tanks. The Georgia Aquarium, the Atlantis Resort in the Bahamas, and the Lisbon Aquarium have had or are presently housing wild caught Giant Manta Rays in their exhibits. Some of these captive animals have been released into the wild.

Major Threat(s): The main threat to both Manta species is fishing, whether targeted or incidental. Manta rays are currently killed or captured by a variety of methods including harpooning, netting and trawling. These rays are easy to target because of their large size, slow swimming speed, aggregative behaviour, predictable habitat use, and lack of human avoidance.

Manta species have a high value in international trade markets. Their gill rakers are particularly sought after and are used in Asian medicinal products. This market has resulted in directed fisheries for manta rays which are currently targeting these rays in unsustainable numbers. Over 1,000 manta rays are caught per year in some areas (Alava et al. 2002, Dewar 2002, White et al. 2006, C. Anderson and G. Stevens pers. obs.). Artisanal fisheries also target both species for food and local products (Essumang 2010, Marshall et al. 2011).

Aside from directed fisheries, manta rays are also incidentally caught as bycatch in both large-scale fisheries and small netting programs such as shark control bather protection nets (Carlson and Lee 2000, Young 2001). In some populations, such as the ones identified at Isla de la Plata, Ecuador, Laje de Santos, Brazil, and the Similan Islands, Thailand, high percentages of all individuals encountered or identified have evidence of entanglement or are dragging lines or nets (A. Marshall unpubl. data 2011).

As a result of sustained pressure from fishing (both directed and bycatch) certain monitored subpopulations appear to have been rapidly depleted (e.g., Gulf of California, Mexico; Indonesia; and, Philippines (Anon 1997, Alava et al. 2002, White et al. 2006)). Targeting either species of Manta at critical habitats or aggregation sites, where individuals can be caught in large numbers in a short time frame, is a particular threat. Regional populations of both species appear to be small, and localised declines are unlikely to be mitigated by immigration. This situation is exacerbated by the conservative life history of these rays, which constrain their ability to recover from a depleted state.

Cryptic threats such as mooring line entanglement and boat strikes can also wound manta rays, decrease fitness or contribute to non-natural mortality (Deakos et al. 2011). Many other threats have been postulated and identified such as habitat degradation, climate change, pollution (e.g., from oil spills), ingestion of micro plastics and irresponsible tourism practices.

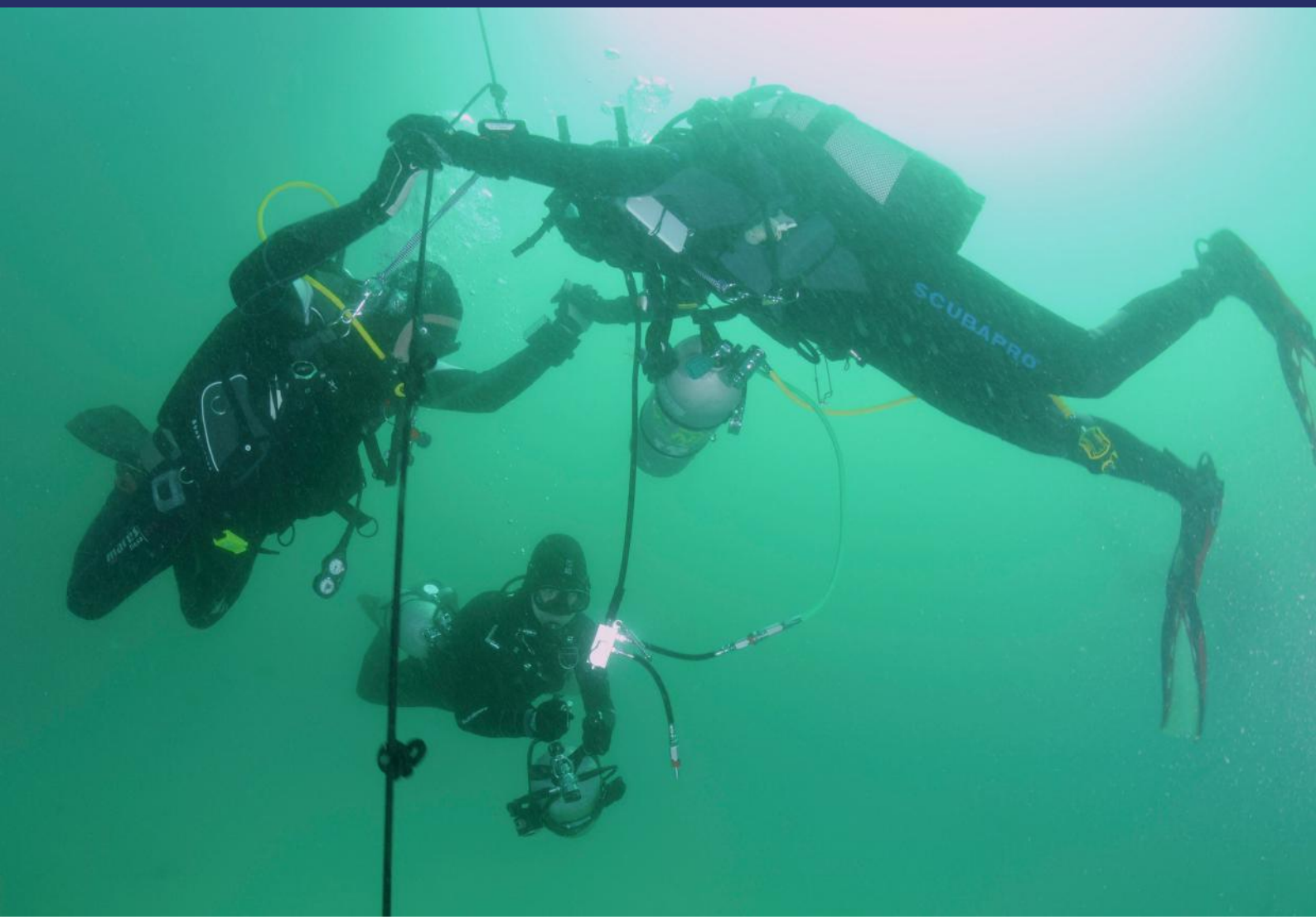
Citation: Marshall, A., Bennett, M.B., Kodja, G., Hinojosa-Alvarez, S., Galvan-Magana, F., Harding, M., Stevens, G. & Kashiwagi, T. 2011. *Manta birostris*. The IUCN Red List of Threatened Species 2011.
www.iucnredlist.org

IN WATER RECOMPRESSION

FEATURE AND PHOTOGRAPHY **GORDON T. SMITH**

Well first of all this is not a replacement for proper treatment in a hyperbaric chamber under the watchful eye of a properly trained hyperbaric physician, but more of a band aid in order to mitigate some of the symptoms before transporting a "bent" diver to a chamber..


Poseidon



Having returned from a technical diving trip in Sri Lanka exploring the HMS Hermes in 2017 with the nearest hyperbaric chamber being a fair distance from our place of exploration, our technical dive group had frequent discussions as to what could have been done had any of us been struck down by DCS. Being technical divers and no strangers to contingency planning, it wasn't long until the suggestion of In Water Recompression (IWR) training came up.

For those of you who are not familiar with the term IWR, this is a rather controversial subject that involves treatment of certain (but not all) cases of Decompression Sickness (DCS), and has many limitations. Nonetheless, given that many of us venture out to distant destinations to dive where the nearest hyperbaric chamber may be many hours, if not days away from our dive destination, this training could in fact be a life saver, in particular where technical diving is concerned since decompression diving does carry certain risks. Our Sri Lankan trip to Batticaloa in May 2017 took us to a rather remote destination, eight hours by road away from Colombo. A very long way to travel should anything go wrong!

Even back in the UAE, where most of us dive the east coast, from Dibba in the north to Fujairah in the south, the nearest hyperbaric chamber available for recreational divers in that area has an additional challenge from Fujairah to Dubai, crossing the Hijar mountains at 500m, which can easily complicate things for a DCS victim, even while on surface oxygen (O2).

Our group of technical divers frequently dive the Ines, Anita and U533, and whilst generally on rebreathers, some of us still dive on Open Circuit. It remains a simple fact that all decompression diving, and even no decompression diving, carries a risk of DCS. Whilst many things can be done to mitigate these risks, such as keeping fit, well hydrated, plan your dive and dive your plan, etc., DCS can still hit anyone who dives, sometimes for no apparent reason.

SO WHAT IS IWR?

Well first of all this is not a replacement for proper treatment in a hyperbaric chamber under the watchful eye of a properly trained hyperbaric physician, but more of a band aid in order to mitigate some of the symptoms before transporting a "bent" diver to a chamber.

In fact IWR has been practiced for decades and there is nothing new about it. Commercial divers in Australia (abalone and pearl divers) and Hawaii (spearfishermen) have been practicing this since the 1960s with no specific tables other than initially US Navy tables.

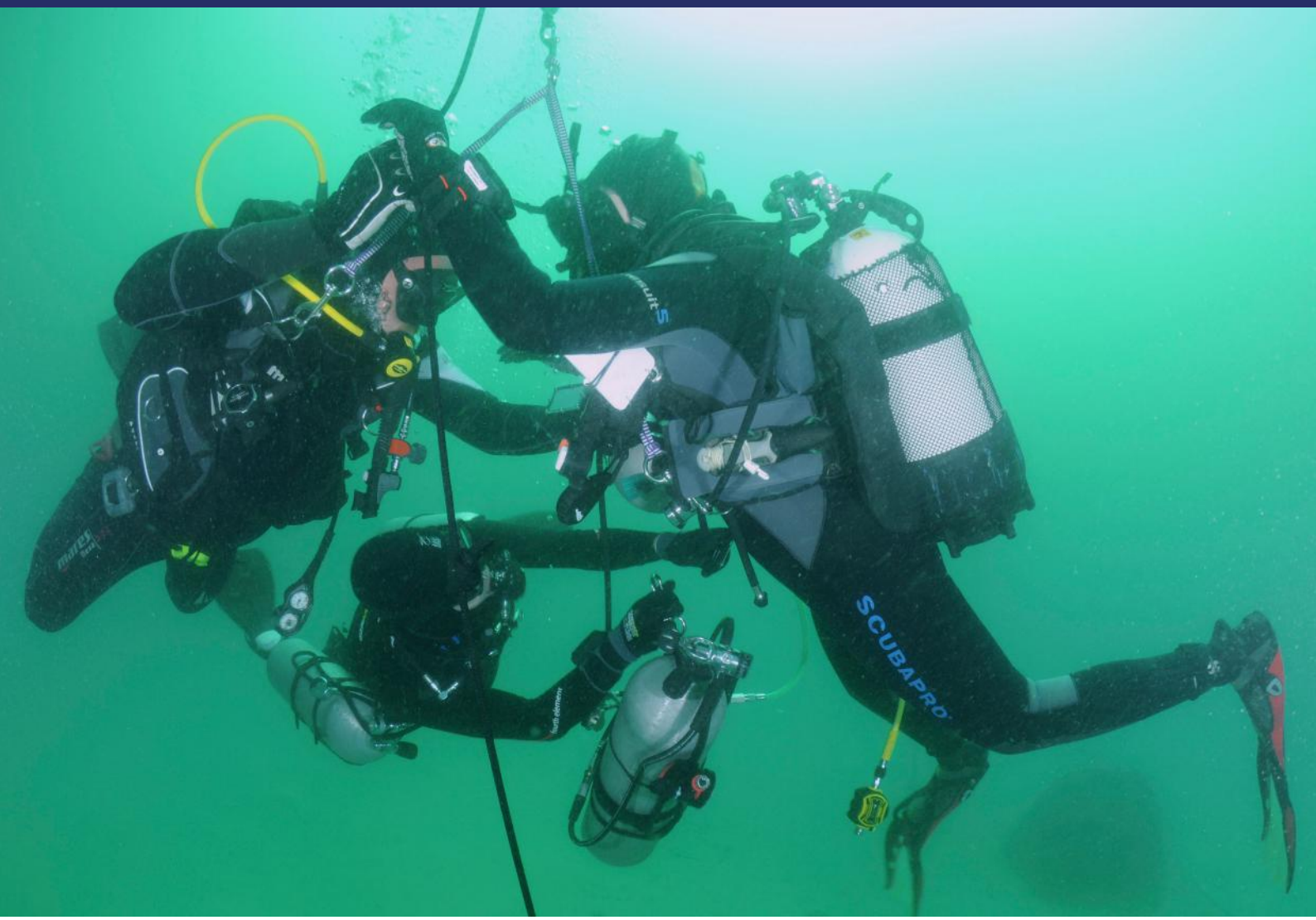
Some hyperbaric physicians have managed to put together protocols and various treatment tables for IWR, and are available such as the Hawaiian tables, however this is not new. In fact use of underwater O2 goes back to the 1960s, and was incorporated into the Royal Australian Navy manual as tables 81 and 82, but it took years before it found its way into the US Navy Diving Manual in the 1970s.

The last major meeting of hyperbaric physicians to discuss this subject was 20 years ago in Seattle, Washington, USA during the forty-eighth workshop of the Undersea and Hyperbaric Medical Society in May 1998. Since then only one training agency has developed a course to address this subject, namely the International Association of Nitrox and Technical Divers (IANTD), written by Joseph Dituri, M.S. and Richard Sadler, M.D.,FACS

So first of all, "do not try this at home!"

And I repeat IWR is not a replacement for treatment in a chamber, and is regarded as more of a temporary fix prior to proper treatment in a chamber and consultation with a hyperbaric trained physician.

IWR is dangerous, and should only be considered as a last resort depending on various factors such as weather and water



conditions, available gas to carry out the procedure, including that for other divers who will have to accompany the stricken diver over a long period of time, and lastly (but not least) the condition of the diver.

Absolute Contraindications to in-water recompression:

- Isolated Hearing Loss
- Vertigo
- Hemoptysis (coughing up blood) or coughing up frothy sputum
- Altered consciousness, weakness or any other symptom of such severity that it would prevent safe diving practices (e.g. equipment use)
- Hemodynamic Instability or CPR
- Unsecured Airway (vomiting)
- Suspected Pulmonary Barotrauma
- Poor Volitional Control of equipment or altered mental status
- Relative Hypothermia
- History of Loss of Consciousness

Once the stricken diver has been assessed and suitable for IWR, only then can he/she be put back into the water, provided that sufficient gas and other resources are available plus both weather and water conditions are suitable. However the victim should be put on surface O2 as soon as possible even during the assessment phase.

A phone call to DAN or a local hyperbaric physician should be made once the assessment is completed, for advice and alerting them that a chamber is required and that IWR is planned first.

A team of at least four people is required for this process:

- Surface Supervisor (SS) – initial assessor of the victim and the person who assumes charge on the surface.
- Note Taker (Scribe) – takes notes while the SS assesses the victim using a standardised format.
- In Water Supervisor (IWS) – responsible for taking care of the victim in the water.
- In Water Tender – basically the gopher, above and below water communicator, and checks that the downline is properly in place.

A weighted marked downline should be used in order to measure as accurately as possible the depth of the "patient", and the weights should be heavy enough to keep the line as vertical as possible, countering any current

As all divers should be aware, breathing pure oxygen (100%) below 6 metres can cause issues related to oxygen toxicity, which may cause a diver to go into a fit. In a chamber this is easily managed by removing the O2 mask and then when the diver breathes again it is air that enters the lungs. Underwater however, the regulator may fall out of the diver's mouth and certainly when the diver tries to breathe again, water will enter and drowning is likely.

For this reason a Full Face Mask (FFM) is used. Kirby Morgan makes an excellent FFM (M48) with a regulator attached via a pod that can be removed on the surface allowing a diver to breathe atmospheric air or with a normal second stage regulator in place. As per the usual treatment of masks prior to diving some anti-fogging agent (e.g. Johnsons Baby Shampoo) should be used on the mask lenses as the In Water Supervisor has to be able to communicate with the victim and eye contact is crucial. Some actual practical experience using a FFM is highly recommended, one of the advantages is that you can breathe through your nose as well as your mouth. If it floods for any reason, there is a mouthpiece to use and by breathing out through your nose the water is cleared through a one way valve at the bottom of the mask.

Once the victim is fully kitted up there should be at least one diver in the water ready to receive him/her. The victim should then come off surface supplied O2 and then (with a regulator in place) go back into the water. The diver in the water acting as a tender along with


Switch Block

High CNS

the IWS should then attach the O2 supply (pod on an M48 mask) connected to a switch-block that in turn is connected to a tank of O2. The O2 cylinder should be attached to the victim, before descending to 9m.

When the victim is at 9m and clipped to the downline using a harness to stop him/her from descending further, the time starts for the specific treatment table. Meanwhile a tank of air is connected to the switch-block to enable air breaks between the O2 treatments as per IANTD's tables. The air tank is also clipped on to the victim, buoyancy has to be adjusted, and the switch-block clipped off too.

The IWS is the main diver taking care of the victim, while the tender acts as a standby diver going between the victim and the surface relaying messages and if necessary bringing additional gas down to the victim. The IWS monitors the victim constantly checking that the victim is fine.

The regulators on the tanks for treatment have Quick Connections on the hoses making it easy to connect and disconnect the tanks to the switch-block underwater. The switch-block allows the IWS to quickly change the breathing gas to air should the victim indicate that he/she is unwell or if the victim suddenly has a fit.

If the victim does have any issues and needs to abort then the IWS will bring him/her to the surface at one foot per minute. Once back on the surface the victim should be put back on O2 and lay supine or in the recovery position.

Wet notes and slates are essential for communication, and use of a weighted line (on a reel) to send messages back and forth is very helpful to maintain communication between the surface and the team below.

Of course none of us want to use IWR if we can avoid it and of the factors that contribute to DCS, two of them are controllable by the diver, temperature and hydration level. Both are short-term conditions over which the diver has a great deal of control.

Drink plenty of fluids prior to diving, and avoid caffeinated drinks whenever possible. It seems obvious but many times here in the UAE in the summer, people drink too little.

In the UAE we can have 40°C on the surface and 23°C on the bottom. It's easy to overheat before a dive and not be prepared for the temperature difference when on the bottom. While technical diving can involve long decompression stops it is easy to lose body heat if not suitably insulated. Many of us use drysuits in the winter, and even in the summer, where we can control our own body temperatures better using different thicknesses of undersuit.

Once again I repeat, do not try this at home (or in the sea) unless properly trained in the use of the equipment, and that includes any potential victim. Someone not trained in IWR should not consider going back into the water for this controversial treatment.

Dr. Simon Mitchell et al has recently published a new paper "Pre-hospital management of decompression illness: expert review of key principles and controversies" published in the Diving Hyperbaric Medicine journal (2018 Mar 31;48(1):45-55) covering IWR therapy.

ECO-FRIENDLY SUNSCREENS

FEATURE **NATALIE BANKS**

Summer is here and adventurers who love the outdoors and the ocean understand why it is important that we take steps to reduce the chances of sunburn. More often than not however, people will grab for the sunscreen as the main option. Apart from preventing nasty sunburn, sunscreen has been promoted for years as a product that reduces sun damage.

But what many people do not realise is that some of the most popular sun protection products contain chemical additives that can be harmful not only for ourselves, but also for the environment we enjoy.

When sunscreen washes off, it can leave chemical residues behind that may be harmful to marine life, particularly coral reefs – a concept supported by a 2008 study published in the peer-reviewed journal 'Environmental Health Perspectives'.

The Environmental Working Group (EWG) in the United States has played a large role in this space for almost 12 years now, annually producing a sunscreen guide that highlights how safe popular sunscreens are. The results over the years have been amazing, with 75% of the products examined offering inferior sun protection or containing worrisome ingredients like oxybenzone, a hormone disruptor, or retinyl palmitate, a form of vitamin A that may harm skin. And despite scant evidence, governments still allow most sunscreens to claim they help prevent skin cancer.

Oxybenzone has been a worrying ingredient in sunscreen for marine conservationists and scientists for years. In 2005, Craig Downs, Ph.D., a forensic ecotoxicologist found that oxybenzone can damage coral DNA and could lead to corals and reef organisms becoming sterile and dying as a result. Not only that, but oxybenzone could be contributing to coral bleaching. "And once those reefs die, we've found they're not coming back," Downs reported. "They're just crumbling to dust."

A recent study found it only takes a tiny amount of toxic sunscreen to kill coral. One drop of sunscreen in 3.9 million gallons/15 million litres of water is all it takes to damage a reef.

The issue has become urgent enough that parts of Mexico have gone so far as to ban products with oxybenzone (which studies have shown is also damaging to sea urchins, fish, and mammals) and other threatening chemicals from its eco-reserves. Additionally, Hawaii has just recently become the first US state to ban the sale of sunscreens containing oxybenzone and octinoxate; two common chemicals found in some of the most popular sunscreens around the world.

The good news is that eco-conscious companies are taking matters into their own hands, formulating sunscreens and hydrating lotions that don't contain oxybenzone and are (hopefully) less detrimental to the underwater environment.

Since 2007, the EWG has found a dramatic increase in the availability of mineral-only sunscreens, doubling from 17 percent of products to 34 percent in 2017. Sunscreens using zinc oxide and titanium dioxide tended to rate well in their analysis; they are stable in sunlight, offering a good balance between protection from the two types of ultraviolet (UV) radiation – UVA and UVB – and often don't contain potentially harmful additives.

Additionally, since 2010, the EWG has seen a dramatic decrease in sunscreens containing retinyl palmitate from 40 percent to 14 percent in 2017. Retinyl palmitate has been linked to increased skin tumours and lesions on animals treated with this ingredient and exposed to sunlight.

So what can eco-conscious sun lovers do to help protect and conserve the marine environment they love?

Choose to cover up rather than slather on. A long-sleeved rash guard with UV protection is a better environmental choice than any sunscreen. Additionally, wear suitable shirts, hats and pants that shield your skin from the sun's ultraviolet rays; reducing burn risk by 27%.

Plan around the sun. Enjoy your outdoor activities early in the morning or in the late afternoon if you can, when the sun is lower in the sky.

Find shade – or make it. Picnic under a tree or take a canopy to the beach. Keep infants in the shade, reducing the risk of multiple burns by 30%.

Read the label: avoid sunscreens containing oxybenzone, butylparaben, octinoxate or 4-methylbenzylidine camphor. Even a small amount can cause coral bleaching.

Avoid getting burned. Red, sore and blistered skin means you've gotten far too much sun.

Check the UV Index. The UV Index provides important information to help plan outdoor activities in ways that prevent sun overexposure.

Sunglasses are essential. Not just a fashion accessory, sunglasses protect your eyes from UV radiation.

Apply sunscreen at least 15 minutes before going in the water so the product can absorb into your skin. This also improves its effectiveness.

Rub It In – Don't Spray It. Opt for SPF lotions and creams instead of sprays, which are more likely to stick to the sand than your skin. When the tide comes in, this chemical-covered sand is then carried out into the ocean, which can lead to additional contamination. Also troubling: When it rains, this sunscreen residue can seep underneath the sand, where sea turtles often lay eggs.

Choose a product without plastic packaging! This is my biggest gripe about sunscreens which people often forget. Plastic is a major concern for ocean environments and is almost in the news daily in terms of its effects on marine animals. There are now sunscreen products available in metal containers, which can be reused afterwards, or better yet, go naked! I mean go without the packaging if you can. Sunblock bars are available on the market and if these didn't come with the plastic wrapper, they would be perfect!

MY BUDDY
THE BIOLOGY SNIFFING DIVER

FEATURE AND PHOTOGRAPHY **PATRICK VAN HOESERLANDE**

Diving is a hobby with various possibilities. There are plenty of good incentives to take your gear and get underwater. In this new series titled 'My buddy', I'm in search of diving enthusiasts who spend their limited time underwater for a special and specific reason.

Diving is a hobby with various possibilities. There are plenty of good incentives to take your gear and get underwater. In this new series titled 'My buddy', I'm in search of diving enthusiasts who spend their limited time underwater for a special and specific reason. The idea is to demonstrate the enormous possibilities of our favourite sport. For my first article, I've fixed a dive with Kiki Vleeschouwers, whom I, after our dive, call a biology sniffing diver.

Our dive site is the 'Put van Ekeren'. During the preparation of our equipment, I have a look in her dive box. In Belgium, most of the divers use plastic boxes for transportation to protect the inside of the car from the water dripping from our wet dive equipment. I believe that from the equipment you find in one's box, you can easily make out the kind of diver they are. In Kiki's case, I find a simple underwater camera, a high quality dive torch and a large magnifying glass. My conclusion after the quick inspection, is it will be slow, easy diving, in search of small things.

Nevertheless, I ask the question on the character of our dive. Her answer, "A long browse around, looking for everything that can be found. I stick to one square metre to explore and investigate all the fauna and flora." I kind of suspect what that means and I like this type of diving. In my opinion a diver can never swim too slow, only too fast. Her description of the dive does not surprise me, because I knew she liked this kind of dive. As a veterinarian, she's fond of small animals and that passion also applies for those living underwater. Despite our collaborating on a few diving projects such as a book for youth divers, the Experimental Deep Dive Team… we have never dived together. I'm open to surprises.

When collecting all our things to walk to the point of entry, I notice that she carries long fins. They are the kind of fins you use to cover long distances, fast. I prefer to dive with short, sturdy fins for manoeuvrability accepting the slower speed as a trade-off. I suppress my fear of a speed dive with the thought of the square metre.

We get into the water before the evening rush. I let Kiki lead. After the buddy check, she takes one glance at her compass and starts to glide over the vegetation. Her path is everything except rectilinear, which makes me suspect that she follows her instinct instead of specific magnetic direction.

From time to time she passes some unidentified plant or animal into my hands. I want to ask her what it is, but I realise that our level of sign language doesn't lend itself to this complicated level of conversation. Suddenly she begins to dig in the sandy bottom clearly looking for something. Judging by her facial expression, she didn't find what she was looking for.

Farther along, she encourages me to look through her magnifying glass. I'm studying a freshwater isopod through the huge lens. It seems strange that something like this works underwater. Then she hands me a set of shells. I look surprised at their being empty and wonder what is so special about them. Later, during our debrief, she tells me that bivalves are saltwater specimens and thus these had to be fossils. The prehistory here? At the bottom of this lake?

What started off to look like a random pattern to me, after some time made me lose all sense of direction, but my buddy seemed to know where to go. She only consults her compass to traverse sandy open spaces. That's the moment I understand why she has the long fins. I can hardly keep up with her. We stop for a moment at one of the many statues. Not to admire its artistic features, but for the 'vegetation' that grows on it. These animals deserve a closer examination, because they are being photographed. That picture will not win in an underwater photography competition






or be put on display at an exhibition. No, this digital immortalisation is for identification purposes and further study above water.

And that's how it goes for more than an hour. In the end we admire a small school of carps. However, the fish find it too busy this evening and choose to swim away towards the protected area. A big pike leaves us a little more time to admire him (of is it a her?).

Although I've logged more than a hundred dives in this lake, I've learned a lot. The list of plants and animals that we have encountered is long: Asian mussels, shoot moth larvae, pond snails, pond spice, red water mites, zebra mussels, freshwater sponges, freshwater polyps, perch, tench, white koi…

On my next dive here, I will pay even more attention to my surroundings and enjoy it more. After all, knowledge brings understanding. I compare Kiki's diving pattern with the pseudo-random walk of my family dog when he is sniffing around. A little bit of browsing here, a sniff there, a small investigation and then suddenly crossing the street to sniff something else. The same behaviour the whole walk of the forest. Soon we come up with a name for this kind of diving, 'biology sniffing'. This term describes it well.

To conclude our dive, I enquire about Kiki's most spectacular biology dive. That is without a doubt, the close encounter with a leopard seal in Antarctica. The briefing for that dive was loaded with warnings and a list of things you were not allowed to do. Not really something to reassure you before you hit the water. During the encounter with this intelligent predator, she could only have a high admiration for these animals and despite the special character of the dive, she wanted to get out of the water sooner rather than later. It was clear to her that as a diver you were on his terrain. You were the stranger; he was allowing you to visit him. Hearing that from somebody who has dived with sharks, gives it extra weight.

I thank Kiki for this introduction to her 'biology sniffing' dives and the chance for experiencing it. It is only one of many facets of our hobby that I have discovered. I leave the parking lot to head towards another buddy to learn of their special dive interests and techniques.

Do you know anyone who has a unique dive mission and wants to be my buddy on one of these dives? Or are you such a diver?

Then please get in touch with me by email: **patrick.vanhoeserlande@nelos.be**.

Diver: Kiki Vleeschouwers
First Dive: 2007
Total Dives: 567
Club: Moby Dick Diving Team
Certification: 3 Star Diver
Specialities:
- Deep Diving Qualification up to 60m
- Basic Nitrox
- Underwater photographer Level 1

Equipment: Underwater magnifying glass & underwater camera.
Favourite Dive Site Local Waters: Put van Ekeren
Favourite Dive Site Abroad: Socorro, Mexico
Most Spectacular Dive: A close encounter with a leopard seal in Antarctica.

DIVING WITH BULLS

FEATURE **FERNANDO REIS** PHOTOGRAPHY **PHILIPPE LECOMTE**

Due to their triangular shaped teeth, Bull Sharks, together with Tiger Sharks and Great Whites, are unfortunately associated by some media by the expression, "shark attack". The dominant perception of "attack" as intentional bites that end with fatal outcomes, is nowadays a generic and highly misleading term.

A few weeks ago an article in the North American press announced that due to global warming, Bull Sharks where changing latitudes from their usual nursery habitat areas into new North Carolina water areas, bringing with this change a lot of worry for the Outer Banks local beach goers. The Outer Banks are a long sequence of narrow, barrier-shaped islands off the coast of North Carolina, on the Eastern coast of the United States, and it happens to also be a subtropical touristic destination, known by a very rich and healthy, well maintained biodiversity zone.

On one side we have the bonus of discovering a new "nursery habitat" of Bull Sharks. On another side, we need to consider the general North-American publics' opinion about sharks in general, mostly when they are close to the shore, which is the case in this new study.

After reading this publication, a series of thoughts on Bull Sharks came to mind. People are usually more afraid of these animals than any other sharks, with the exception of the Great Whites. But why is that? Let's research a bit more about this special requiem Bull Shark, and see if is it possible to swim, or scuba dive with these sharks in a sustainable way.

The Bull Shark, *Carcharhinus leucas*, is one of the largest and most robust requiem sharks belonging to the Carcharhinidae family that comprises amongst others, the Tiger Shark, the Silky Shark and the Blacktip Reef Shark, but it is also one of the few elasmobranch species that is physiologically capable of living in freshwater habitats, especially when they are juveniles. Requiem sharks are the dominant group of sharks found in tropical and subtropical waters, and Bull Sharks are common in estuarine and riverine environments around the world as they have been recorded in numerous rivers and lakes from the US, Central and South America, Africa, Australia, Papua New Guinea, and Asia.

Although some other shark species may enter and ascend rivers for a short distance, only very few requiem shark species such as the Bull Shark appear to be the only living sharks that can live in freshwater for long periods. Bull Shark species are in fact quite remarkable for the apparent ease with which it can displace from saline to freshwater habitats and back again (Ebert and Fowler, 2014). They can indeed be found close inshore, in hypersaline lagoons, in river mouths, or hundreds of kilometres up warm rivers and freshwater lakes.

From its appearance, the Bull Shark is recognisable by its large broad head, with a very short and a rounded snout, small eyes, upper labial short furrows and without spiracles. Especially for Shark Divers, it is important to retain that its large and broad angular pectoral fins are used to choose the direction of their moves. Its skin is of a grey-brown colour with dusky fin tips and a white ventral bellow. It really is an impressive and massive shark that can grow up to 3.4 metres in length.

HABITATS NEW STUDIES

In the last month of April while I was preparing a new Shark Diving Workshop, I came upon an article about some changes related to the nursery habitats of the Bull Shark species, probably another result of global warming. In reality, it seems that with the global waters warming trend, these Bull Sharks from the North American East coast have found new northern areas to have their offspring, where they will supposedly be more protected from their predators. But, in this instance, mother nature didn't take into consideration that humans could also be their predators.

There are studies from the first decade of this century on Bull Sharks, that have identified distinct habitat partitioning within a South West Florida estuary with neonate and young-of-the-year individuals occupying different habitats from older juveniles. This comes out after a study conducted in the Caloosahatchee River, that researchers from

the 'Center for Shark Research' in Florida, found that salinity was an important factor, with younger individuals occurring within lower salinity regions, and older juveniles utilising higher brackish salt water regions. Despite this adaptation, in general it was also confirmed that Bull Sharks within juvenile habitats are capable of tolerating changes in temperature, river flow rate and salinity rates despite the variable conditions they may be exposed in estuarine and river habitats. As this study presents, it suggests that sharks evolving in waters with strong human activities such as rivers, estuaries and close to ports, are highly susceptible to environment and anthropogenic habitat changes. As it has also been discovered that juvenile Bull Sharks using rivers as nursery areas are prone to swim upstream during the day and downstream at night, maintaining themselves in deep waters during the day, and swimming closer to the surface at night (Heupel et al, 2010).

These studies have also proven that juvenile *C. leucas* are very capable of tolerating changes in water temperature, river flow rate and salinity on the estuaries waters. Which also proves of course how resilient and how adaptable Bull Sharks can be. They consistently use their nursery space despite the variable environmental conditions which they are exposed to. The problem is that as juveniles, they are restricted to a small area, which can make them more vulnerable to human activities exploitation, and to loss of their prey populations. This is another reason why careful management and system regulations of these types of habitats, which act as nursery areas, are so important nowadays.

As with many other species, we can count on some adaption abilities of the juvenile Bull Sharks, as well as some surrounding natural factors, but of course we must be aware that we also need to remain alert with any changes in their habitat and environmental conditions.

Eight years later, new research led by Bangley et al (2018), from the 'Institute for Coastal Science and Policy', from the East Carolina University, found that the increased occurrence of juvenile Bull Sharks was strongly associated with increasing water temperatures and salinities, which occurred in early and late summer, respectively. These observed environmental changes become more important after 2011, when Bull Sharks get documented in northern regions of the US Atlantic Coast.

Environmental changes studied between 2003-2016, have identified important relationships between the environmental measurements and the monthly presence of Bull Sharks in the Pamlico Sound area (Outer Banks in North Carolina). The researchers have also suggested that Bull Sharks have the potential to colonise new nursery habitats, which may make their populations resilient to large-scale disturbances such as climate change. As Bull Sharks have traditionally been considered dangerous to humans, an increase of Bull Sharks in those waters could also increment the human-shark interactions in the area, which brings more compelling reasons why we always need to know more about sharks, to learn to respect their habitats, and to be better prepared, and better trained in order to react properly in case of possible encounters.

SHARK ENCOUNTERS

Due to their triangular shaped teeth, Bull Sharks, together with Tiger Sharks and Great Whites, are unfortunately associated by some media by the expression, "shark attack". The dominant perception of "attack" as intentional bites that end with fatal outcomes, is nowadays a generic and highly misleading term. As there are not many Shark Diver trained people, the lack of knowledge about how to behave when faced with a shark underwater, if a young Bull Shark happens to interact by accident with any beach goer, sad things may happen. The persistent use of the expression "shark attack", mostly by some media and government representatives when describing

any type of human-shark interaction, have also led to the criminalisation of all types of shark bites. This is so significant, that a few years ago two scientists, Christopher Neff from Australia and Robert Hueter from the USA, published a study regarding a reclassification of human-shark interactions.

Shark sightings in Sydney Harbour, Australia, registered by New South Wales Fisheries staff, revealed that Bull Sharks regularly swim close to hundreds of swimmers and ignore them all. In accordance with this, there have been so many observations of sharks in proximity to swimmers in the ocean without the animals showing any interest in people, that it has been considered convenient to reclassify all contacts between sharks and humans, as many forms of "shark attack" misrepresent the facts and misinforms the general public. These have been the reasons why Neff and Heuter had proposed a new system of four categories to be used in the classification of human-shark interactions.

I believe that if we removed the term "attack", it would be possible to provide a model reporting the interactions that decriminalise sharks in the mind of the public that simultaneously create a more objective understanding of the relationship between humans and sharks in shared ocean spaces.

These four category levels are:

1. **Shark Sightings:** Sightings of sharks in the water in proximity to people with no physical human-shark contact taking place.
2. **Shark Encounters:** Human-shark interactions in which physical contact occurs between a shark and a person, or an inanimate object holding that person, and when no injury takes place. For example, shark bites on surfboards, kayaks, and boats would be classified under this label. A shark physically "bumping" a swimmer without biting might be included in this category.
3. **Shark Bites:** Incidents where sharks bite people resulting in minor to moderate injuries. Small or large sharks might be involved, but only a single nonfatal bite occurs.
4. **Fatal Shark Bites:** Human-shark conflicts in which serious injuries take place as a result of one or more bites on a person, causing a significant loss of blood and/or body tissue and a fatal outcome.

As it is known in the United States, Florida is often labelled as the "Shark Attack Capital of the World". But, if we analyse the registered data of incidents with sharks that occurred off Florida beaches over a spam of 129 years, only less than 2% (11 cases in total) resulted in fatalities, and only 2 cases could be associated with Bull Sharks *C. leucas*. (Neff and Hueter, 2013).

So it is time now to stop using the expression "Shark Attack". The worst stigma about sharks still based in the ignorance and in all the lack of awareness about shark behaviour in general, and about Bull Sharks in particular. Remember that the things the public know in general, come from Hollywood movies that today still translate to the "Jaws effect". We should definitely start to acknowledge the public value of a better marine conservation education, and of a more balanced outcome based approach.

IN THE WATER

If you aim to one day dive with Bull Sharks, there are several sites around the world that can offer you the amazing experience. Without any doubt, I would recommend the Fiji Islands. There, you will find experienced sustainable dive operators that care not only about Bull Shark conservation, but also about shark population recuperation, and basing their work on the role sharks play on marine balance and for the entire reef biodiversity recovery. As you may know, the cascade effects of shark overfishing are tremendous over reef trophic chains. As these Bull Shark diving activities are based on baiting them, sharks have come back to certain exhausted areas on the reef. The general recovery started to gain form for the rest of the trophic nets with excellent long term results.

A couple of years ago, I was directing the Canary Islands International Underwater Film Festival where I met David Diley, the awarded British Filmmaker and Producer of the feature film 'Of Shark And Man', during his first public Director's Cut presentation. Because of his film, sustainable Bull Shark diving in Fiji islands come across our talks at the time.

For the ancestral people of Fiji, sharks were considered gods that protected and guided people through the seas. So the respect the Fiji people have today for these animals is awesome. If you have the opportunity of visiting the Fiji seascapes someday, our advice is to pay attention to the briefing before the dive and to always follow the instructions given by the Divemaster or Dive Guide leading the operation. The native "shark divers" and especially the "shark feeders", respect the Bull Sharks and they know the behaviours well. They are the first people that want sharks to be protected in Fiji waters. One curious fact during the feeding activities is that for safety reasons, Bull Sharks are taught to come from the left to the right of the shark feeder to get their tuna head. If they come to the "shark feeder" from the right side, they won't get anything. The most amazing thing is that sharks learn very fast. They know their "shark feeders", and how to behave from watching each other.

Another very important aspect to be learned when you dive with sharks is observing their pectoral fin position. Knowing what the pectoral fin positions mean will help you to know when a shark will turn, and in which direction. Comprehending this behaviour will help you to feel more comfortable when diving with sharks, as it can help understand a situation, or it can be a great tool for shark underwater photographers to take the photo they want.

When a shark wants to turn to its right, it simply pushes down its right pectoral fin, and if it wants to turn left, it pushes the left fin down. The lowering of a pectoral fin increases the lateral surface and generates a burst of speed. When we see a shark lowering one of its pectoral fins, we know in which direction it will veer. Sometimes we may also watch a situation in which a shark forms a hunched back, an appearance that results from lowering both pectoral fins at the same time. What does this mean? The reason is simple, the shark is preparing to be able to turn in every direction, probably because it may feel some threat around it, and it doesn't know exactly which direction is going to be its safest option. That is definitely an animal that prepares to flee because it feels threatened. Remember, any behaviour is caused by a need. (Gospodinov, 2018).

Yes. It is possible to scuba dive in safety with Bull Sharks. If you like to swim in the open sea, you have most probably already swam with Bull Sharks, you just didn't notice. If you find yourself in the water with a shark, remember

to look the shark in the eyes, breathe slowly, stay calm, and face the shark at all times. It will know you have an eye on it.

Shark Divers should know exactly how to react in case of the second, third or fourth 'Neff and Hueter' level categories, but there's one thing you can start doing from now on: never dive or swim alone, and if you suspect you are in shark waters, always survey your buddy's back and vice-versa. Then, relax and enjoy any possible encounters. The truth is that they are more afraid of us, then we are of them.

For more information about shark behaviours and other sustainable shark diving activities, please email: **info@sharksinstitute.org** or **sharksinstitute@gmail.com** or visit the Sharks Educational Institute website at: **www.sharksinstitute.org**

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DIGITAL ONLINE 2018

EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMPETITION ANNOUNCES ITS WINNERS

EVENT PHOTOGRAPHY **ALLY LANDES**

We've unveiled a new photography project to celebrate Digital Online's most beautiful entries over the past 9 years. Guests had a sneak peak at Digital Online 2018's Awards and Exhibition Opening Night.

A3 LANDSCAPE HARDCOVER PHOTO BOOK: SPECIAL EDITION

We have comprised a beautiful hard cover coffee table photography book, The Best of Digital Online, EDA's Underwater Photography and Film Competition. Although Digital Online was created in 2009, this book holds the best works from our EDA members' highest participating numbers, which took place from 2011 up until 2017's competition. Together, we as divers and ocean lovers uphold the environmental importance and necessity of protecting our underwater world. The beauty and diversity which it holds is still one we are learning from and the images which flood these pages just reinforce why it is our duty to protect it. We all share these very special moments in it. Without it, we would not be here!

Each photo (all 292) has been cleaned from backscatter and enhanced for print purposes to give the viewer the ultimate experience of each photographers' work. In order to not distract from the main focus of the images, all photographer credits have been placed at the back of the book – in the index – in the order in which they appear, the camera model used, and the location in which the photograph was taken. Each subject has been researched to identify the species and shed a little light onto what it is we see, which some of us may, or may not know.

Every effort has been made to ensure that the correct species has been identified in correlation with the location it was photographed in, but we cannot always guarantee 100% accuracy. However, we hope that it steers you in the right direction to learning more and reading up on the species further, whether it be through other books or online.

The book will be available for purchase. Please email projects@emiratesdiving.com to order your copy. Price: AED 300.

EVENT BY EDA

EDA جمعية الإمارات للغوص Emirates Diving Association

EXHIBITION HOST

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

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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 amongst those unfamiliar with the underwater world environment. The competition holds both local and international marine life categories to offer variety between our local and international diving enthusiasts.

The film category was introduced as an extension to the competition in 2012 to share our underwater world through motion pictures and deliver a better understanding of the habitats and surroundings.

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

The event has attained equal success with the non-divers who come to support the participating photographers and videographers at the Awards and Exhibition Opening Night. Whether it's through discussion or articles

	DSLR/MILC	WA	MACRO	UAE	BW	TOTAL
1	Taner Atilgan	510	473	468	466	1917
2	Iyad Suleyman	403	490	461	511	1865
3	Nick Moore	446	480	431	368	1725
4	Mohamed Abdulla	354	477	419	427	1677
5	Khalid Al Mansoori	377	466	436	385	1664
6	Philippe Lecomte	465	424	385	379	1653
7	Stewart Clarke	330	409	383	459	1581
8	Yousef Alshekaili	373	425	383	372	1553
9	Ola Khalaf	404	396	359	361	1520
10	Yousif Alali	417	369	356	355	1497
11	Steven Board	402	285	418	368	1473
12	Hani Omar	321	359	425	281	1386
13	Rob Buurveld	362	372	326	294	1354
14	Ahmed Al Ali	294	356	347	322	1319
15	Michael Rall	392	416	N/A	498	1306
16	Mohammad Samoor	371	381	413	N/A	1165
17	Saleh Ali Al Mansoori	352	413	N/A	376	1141
18	Khaled A. Alhosani	N/A	383	352	399	1134
19	Levente Rozsahegyi	467	321	N/A	327	1115
20	Sibylle Blumenthal	235	322	301	208	1066
21	Ahmed Alnaqbi	N/A	313	412	328	1053
22	Nassim Miri	337	296	N/A	339	972
23	Peter Mainka	273	317	N/A	326	916
24	Abdulla Alali	197	364	344	N/A	905
25	Ahmed Alkaabi	N/A	428	354	N/A	782
26	Sultan Althahab	N/A	356	359	N/A	715
27	Rudolpho McEniry	298	N/A	362	N/A	660
28	Ali Fikree	394	N/A	N/A	N/A	394
29	Aadel Alzaabi	N/A	N/A	379	N/A	379
30	Mohamed AlQubaisi	N/A	N/A	361	N/A	361
31	Nicola de Corato	N/A	322	N/A	N/A	322

	COMPACT		COMPACT	UAE	BW	TOTAL
32	Sibylle Blumenthal		454	373	384	1211
33	Christopher Bridge		364	379	429	1172
34	Andy Jones		398	363	407	1168
35	Angela Manthorpe		459	357	349	1165
36	Rob Buurveld		401	345	401	1147
37	Ahmed Ramadan		344	331	299	974
37	Lynette Ferreira		278	327	334	939
39	Kelly Tymburski		372	268	251	891
40	Sultan Althahab		390	N/A	408	798
41	Michael Rall		343	408	N/A	751
42	Mohammad Al Falasi		242	221	275	738
43	Maitha Al Qader		343	368	N/A	711
44	Hannah Campbell		373	N/A	322	695
45	Wessam Gadelmoula		299	N/A	344	643
46	Rudolpho McEniry		280	343	N/A	623
47	Levente Rozsahegyi		305	317	N/A	622
48	Doug Simpson		367	N/A	250	617
49	Nassim Miri		304	283	N/A	587
50	Ola Khalaf		394	N/A	N/A	394
51	Nick Moore		362	N/A	N/A	362
52	Peter Mainka		N/A	340	N/A	340
53	Saleh Aldhahori		272	N/A	N/A	272

brought to our readers through our quarterly magazine, Divers for the Environment, the inspiration and education the event brings is a success in its own right.

THE SPONSORS

We would like to thank all our devoted and new sponsors for taking part in Digital Online 2018's event, for without them, the competition would not take place.

We would like to give a big shout-out to BFC Travel Management, Philippines Department of Tourism, Azure Dive Resort, Le Meridien Al Aqah Beach Resort Fujairah, Al Maha Desert Resort & Spa, Millennium Resort Mussanah Oman and Seaoman Dive Centre, Grand Stores, Pier Uno Dive Resort, Al Mahara Diving Center, the Beach Rotana Abu Dhabi and the InterContinental Hotel Abu Dhabi, Al Marsa Musandam, MTM Marine LLC, Divers Down, Freestyle Divers, Al Boom Diving, Fairmont Fujairah Beach Resort, The Palms Dive Center and SeaBreacher UAE.

THE JUDGES

We would also like to thank Andy Murch, Simon J Pierce, Imran Ahmad, Simone Caprodossi and Jonathan Ali Khan for being Digital Online's asset guest judges. We are privileged to have such talented photographers and film makers volunteer their time to take part in this event.

COMPETITION CLAUSE

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

THE AMERICAN UNIVERSITY IN DUBAI

A very big thank you to AUD for hosting our Awards Night and Exhibition Opening for the 4th year running.

PRINT WORKS

Print Works have been our right hand partner and an asset to Digital Online's yearly exhibitions since 2009. To date, Print Works have printed a total of 581 beautiful images for our event. Thank you Karim Philippe Saad and all your team at Print Works for the tremendous dedication.

CHAIRMAN'S MESSAGE

I want to thank all our partners and prize sponsors who give so generously and really do make this a very inspiring competition to take part in. The collection of images and videos we have received over the years are a reminder of the precious underwater life we must protect if we want our future generations to benefit from the same treasures we are still fortunate to see through our own eyes today. And most importantly, we are able to share the beauty with everyone else who has not yet ventured below the surface!

ESSA ABDULLA AL GHURAIR – CHAIRMAN

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

	VIDEO	TOTAL
54	Khaled Sultani	468
55	Mohamed Abdulla	464
56	Yousif Alali	370
57	Mohammad Al Falasi	273

DIGITAL ONLINE 2018 WINNERS

THIRD PLACE WINNERS

SPONSORS: Seabreacher UAE & Fairmont Fujairah Beach Resort
PRIZE: One hour SUP + Complimentary Lunch at one of Fairmont Fujairah Beach Resort's outlets.
WINNER: Rudolpho McEniry | Compact: Best of the UAE (343)

SPONSORS: Seabreacher UAE & Fairmont Fujairah Beach Resort
PRIZE: One hour Kayaking + Complimentary Lunch at one of Fairmont Fujairah Beach Resort's outlets.
WINNER: Ola Khalaf | Compact (394)

SPONSORS: Seabreacher UAE & Fairmont Fujairah Beach Resort
PRIZE: Complimentary Flyboard or Jetovator (20 min) + Complimentary Lunch at one of Fairmont Fujairah Beach Resort's outlets.
WINNER: Andy Jones | Compact: Black and White (407)

SPONSOR: Al Boom Diving
PRIZE: 2 dives on East Coast (Fujairah) with full equipment for 1 person.
WINNER: Steven Board | DSLR: Best of the UAE (418)

SPONSOR: The Palms Dive Center
PRIZE: A two tank dive with The Palms Dive Center, Radisson Blu Resort, Fujairah.
WINNER: Ahmed Alkaabi | MILC: Macro (428)

SPONSOR: Divers Down
PRIZE: Diver Propulsion Vehicle Course
WINNER: Stewart Clarke | DSLR: Black and White (459)

SPONSOR: Emirates Diving Association
PRIZE: A beautiful A3 landscape hardcover photo book of The Best of Digital Online 2011-2017.
WINNER: Philippe Lecomte | DSLR: Wide Angle (465)

SPONSOR: MTM Marine LLC
PRIZE: MARES X-Stream Fins
WINNER: Yousif Alali | Video: What Lies Beneath (370)

SECOND PLACE WINNERS

SPONSOR: Al Marsa Musandam
PRIZE: 2 Night Liveaboard Trip in the Musandam
WINNER: Maitha Al Qader | Compact: Best of the UAE (368)

SPONSOR: Grand Stores
PRIZE: Rollei Actioncam 525 Black
WINNER: Rob Buurveld | Compact (401)

SPONSOR: Grand Stores
PRIZE: [Qudos] Action Light by Knog
WINNER: Sultan Althahab | Compact: Black and White (408)

SPONSORS: Intercontinental Hotel AUH & Al Mahara Diving Center
PRIZE: A complimentary double room, two-night stay, inclusive of buffet breakfast and 2 dives (tank and weights included).
WINNER: Hani Omar | DSLR: Best of the UAE (425)

SPONSOR: Le Meridien Al Aqah Beach Resort & Spa
PRIZE: One night weekend stay in a Superior Room inclusive of a Breakfast Buffet at the Views Restaurant for two persons.
WINNER: Levente Rozsahegyi | DSLR: Wide Angle (467)

SPONSOR: Al Maha Desert Resort & Spa
PRIZE: Complimentary one day access to pool and spa facilities inclusive of 3 course A La Carte lunch for two persons at Al Diwaan Restaurant. A Luxury Collection Desert Resort & Spa.
WINNER: Mohamed Abdulla | DSLR: Macro (477)

SPONSORS: Beach Rotana Abu Dhabi & Al Mahara Diving Center
PRIZE: A complimentary two-night stay for two persons inclusive of buffet breakfast and internet connection, and 2 dives (tank and weights included) with Al Mahara Diving Center.
WINNER: Michael Rall | DSLR: Black and White (498)

SPONSOR: BFC Travel Management
PRIZE: Destination Package – 4 days/3 nights in Aqaba, Jordan.
WINNER: Mohamed Abdulla | Video: What Lies Beneath (464)

FIRST PLACE WINNERS

SPONSOR: Freestyle Divers
PRIZE: DPV (Diver Propulsion Vehicle) Course for two people.
WINNER: Sibylle Blumenthal | Compact: Best of the UAE (373)

SPONSOR: MTM Marine LLC
PRIZE: MARES Loop 15X Regulator
WINNER: Christopher Bridge | Compact: Black and White (429)

SPONSORS: Millennium Resort Mussanah & Oman Sail Dive Centre
PRIZE: Two nights stay in superior sea view room with daily breakfast included and two days diving, for two. Valid until March 2019.
WINNER: Angela Manthorpe | Compact (459)

SPONSOR: MTM Marine LLC
PRIZE: MARES Cruise Backpack
WINNER: Khalid Almansoori | DSLR: Best of the UAE (436)

SPONSORS: Philippines Department of Tourism & Pier Uno Dive Resort
PRIZE: Destination Package – 4 nights/5 days accommodation for one in a standard room in Anilao, Batangas, Philippines.
WINNER: Nick Moore | DSLR: Macro (480)

SPONSORS: Philippines Department of Tourism & Azure Dive Resort
PRIZE: Destination Package – 4 nights/5 days accommodation in a Superior Deluxe Room with private balcony or terrace in Dauin, Philippines.
WINNER: Taner Atilgan | DSLR: Wide Angle (510)

SPONSOR: BFC Travel Management
PRIZE: Destination Package – 4 days/3 nights in Terengganu, Malaysia.
WINNER: Iyad Suleyman | DSLR: Black and White (511)

SPONSORS: Philippines Department of Tourism & Pier Uno Dive Resort
PRIZE: Destination Package – 4 nights/5 days accommodation for one in a standard room in Anilao, Batangas, Philippines.
WINNER: Khalid Sultani | Video: What Lies Beneath (486)

OVERALL WINNERS

OVERALL VIDEO WINNER: **Khalid Sultani** (486)
OVERALL DSLR/MILC WINNER: **Taner Atilgan** (1017)
OVERALL COMPACT WINNER: **Sibylle Blumenthal** (1211)
OVERALL UAE NATIONAL WINNER: **Mohamed Abdulla** (1677)

THE PEOPLE'S CHOICE AWARDS

SPONSOR: EDA – 4 Sea@Deep Marine Art pieces
www.seaatdeep.com

Voting took place on Facebook by the public from the 24th of May. The results were calculated on the 30th and have revealed our winners:
3rd Place Photography: **Nassim Miri** | DSLR Macro (39 Likes)
2nd Place Photography: **Levente Rozsahegyi** | DSLR WA (104 Likes)
1st Place Photography: **Mohamed Abdulla** | DSLR Macro (155 Likes)
Winning Video: **Mohamed Abdulla** | What Lies Beneath (19 Likes)

THE DIGITAL ONLINE JUDGES

ANDY MURCH | BIG FISH EXPEDITIONS
Wildlife Photographer

Andy Murch is an award winning wildlife photographer and the founder of Big Fish Expeditions. Specialising in images of marine predators over the last two decades, he has probably photographed more shark species than any other diver. Andy's images and shark stories have appeared in hundreds of books and magazines around the world from titles as varied as Scuba Diving, FHM, the New York Times, Digital Photography Magazine and the Journal of Zoology. Andy is the creator of the ever expanding Shark and Ray Field Guide on Elasmodiver.com and the driving force behind the Predators in Peril Conservation Project.

Elasmodiver Shark and Ray Picture Database: www.elasmodiver.com
Marine Life Images: www.marinelifepics.com
Predators in Peril Project: www.PredatorsInPeril.org.

WEBSITE: www.bigfishexpeditions.com
FACEBOOK: Big Fish Expeditions

SIMON J PIERCE | MARINE MEGAFAUNA FOUNDATION
Marine Conservation Biologist & Underwater Photographer

Simon is a marine conservation biologist and a Co-Founder and Principal Scientist at the Marine Megafauna Foundation. Most of his work focuses on the world's largest fish: the whale shark. He also works with other threatened species, particularly sharks, rays, sea turtles, and for the protection and management of important marine habitats. He acts as a science advisor for the Wildbook for Whale Sharks global photo-identification library, and also a Director of Wild Me, the non-profit organisation which oversees it's development. Finally, he's a Member of the IUCN Shark Specialist Group, an invited group of experts that synthesises scientific knowledge and assists in the development of global conservation strategy for these fish. Since 2012 he has become increasingly interested in photography as a way of documenting his work, and for communicating his enthusiasm for nature and wildlife in general. His photographs and videos have been published by a wide variety of media outlets, including New Scientist, the Washington Post, Scientific American, BBC Wildlife, Discovery, Earth Touch, Huffington Post, Yahoo, Rough Guides, and Sport Diver.

WEBSITE: www.simonjpierce.com
FACEBOOK: Simon J Pierce Photography

SIMONE CAPRODOSSI | ENVIRONMENTAL SUPPORTER
Underwater Photographer

Simone is an Italian underwater photographer based in Dubai for the last 10 years. Despite a corporate professional life, he is a photographer, traveller and diver at heart, and dedicates all his spare time to covering new destinations and chasing unique animal encounters in remote parts of the world. In addition to being the Overall Winner of Digital Online consecutively for the past two years, his photography has been awarded in prestigious global competitions and published internationally. He is a main feature contributor to the EDA magazine and has covered several destinations with EDA from Sipadan to Sudan, and Malapascua.

He likes to use his photography to support environmental initiatives and he is involved in several shark research and conservation projects such as Sharkwatch Arabia and the Gulf Elasmo Project.

WEBSITE: www.simonecaprodossi.com
FACEBOOK: Simone Caprodossi Photography

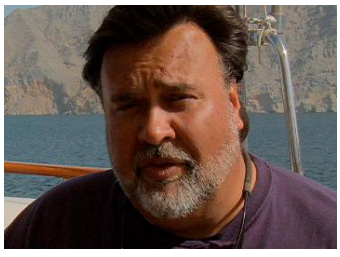
IMRAN AHMAD | ESCAPEINC. DIVE & PHOTOGRAPHY
Professional Photographer

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



JAK is a topside wildlife and underwater cameraman, 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

ALLY LANDES | EMIRATES DIVING ASSOCIATION
Project Manager, 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.

WEBSITE: www.emiratesdiving.com
FACEBOOK: Emirates Diving Association

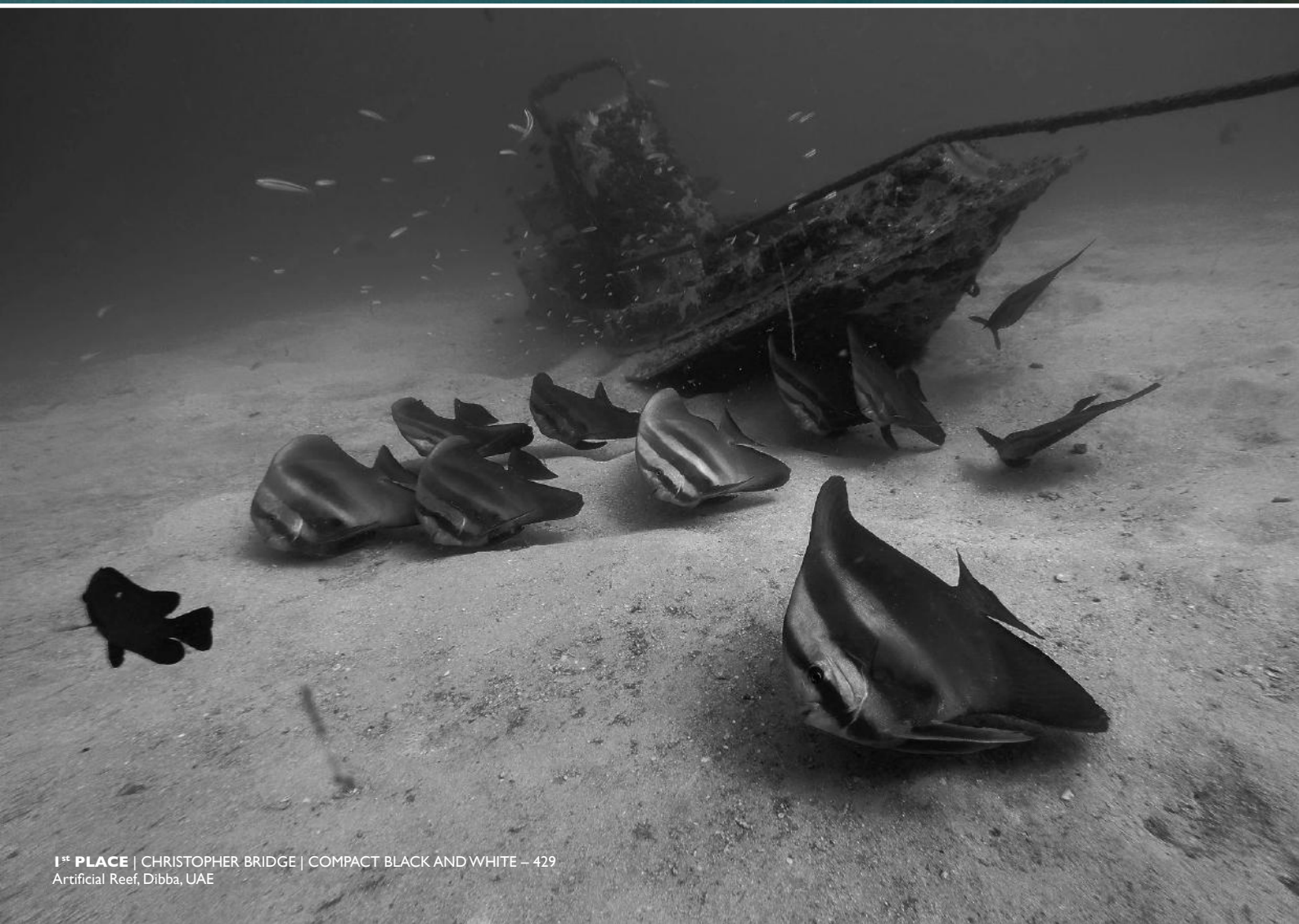
1st PLACE | IYAD SULEYMAN | DSLR/MILC BLACK AND WHITE – 511
Sipadan, Malaysia

1st PLACE | TANER ATILGAN | DSLR/MILC WIDE ANGLE – 510
La Paz, Mexico

1st PLACE | KHALID ALMANSOORI | DSLR/MILC BEST OF THE UAE – 436
Khorfakkan, UAE

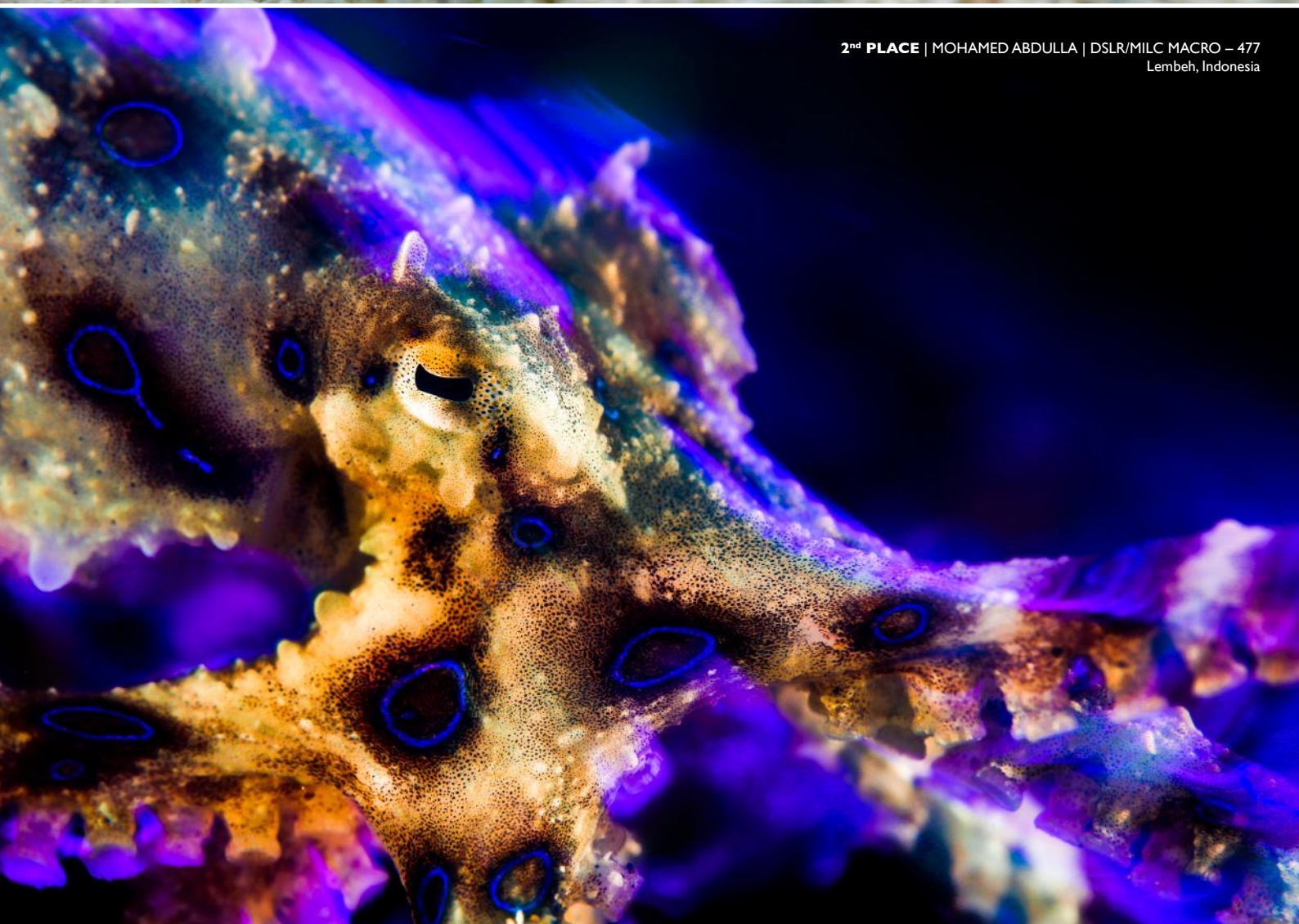
1st PLACE | NICK MOORE | DSLR/MILC MACRO – 480
Anilao, Philippines

1st PLACE | ANGELA MANTHORPE | COMPACT – 459
Fanaku Island, Musandam, Oman



1st PLACE | CHRISTOPHER BRIDGE | COMPACT BLACK AND WHITE – 429
Artificial Reef, Dibba, UAE

1st PLACE | SIBYLLE BLUMENTHAL | COMPACT BEST OF THE UAE – 373
Dibba Rock, Fujairah, UAE



2nd PLACE | MOHAMED ABDULLA | DSLR/MILC MACRO – 477
Lembeh, Indonesia

2nd PLACE | MICHAEL RALL | DSLR/MILC BLACK AND WHITE – 498
Cenotes, Mexico

2nd PLACE | LEVENTE ROZSAHEGYI | DSLR/MILC WIDE ANGLE – 467
Red Sea

2nd PLACE | HANI OMAR | DSLR/MILC BEST OF THE UAE – 425
Fujairah, UAE

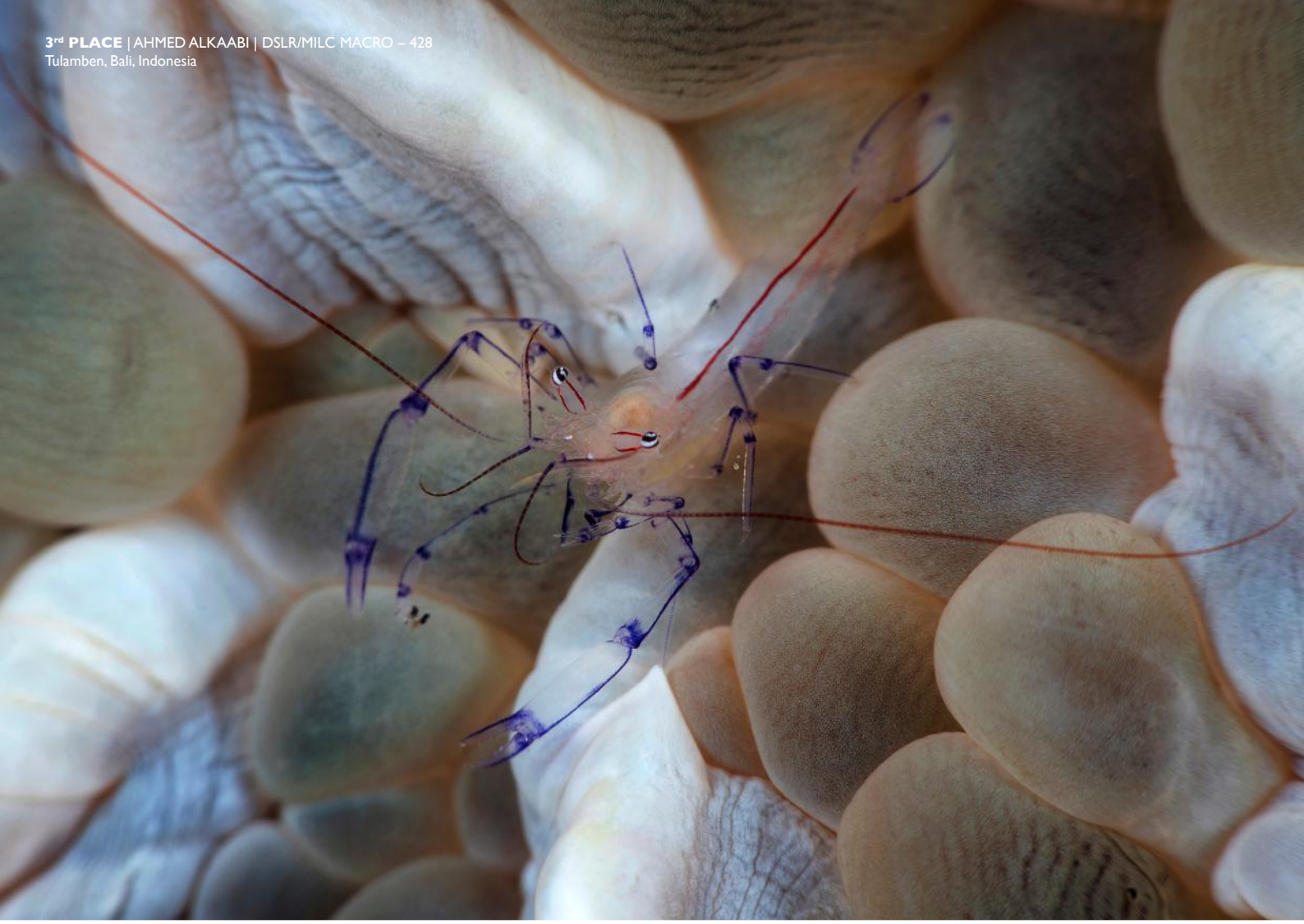
2nd PLACE | SULTAN ALTHAHAB | COMPACT BLACK AND WHITE – 408
Daymaniyat Islands, Oman

2nd PLACE | ROB BUURVELD | COMPACT – 401
North Sulawesi, Indonesia

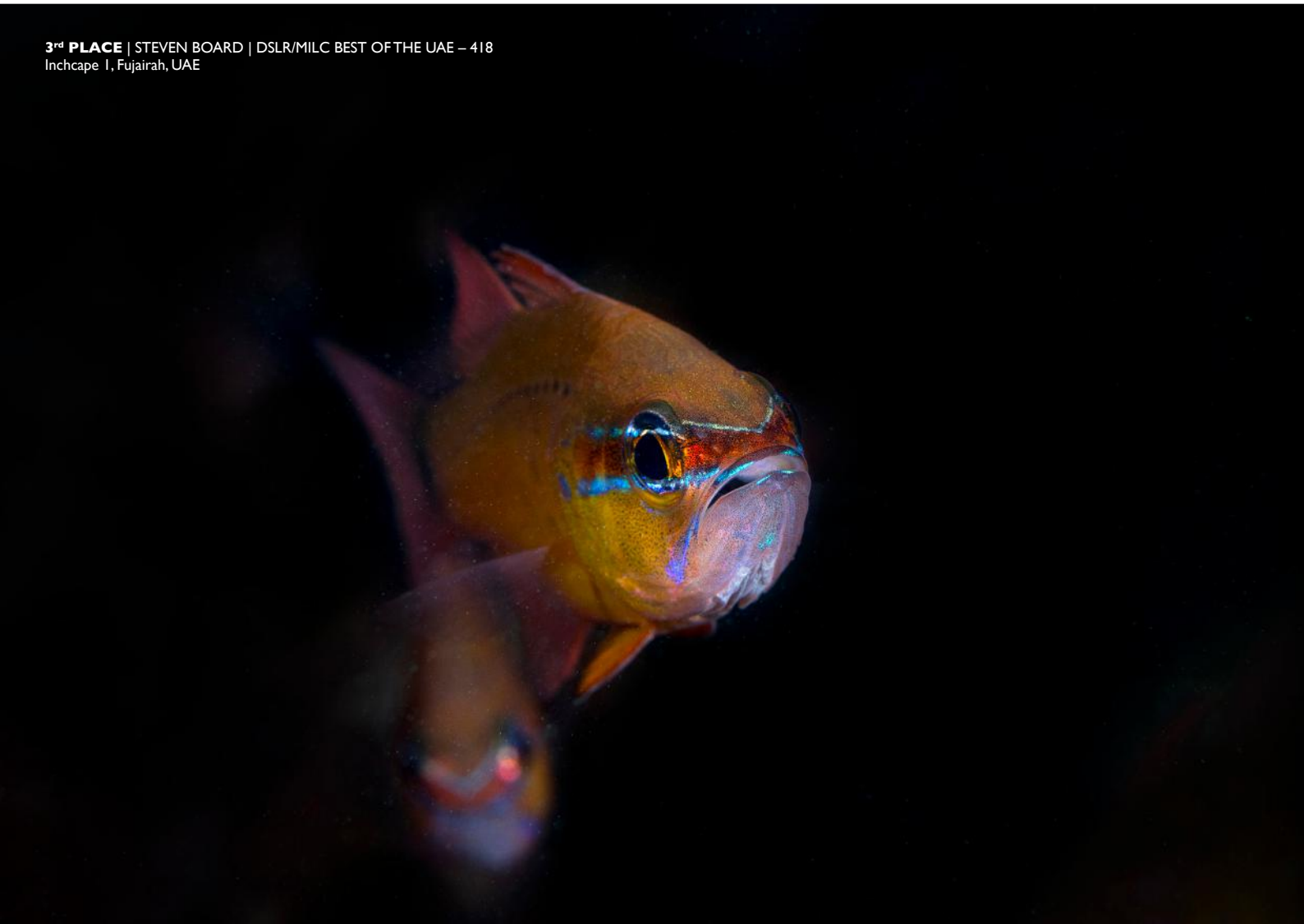
2nd PLACE | MAITHA AL QADER | COMPACT BEST OF THE UAE – 368
Musandam, Oman

3rd PLACE | PHILIPPE LECOMTE | DSLR/MILC WIDE ANGLE – 465
Crystal River, Florida, USA

3rd PLACE | STEWART CLARKE | DSLR/MILC BLACK AND WHITE – 459
The Pier, Anilao, Philippines



3rd PLACE | AHMED ALKAABI | DSLR/MILC MACRO – 428
Tulamben, Bali, Indonesia



3rd PLACE | STEVEN BOARD | DSLR/MILC BEST OF THE UAE – 418
Inchcape 1, Fujairah, UAE

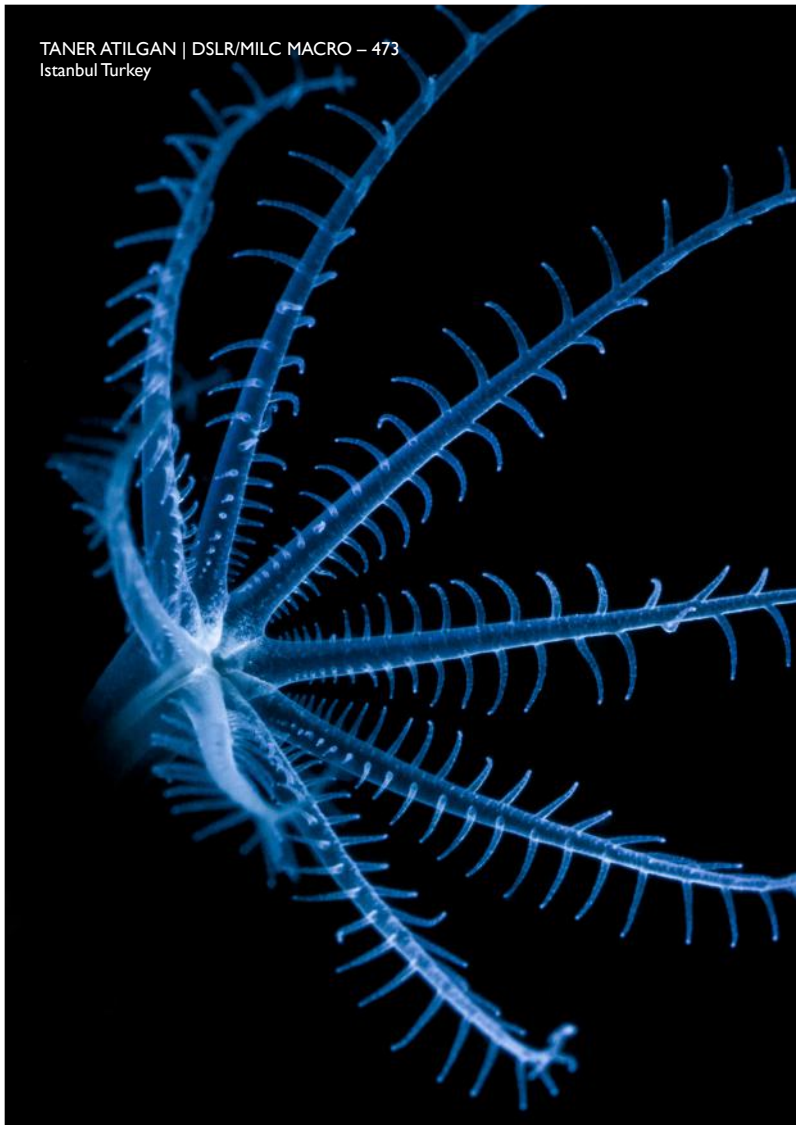
3rd PLACE | ANDY JONES | COMPACT BLACK AND WHITE – 407
Daymaniyat Islands, Oman

3rd PLACE | OLA KHALAF | COMPACT – 394
Car Cemetery, Khorfakkan, UAE

3rd PLACE | RUDOLPHO MCENIRY | COMPACT BEST OF THE UAE – 343
Martini Rock, UAE

IYAD SULEYMAN | DSLR/MILC MACRO – 490
Aka Island, Okinawa, Japan

TANER ATILGAN | DSLR/MILC MACRO – 473
Istanbul Turkey



KHALID ALMANSOORI | DSLR/MILC MACRO – 466
Lembeh Indonesia

PHILIPPE LECOMTE | DSLR/MILC MACRO – 424
Puerto Galera, Philippines

YOUSEF ALSHEKAILI | DSLR/MILC MACRO – 425
Anilao, Philippines

MICHAEL RALL | DSLR/MILC MACRO – 416
Sipadan, Malaysia

SALEH ALI AL MANSOORI | DSLR/MILC MACRO – 413
Bali, Indonesia

OLA KHALAF | DSLR/MILC MACRO – 396
Musandam, Oman

STEWART CLARKE | DSLR/MILC MACRO – 409
Reef Balls, Fujairah, UAE

STEVEN BOARD | DSLR/MILC MACRO – 409
Car Cemetery, UAE

KHALID A. ALHOSANI | DSLR/MILC MACRO – 383
Fujairah, UAE

MOHAMMAD BASSAM SAMOOR | DSLR/MILC MACRO – 381
Dibba, UAE

ROB BUURVELD | DSLR/MILC MACRO – 372
Inhambane, Mozambique

YOUSIF ALALI | DSLR/MILC MACRO – 369
Lembeh Strait, Indonesia

ABDULLA ALALI | DSLR/MILC MACRO – 364
Daymaniyat Islands, Oman

HANI OMAR | DSLR/MILC MACRO – 359
Bonaire

AHMED AL ALI | DSLR/MILC MACRO – 356
Tulamben, Bali, Indonesia

SULTAN ALTHAHAB | DSLR/MILC MACRO – 356

LEVENTE ROZSAHEGYI | DSLR/MILC MACRO – 321
Red Sea, Egypt

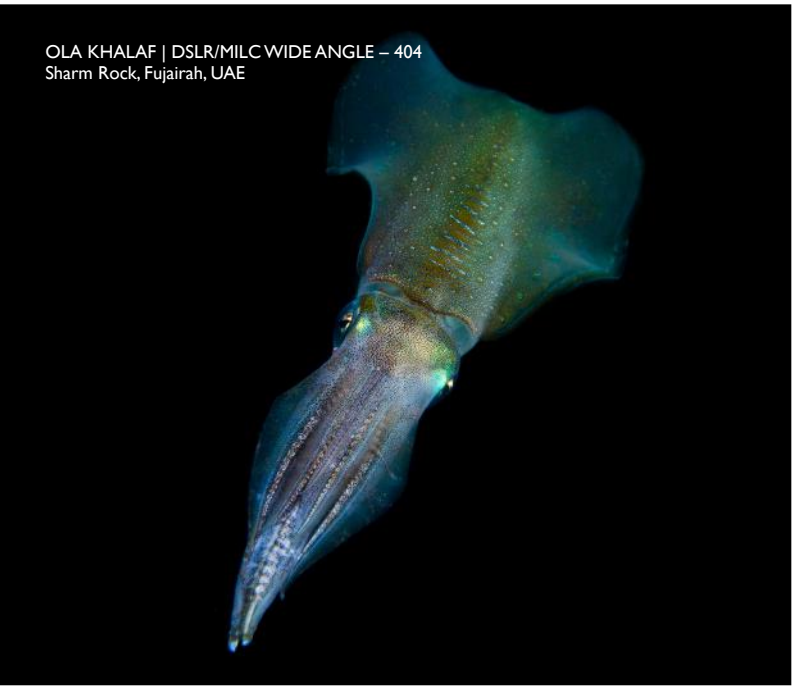
SIBYLLE BLUMENTHAL | DSLR/MILC MACRO – 322
Guinjata Bay, Mozambique

NICOLA DE CORATO | DSLR/MILC MACRO – 322
Inchcape 2, UAE

PETER MAINKA | DSLR/MILC MACRO – 317
Sipadan, Malaysia

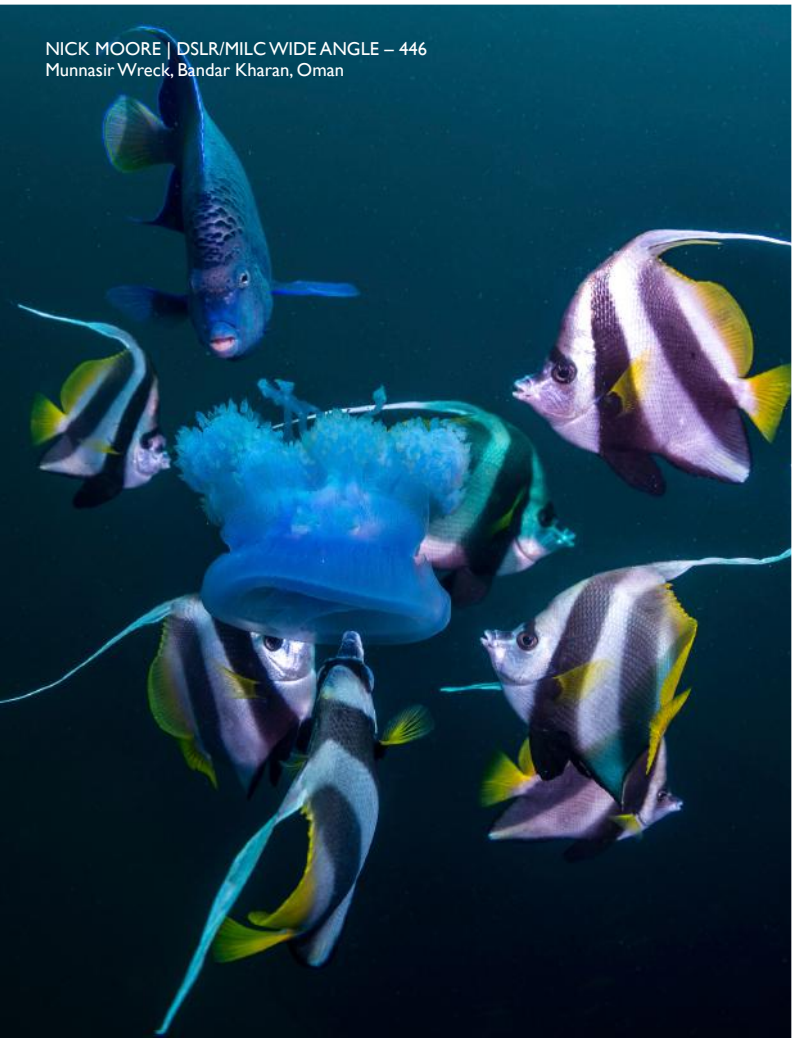
AHMED ALNAQBI | DSLR/MILC MACRO – 313
Fujairah, UAE

NASSIM MIRI | DSLR/MILC MACRO – 296
Maldives



OLA KHALAF | DSLR/MILC WIDE ANGLE – 404
Sharm Rock, Fujairah, UAE

YOUSIF ALALI | DSLR/MILC WIDE ANGLE – 417
Gorontalo, Indonesia



NICK MOORE | DSLR/MILC WIDE ANGLE – 446
Munnasir Wreck, Bandar Kharan, Oman

IYAD SULEYMAN | DSLR/MILC WIDE ANGLE – 403
Komodo, Indonesia

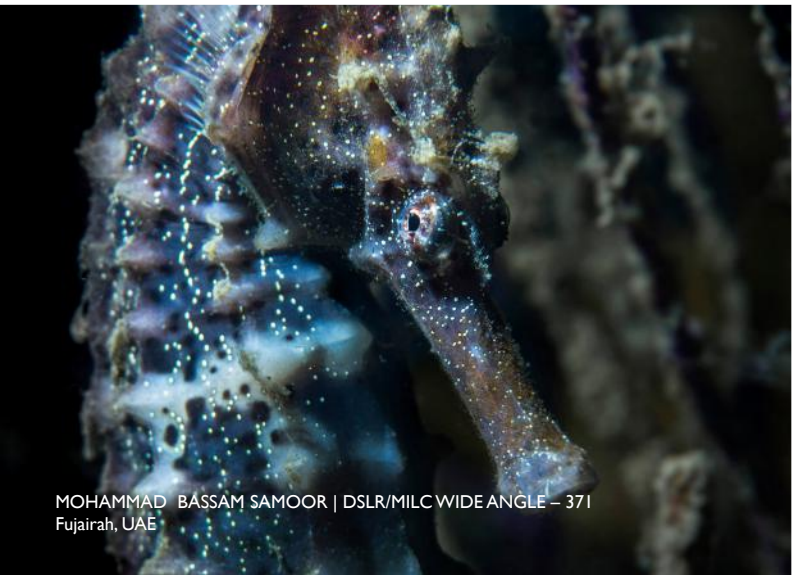
STEVEN BOARD | DSLR/MILC WIDE ANGLE – 402
Lima Rock, Musandam, Oman

ALI FIKREE | DSLR/MILC WIDE ANGLE – 394
Ines Wreck, Fujairah, UAE

MICHAEL RALL | DSLR/MILC WIDE ANGLE – 392
Guadalupe, Mexico

YOUSEF ALSHEKAILI | DSLR/MILC WIDE ANGLE – 373
Bali Indonesia

KHALID ALMANSOORI | DSLR/MILC WIDE ANGLE – 377
Grontalo, Indonesia



MOHAMMAD BASSAM SAMOOR | DSLR/MILC WIDE ANGLE – 371
Fujairah, UAE

ROB BUURVELD | DSLR/MILC WIDE ANGLE – 362
Bali, Indonesia

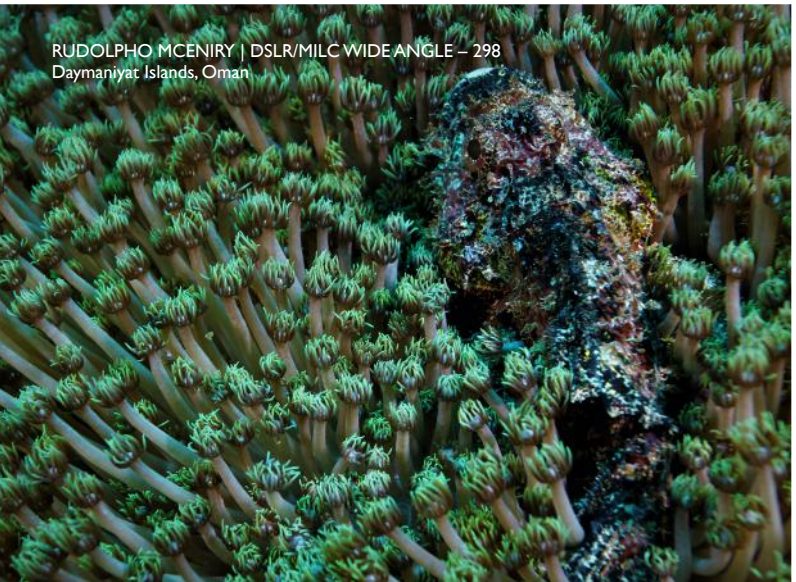
MOHAMED ABDULLA | DSLR/MILC WIDE ANGLE – 354
Balicasag Island, Indonesia

SALEH ALI AL MANSOORI | DSLR/MILC WIDE ANGLE – 352
Bali, Indonesia

NASSIM MIRI | DSLR/MILC WIDE ANGLE – 337
Ras Mohamad National Park, Egypt

STEWART CLARKE | DSLR/MILC WIDE ANGLE – 330
Anantara Veli Resort, Maldives

HANI OMAR | DSLR/MILC WIDE ANGLE – 321
Bonaire

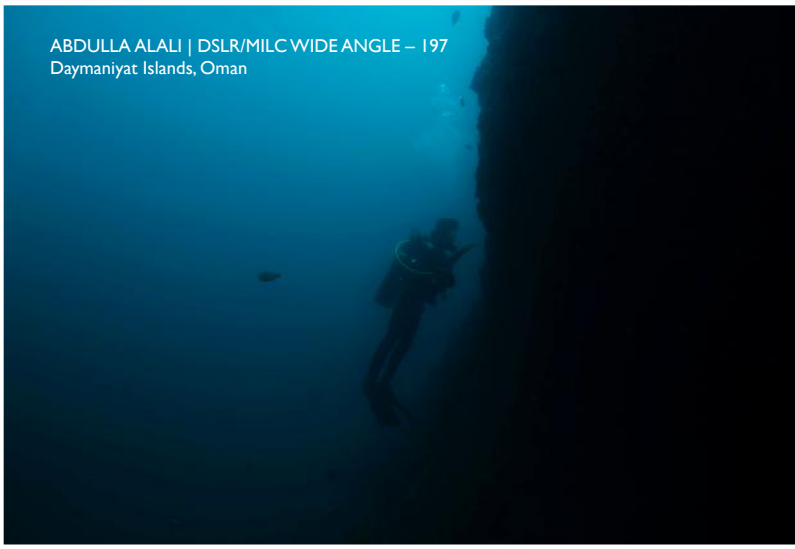


RUDOLPHO MCENIRY | DSLR/MILC WIDE ANGLE – 298
Daymaniyat Islands, Oman

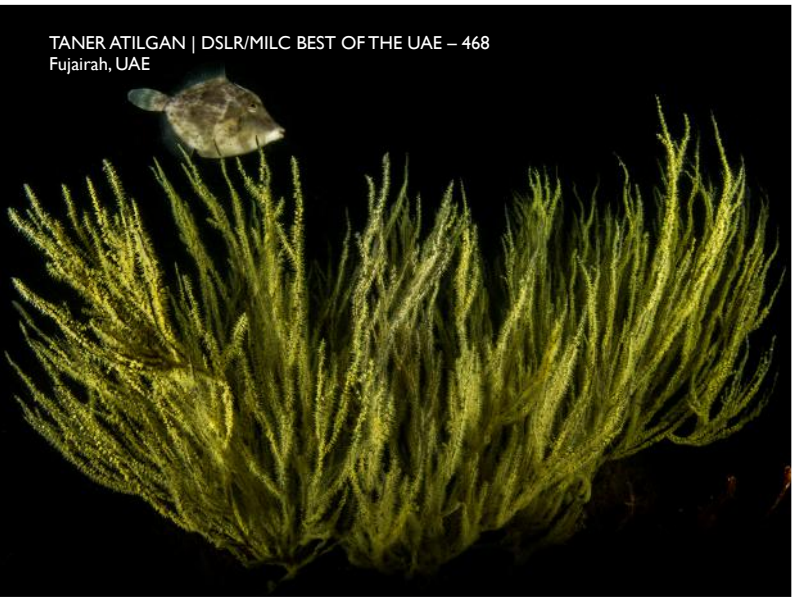
PETER MAINKA | DSLR/MILC WIDE ANGLE – 273
Red Sea

AHMED AL ALI | DSLR/MILC WIDE ANGLE – 294
Tulamben, Bali, Indonesia

SIBYLLE BLUMENTAL | DSLR/MILC WIDE ANGLE – 235
Guinjata Bay, Mozambique



ABDULLA ALALI | DSLR/MILC WIDE ANGLE – 197
Daymaniyat Islands, Oman



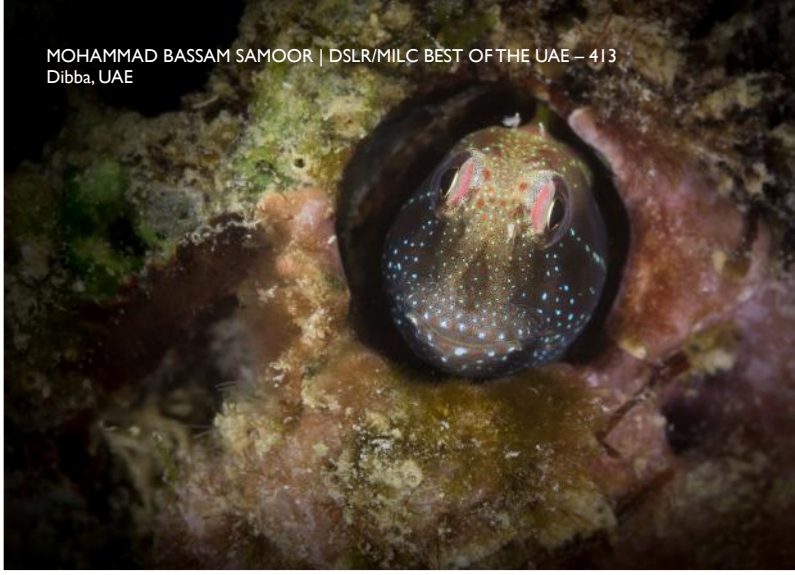
TANER ATILGAN | DSLR/MILC BEST OF THE UAE – 468
Fujairah, UAE

IYAD SULEYMAN | DSLR/MILC BEST OF THE UAE – 461
Al Bidya, Fujairah, UAE

NICK MOORE | DSLR/MILC BEST OF THE UAE – 431
Habalayan South, Musandam, Oman

MOHAMED ABDULLA | DSLR/MILC BEST OF THE UAE – 419
Al Mirfa, Abu Dhabi, UAE

MOHAMMAD BASSAM SAMOOR | DSLR/MILC BEST OF THE UAE – 413
Dibba, UAE

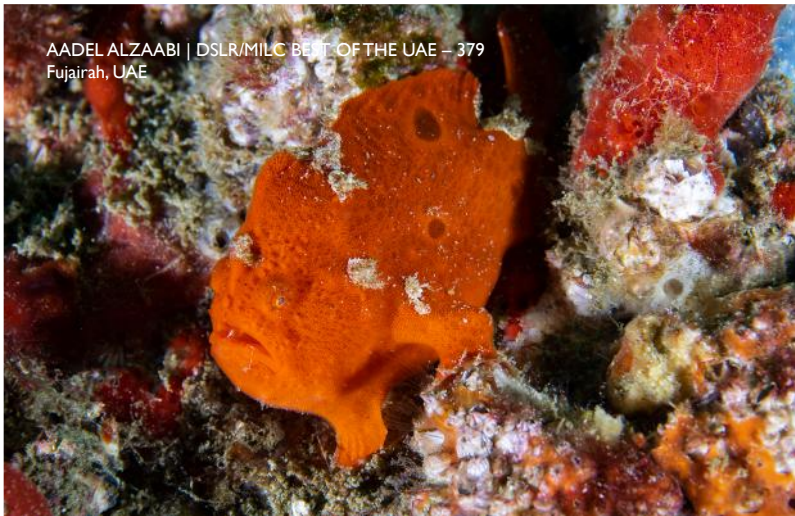


AHMED ALNAQBI | DSLR/MILC BEST OF THE UAE – 412
Musandam, Oman

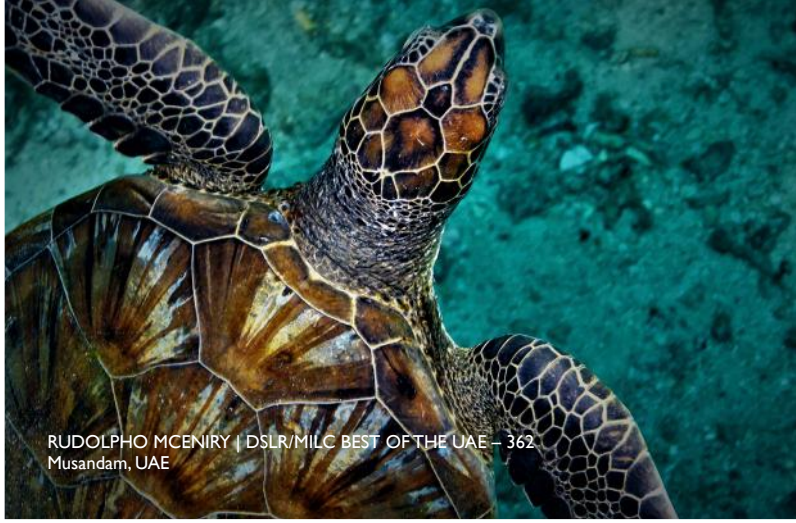
PHILIPPE LECOMTE | DSLR/MILC BEST OF THE UAE – 385
Khorfakkan, UAE

STEWART CLARKE | DSLR/MILC BEST OF THE UAE – 383
Car Cemetery, Khorfakkan, UAE

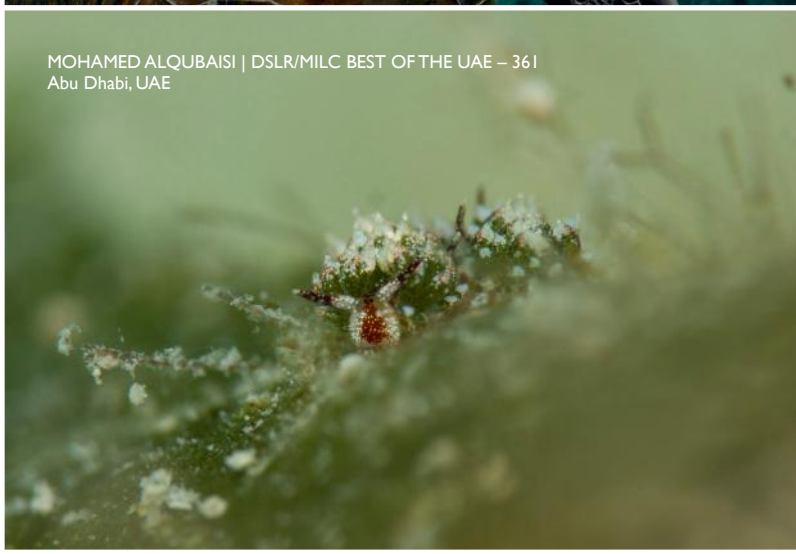
AADEL ALZAABI | DSLR/MILC BEST OF THE UAE – 379
Fujairah, UAE



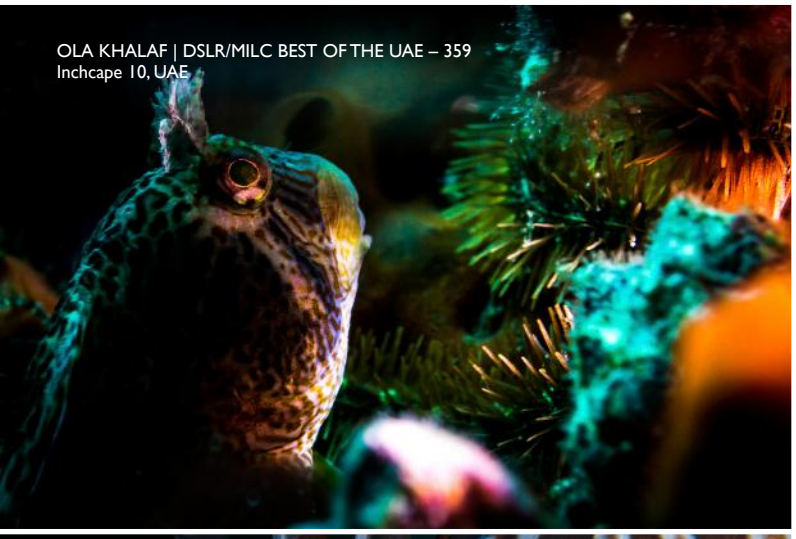
YOUSEF ALSHEKAILI | DSLR/MILC BEST OF THE UAE – 383
Fujairah, UAE



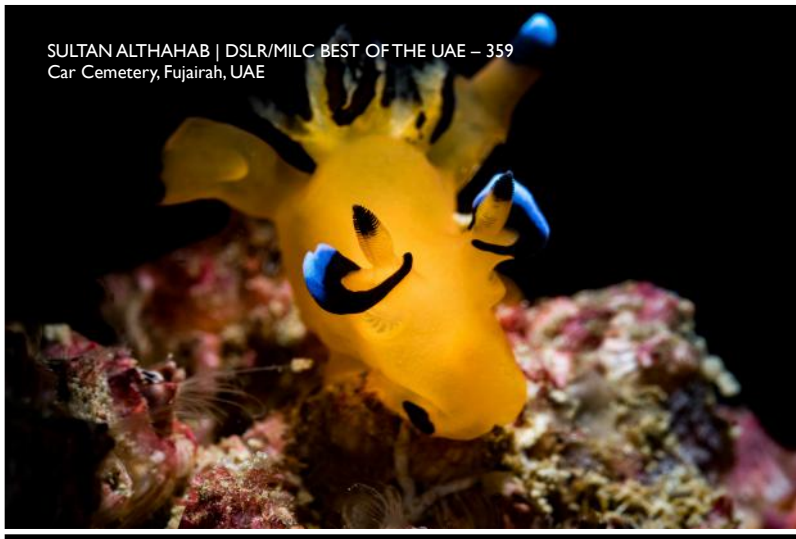
RUDOLPHO MCENIRY | DSLR/MILC BEST OF THE UAE – 362
Musandam, UAE



MOHAMED ALQUBAISI | DSLR/MILC BEST OF THE UAE – 361
Abu Dhabi, UAE

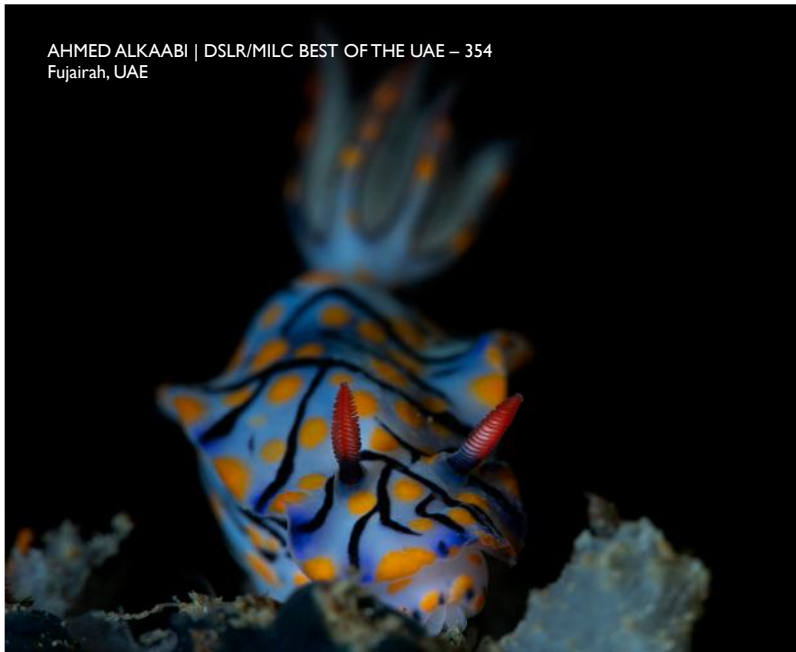


OLA KHALAF | DSLR/MILC BEST OF THE UAE – 359
Inchcape 10, UAE



SULTAN ALTHAHAB | DSLR/MILC BEST OF THE UAE – 359
Car Cemetery, Fujairah, UAE

YOUSIF ALALI | DSLR/MILC BEST OF THE UAE – 356
Abu Dhabi, UAE

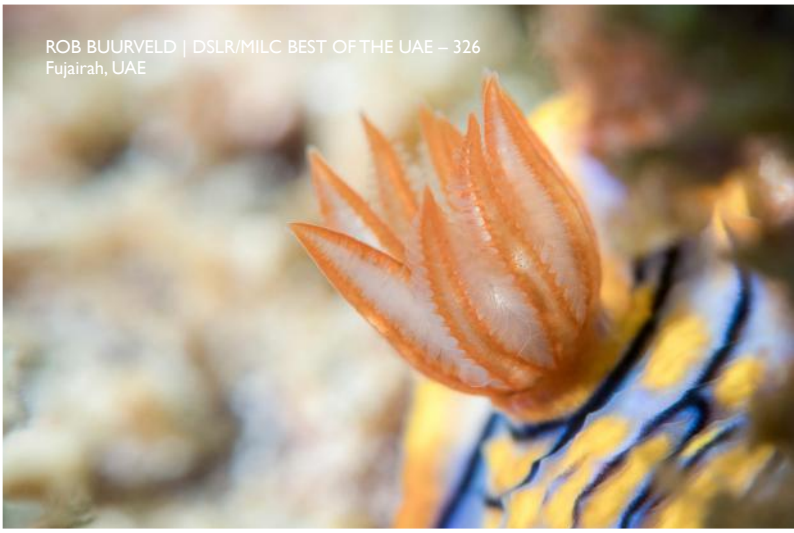


AHMED ALKAABI | DSLR/MILC BEST OF THE UAE – 354
Fujairah, UAE

KHALED A. ALHOSANI | DSLR/MILC BEST OF THE UAE – 352
Car Cemetery, Fujairah, UAE

AHMED AL ALI | DSLR/MILC BEST OF THE UAE – 347
Sharq Island, Khorfakkan, UAE

ABDULLA ALALI | DSLR/MILC BEST OF THE UAE – 344
Martini Rock, Khorfakkan, UAE



ROB BUURVELD | DSLR/MILC BEST OF THE UAE – 326
Fujairah, UAE

SIBYLLE BLUMENTHAL | DSLR/MILC BEST OF THE UAE – 301
Car Cemetery, Fujairah, UAE

MICHAEL RALL | COMPACT BEST OF THE UAE – 408
Musandam, Oman

ANDY JONES | COMPACT BEST OF THE UAE – 363
SMB Wreck, Dubai, UAE

ANGELA MANTHORPE | COMPACT BEST OF THE UAE – 357
Fanaku Island, Musandam, Oman

CHRISTOPHER BRIDGE | COMPACT BEST OF THE UAE – 379
Snoopy Island, Fujairah, UAE

ROB BUURVELD | COMPACT BEST OF THE UAE – 345
Fujairah, UAE

LEVENTE ROZSAHEGYI | COMPACT BEST OF THE UAE – 317
Dibba Rock, UAE

LYNETTE FERREIRA | COMPACT BEST OF THE UAE – 363
Ras Lima, Musandam, Oman

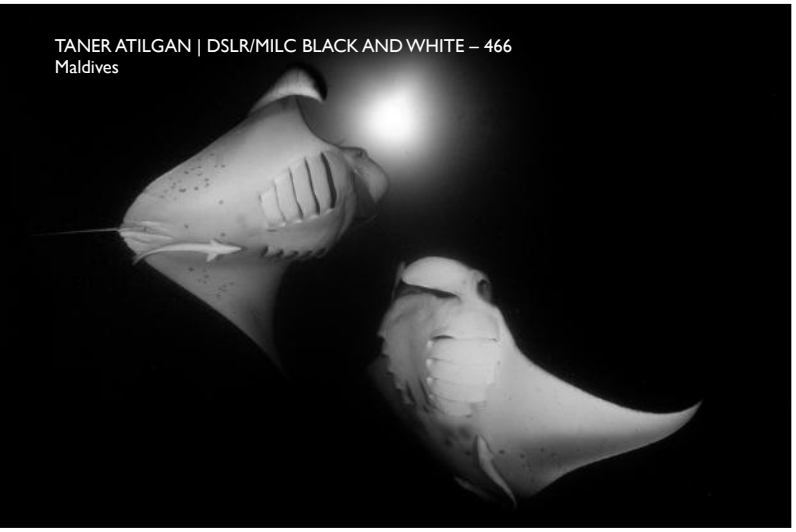
NASSIM MIRI | COMPACT BEST OF THE UAE – 283
Musandam, Oman

PETER MAINKA | COMPACT BEST OF THE UAE – 340
Old Cement Barge, Abu Dhabi, UAE

AHMED RAMADAN | COMPACT BEST OF THE UAE – 331
Fujairah, UAE

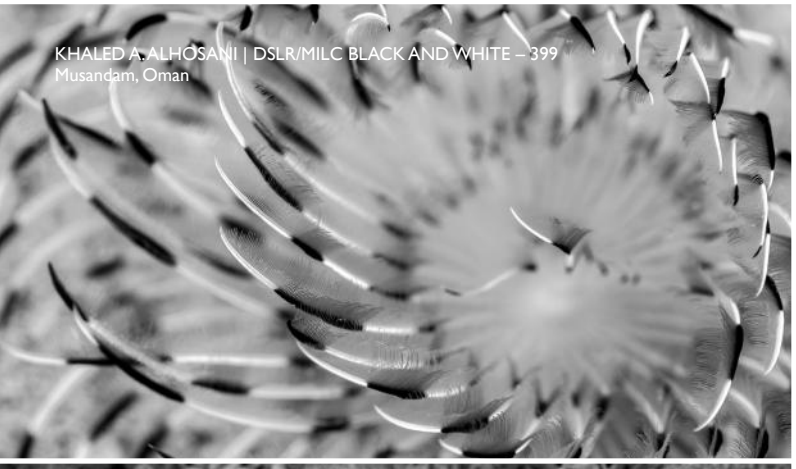
KELLY TYMBURSKI | COMPACT BEST OF THE UAE – 268
Octopus Rock, Musandam, UAE

MOHAMMAD AL FALASI | COMPACT BEST OF THE UAE – 221
Musandam, Oman



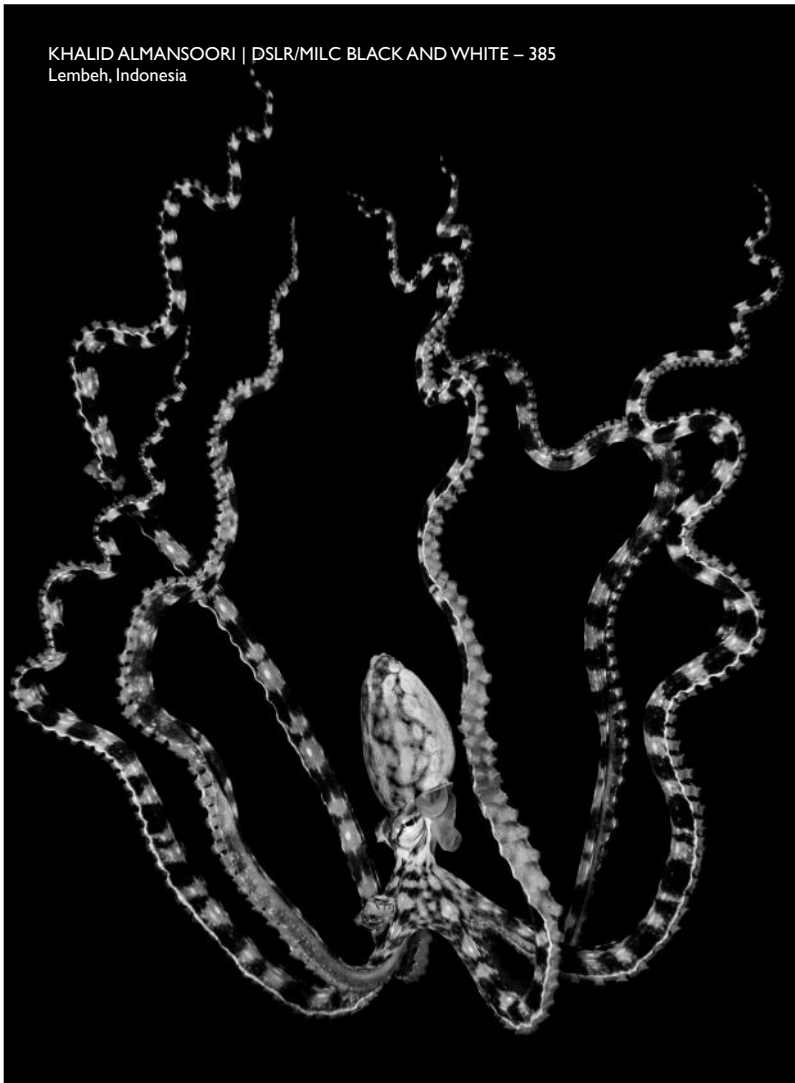
TANER ATILGAN | DSLR/MILC BLACK AND WHITE – 466
Maldives

MOHAMED ABDULLA | DSLR/MILC BLACK AND WHITE – 427
Oslob, Philippines



KHALED A. ALHOSANI | DSLR/MILC BLACK AND WHITE – 399
Musandam, Oman

PHILIPPE LECOMTE | DSLR/MILC BLACK AND WHITE – 379
Puerto Galera, Philippines

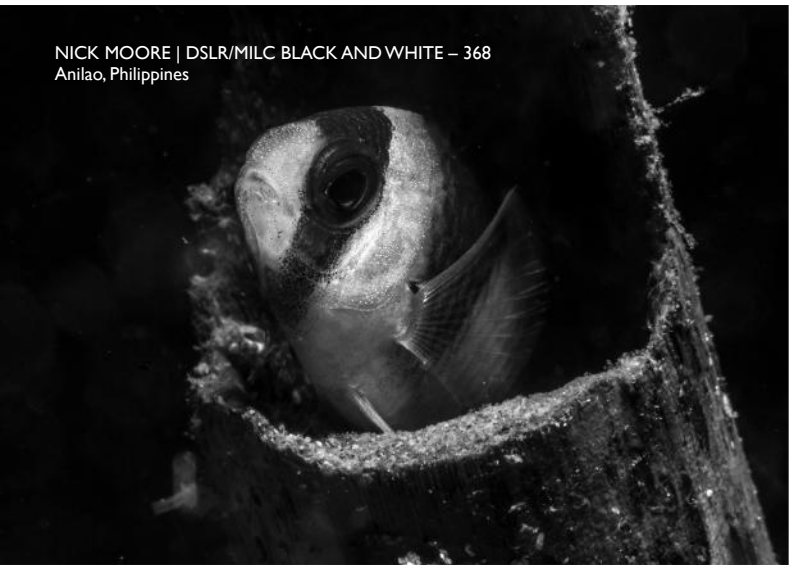


KHALID ALMANSOORI | DSLR/MILC BLACK AND WHITE – 385
Lembeh, Indonesia

SALEH ALI AL MANSOORI | DSLR/MILC BLACK AND WHITE – 376
Anilao, Philippines

YOUSEF ALSHEKAILI | DSLR/MILC BLACK AND WHITE – 372
Anilao, Philippines

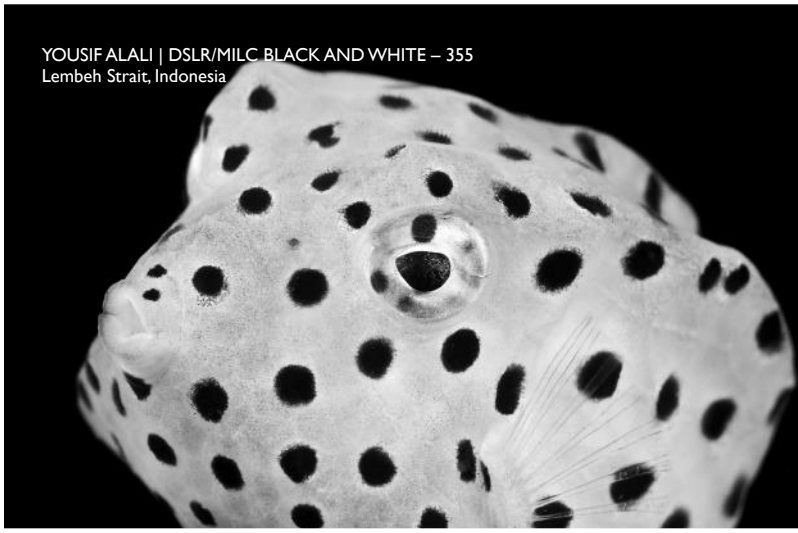
NICK MOORE | DSLR/MILC BLACK AND WHITE – 368
Anilao, Philippines



STEVEN BOARD | DSLR/MILC BLACK AND WHITE – 368
Daymaniyat Islands, Oman

OLA KHALAF | DSLR/MILC BLACK AND WHITE – 361
Dubai, UAE

YOUSIF ALALI | DSLR/MILC BLACK AND WHITE – 355
Lembeh Strait, Indonesia



NASSIM MIRI | DSLR/MILC BLACK AND WHITE – 339
Ras Muhamad, Egypt

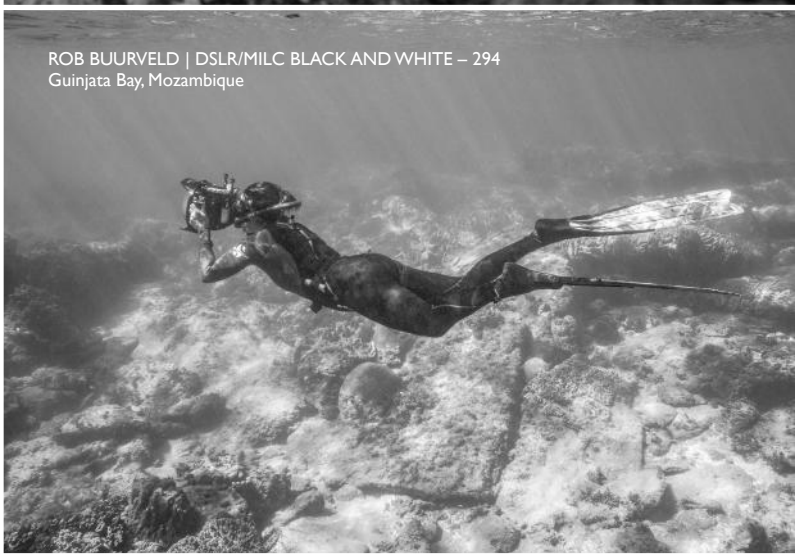
LEVENTE ROZSAHEGYI | DSLR/MILC BLACK AND WHITE – 327
Red Sea

AHMED ALNAQBI | DSLR/MILC BLACK AND WHITE – 328
Fujairah, UAE

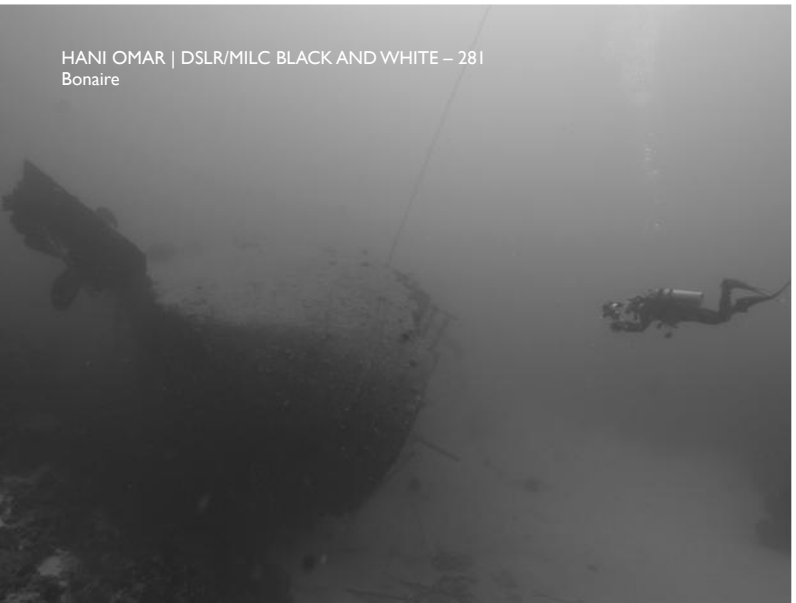
PETER MAINKA | DSLR/MILC BLACK AND WHITE – 326
Musandam, Oman

AHMED AL ALI | DSLR/MILC BLACK AND WHITE – 322
Dibba Rock, Fujairah, UAE

SIBYLLE BLUMENTHAL | DSLR/MILC BLACK AND WHITE – 308
Guinjata Bay, Mozambique



ROB BUURVELD | DSLR/MILC BLACK AND WHITE – 294
Guinjata Bay, Mozambique

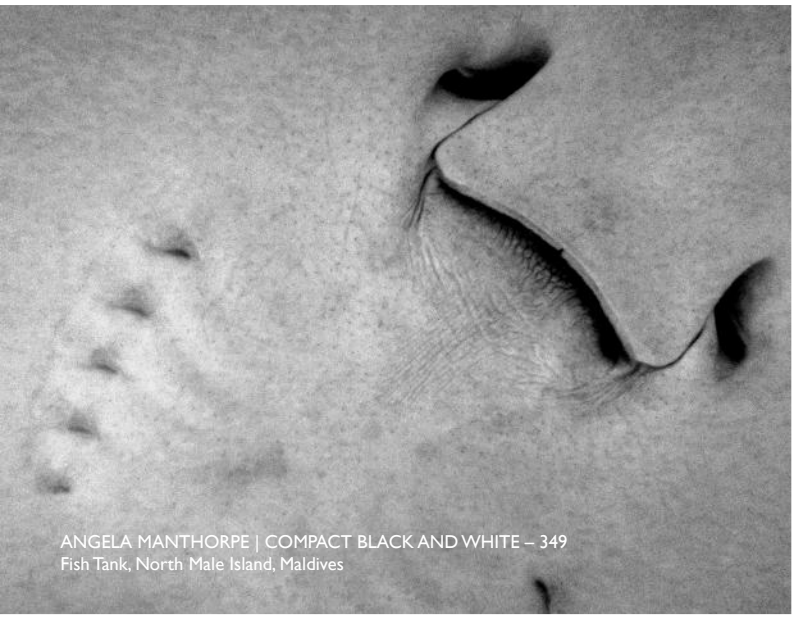


HANI OMAR | DSLR/MILC BLACK AND WHITE – 281
Bonaire

ROB BUURVELD | COMPACT BLACK AND WHITE – 401
Cenderawasih Bay, Indonesia

SIBYLLE BLUMENTHAL | COMPACT BLACK AND WHITE – 384
Lembeh, North Sulawesi, Indonesia

KELLY TYMBURSKI | COMPACT BLACK AND WHITE – 351
Angel Reef, Indonesia



ANGELA MANTHORPE | COMPACT BLACK AND WHITE – 349
Fish Tank, North Male Island, Maldives

WESSAM GADELMOULA | COMPACT BLACK AND WHITE – 344
Red Sea, Egypt

LYNETTE FERREIRA | COMPACT BLACK AND WHITE – 334
Martini Rock, Al Aqah, UAE

AHMED RAMADAN | COMPACT BLACK AND WHITE – 299
Musandam, Oman

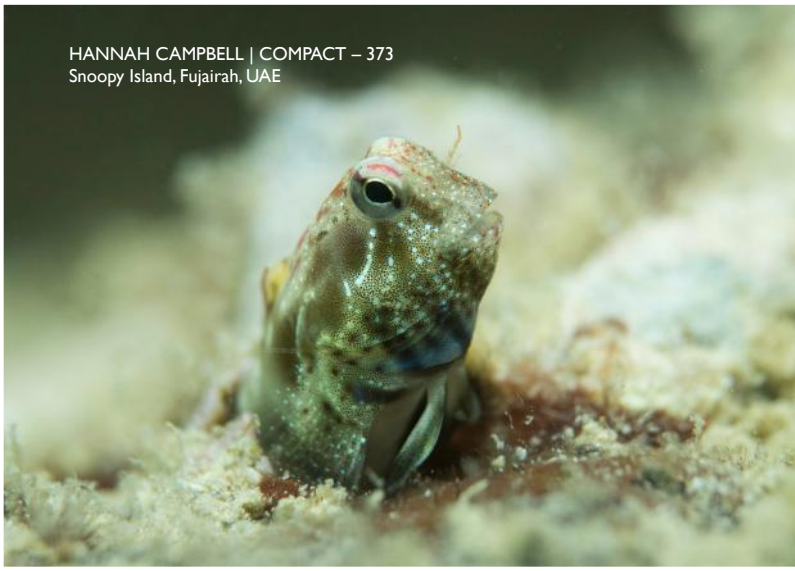
HANNAH CAMPBELL | COMPACT BLACK AND WHITE – 322
Sheikh Mohammad's Barge, Dubai, UAE

MOHAMMAD AL FALASI | COMPACT BLACK AND WHITE – 275
Musandam, Oman

DOUG SIMPSON | COMPACT BLACK AND WHITE – 250
Gota Sorayr, Red Sea, Southern Egypt

SIBYLLE MANTHORPE | COMPACT – 454
Weda, Halmahera, Indonesia

ANDY JONES | COMPACT – 398
Lembeh Strait, Indonesia



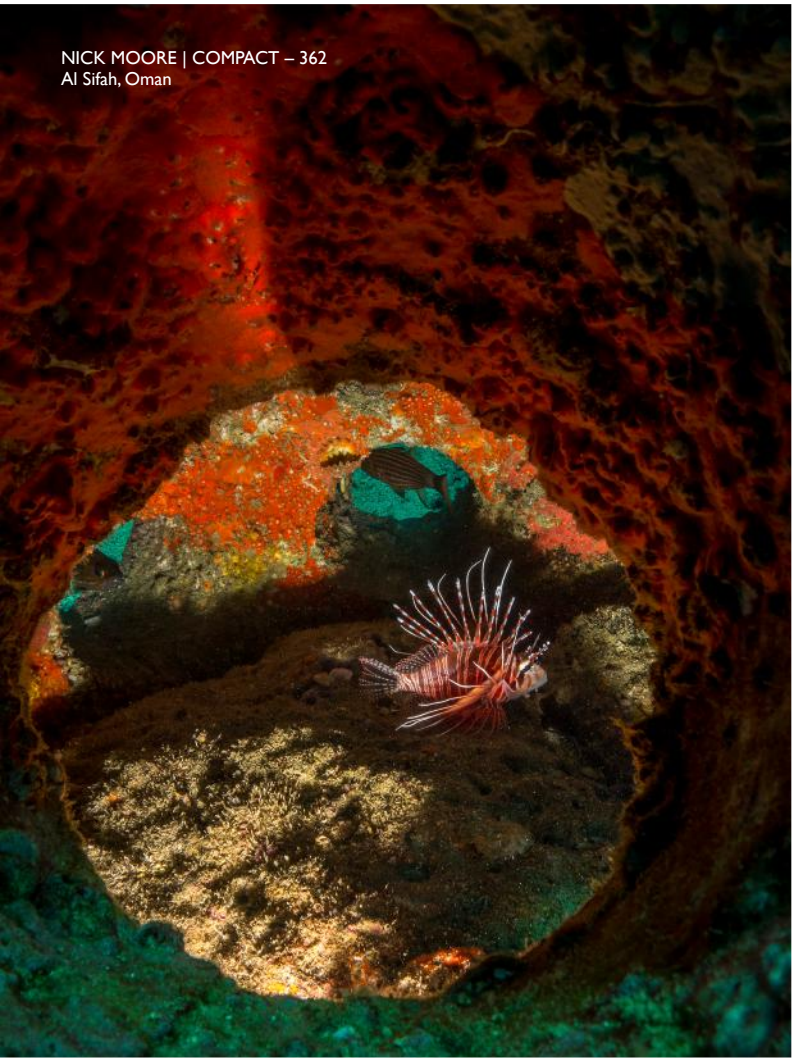
HANNAH CAMPBELL | COMPACT – 373
Snoopy Island, Fujairah, UAE

SULTAN ALTHAHAB | COMPACT – 390
Daymaniyat Islands, Oman

KELLY TYMBURSKI | COMPACT – 372
Crystal Bay, Komodo National Park, Indonesia

DOUG SIMPSON | COMPACT – 367
Inchcape 1, Al Aqah, UAE

CHRISTOPHER BRIDGE | COMPACT – 364
Dibba Rock, UAE

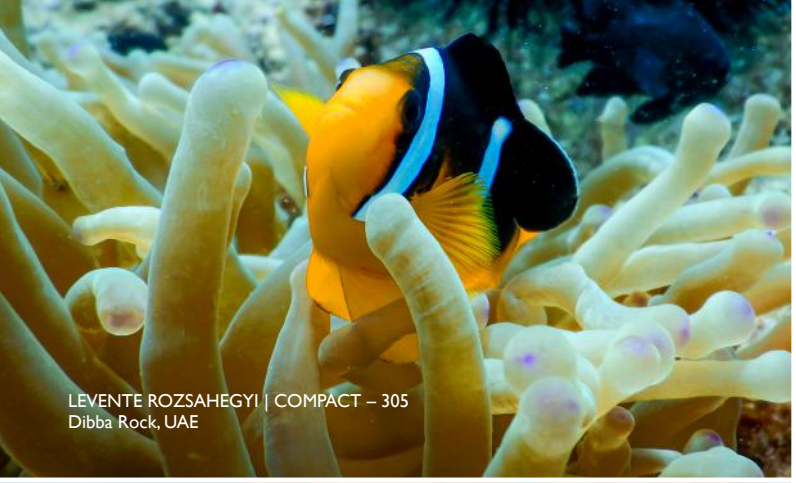


NICK MOORE | COMPACT – 362
Al Sifah, Oman

MICHAEL RALL | COMPACT – 345
Oman

AHMED RAMADAN | COMPACT – 344
Sharm El Sheikh, Egypt

MAITHA AL QADER | COMPACT – 343
Musandam, Oman



LEVENTE ROZSAHEGYI | COMPACT – 305
Dibba Rock, UAE

WESSAM GADELMOULA | COMPACT – 299
Sharm El Sheikh, Egypt

NASSIM MIRI | COMPACT – 304
Ras Mohamad National Park, Egypt

RUDOLPHO MCENIRY | COMPACT – 280
Seychelles

LYNETTE FERREIRA | COMPACT – 278
Inchcape 1, Al Aqah, UAE

SALEH ALDHAHORI | COMPACT – 272
Dibba, UAE

MOHAMMAD AL FALASI | COMPACT – 242
Musandam, Oman


DIGITAL ONLINE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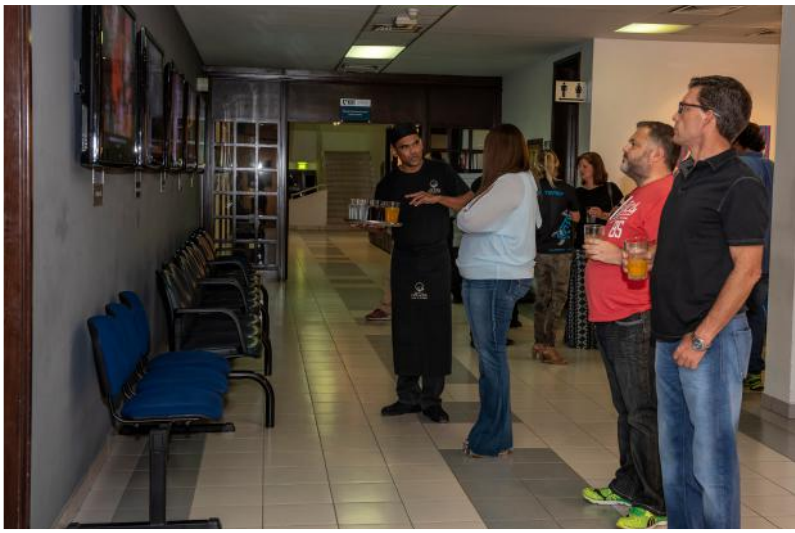


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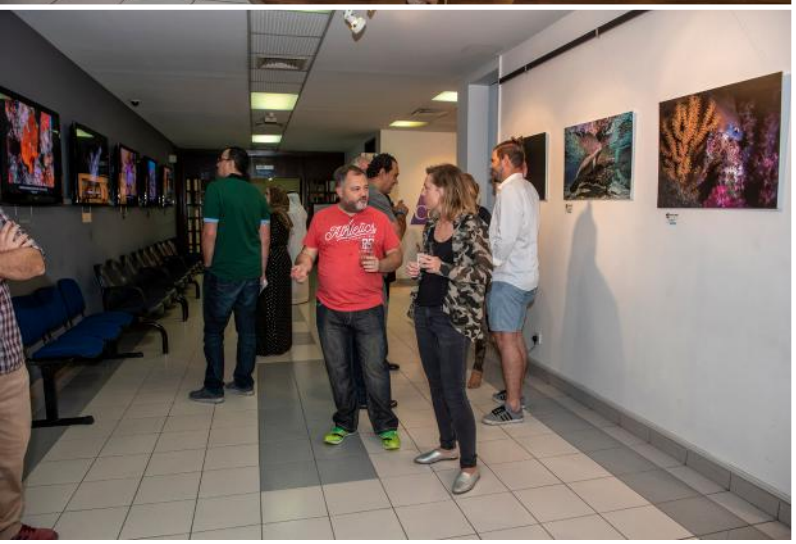


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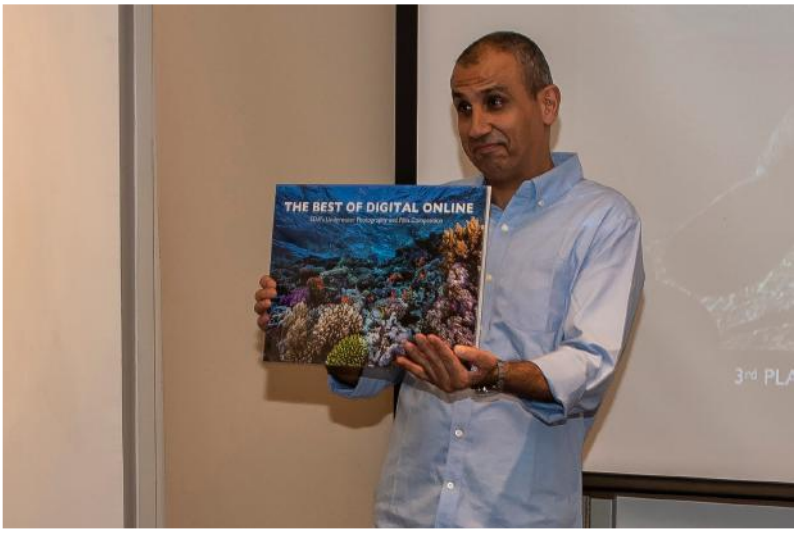

Prize Sponsors, Seabreacher UAE and Fairmont Fujairah Beach Resort awarded prize by EDA's Ibrahim Al-Zu'bi to Rudolpho McEniry for 3rd Place Compact: Best of the UAE.

Prize Sponsors, Seabreacher UAE and Fairmont Fujairah Beach Resort awarded prize by EDA's Ibrahim Al-Zu'bi to Ola Khalaf for 3rd Place Compact.

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Prize Sponsor representative, Jeffrey Catanjal from The Palms Dive Center awarding prize to Ahmed Alkaabi for 3rd Place DSLR/MILC: Macro.

Prize Sponsor representative, Nicola Liddell from Divers Down awarding prize to Stewart Clarke for 3rd Place DSLR/MILC: Black and White.

Prize Sponsor, Ibrahim Al-Zu'bi from Emirates Diving Association awarding prize to Philippe Lecomte for 3rd Place DSLR/MILC: Wide Angle.

Prize Sponsor representative, Mark Montecillo from MTM Marine LLC awarding prize to Yousif Alali for 3rd Place Video: What Lies Beneath.

Prize Sponsor, Al Marsa Musandam awarded prize by EDA's Ibrahim Al-Zu'bi to Maitha Al Qader for 2nd Place Compact: Best of the UAE.

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Prize Sponsor representative, Gopal Sudhakaran from Grand Stores awarding prize to Sultan Althahab for 2nd Place Compact: Black and White.

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Prize Sponsor, BFC Travel Management awarded prize by EDA's Ibrahim Al-Zu'bi to Mohamed Abdulla for 2nd Place Video: What Lies Beneath.

Prize Sponsor, Marine Owen from Freestyle Divers awarding prize to Sibylle Blumenthal for 1st Place Compact: Best of the UAE.

Prize Sponsors, Millennium Resort Mussanah and representative Richard Bacani from Oman Sail Dive Centre awarding prize to Angela Manthorpe for 1st Place Compact.

Prize Sponsor representative, Mark Montecillo from MTM Marine LLC awarding prize to Khalid Almansoori for 1st Place DSLR/MILC: Best of the UAE.

Prize Sponsors representative, Chintaka Bandara from Philippines Department of Tourism and Pier Uno Dive Resort awarding prize to Nick Moore for 1st Place DSLR/MILC: Macro.

Prize Sponsors representative, Chintaka Bandara from Philippines Department of Tourism and Azure Dive Resort awarding prize to Taner Atilgan for 1st Place DSLR/MILC: Wide Angle.

Prize Sponsor, BFC Travel Management awarded prize by EDA's Ibrahim Al-Zu'bi to Iyad Suleyman for 1st Place DSLR/MILC: Black and White.

Prize Sponsors representative, Chintaka Bandara from Philippines Department of Tourism and Pier Uno Dive Resort awarding prize to Khalid Sultani for 1st Place Video: What Lies Beneath.

Overall Digital Online 2018 Video Winner goes to Khalid Sultani.

Overall Digital Online 2018 DSLR/MILC Winner goes to Taner Atilgan.

Overall Digital Online 2018 Compact Winner goes to Sibylle Blumenthal.

Overall Digital Online 2018 UAE National Award goes to Mohamed Abdulla.

TIPS AND TRICKS

TO REALISE YOUR FIRST UNDERWATER VIDEO

FEATURE AND PHOTOGRAPHY **NICO DE CORATO**

With today's DSLRs and action-cams, everyone has the built-in potential to make beautiful movies; many cameras give you the opportunity to record Full HD Quality videos.

With today's DSLRs and action-cams, everyone has the built-in potential to make beautiful movies; many cameras give you the opportunity to record Full HD Quality videos. I'm not a professional operator and – just for this reason – I think tricks learnt during all my dives could be very useful to other scuba divers approaching amateur underwater filming, as I did.

Prepare all your scuba and video equipment the night before, including charged batteries; and make sure you create a system of where the fully charged battery and the used battery is located so you do not mistakenly put in the used battery between dives. It's always a good habit to power up your camera and check the battery before each dive.

Pay special attention to the rubber O-ring on the back cover of the housing. Make sure it is free of hair, lint, dust, sand, or any other debris. A clean O-ring will prevent the chance of water leaking inside and flooding your camera.

I recommend keeping your camera in the housing whenever possible to protect your equipment from accidental water damage that can easily happen on a dive boat. I used to place my camera inside the UW housing at home to avoid accidental water contact and checking the equipment before the dive.

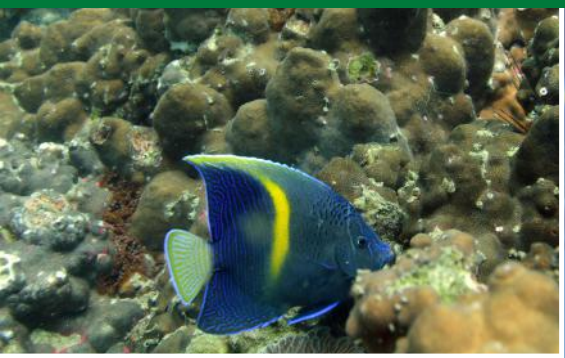
Choose whether you want to take pictures or video. If you want to get good results avoid going underwater with the idea of taking videos and pictures at the same time, unless you have 2 cameras with you. You need to consider that focus is not the same for both. To learn how to create appealing footage, first change your mindset: don't simply shoot a dive – dive in order to shoot!

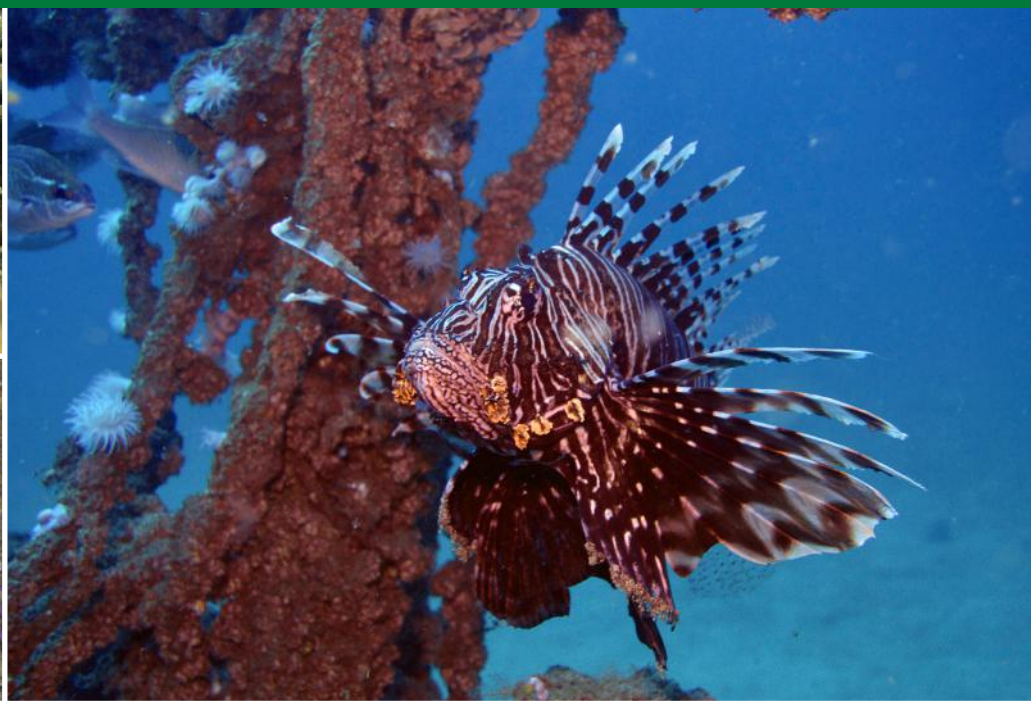
Video lights are highly recommended when creating underwater videos, even though in the post production you can make same minor corrections. The white light from a video light adds missing wavelengths of light that are absorbed in the depths of the water. This will bring out the best possible colours and contrasts in underwater environments. Any light is better than no light. With a wide range of options and prices to choose from for underwater lights, the choice can be overwhelming. Use what you can and practice as much as possible.

Underwater lights are good depending on the number of Lumens of the light, the depth, and the visibility of the water. The higher the Lumens on the light, the better. After 5 or 6 feet, the light is absorbed by the water and is overpowered by the blue ambient light that exists underwater. Subjects closer to your lights will have better results than those further away. The direction you point your lights will result in different outcomes (e.g., more or less shadow, softer or harder light, etc.). Experiment around with different angles, adjustments, and power settings until you create your own look and style.

Try to hold the camera as steady as possible. Sounds easy, right? After all, your camera is surrounded by water and should be nice and stable. Sharp movement, shaking and vibration in your video will make even hearty sailors seasick. Make sure to be slow and smooth when panning the camera. But never hold your breath: remember you are a scuba diver and you never stop breathing underwater.

Each kick of your fins makes the camera wobble for a moment, so try panning over or pass your subject by frog-kicking. If you get a strong enough start, you can film a nice long, stable shot while gliding after each kick. And of





course be careful when you are close to the bottom, not to stir up the sand.

Videos are more interesting if they contain a variety of shots. When it's time to edit your video together, it's better to have a variety of shots to choose from. Try shooting your subjects from different angles, with different lighting, and different distances. Take your time and give yourself lots of options for later. The more you have, the better.

In case you want to keep the original underwater sound, the built-in microphone with automatic sensitivity works well even underwater and inside the housing. The sensitivity function automatically handles the audio, allowing it to record the sounds of bubbles emitted underwater by breathing as well as other sounds it picks up.

Experience and practice are your best teachers. I used to go to the same dive sites where I'm extremely comfortable so I can focus on my shooting without the risk of getting lost or facing an unexpected environment. In the UAE my favourite dive sites are the wreck of the Inchcape 2, Martini Rock, and Shark Island.

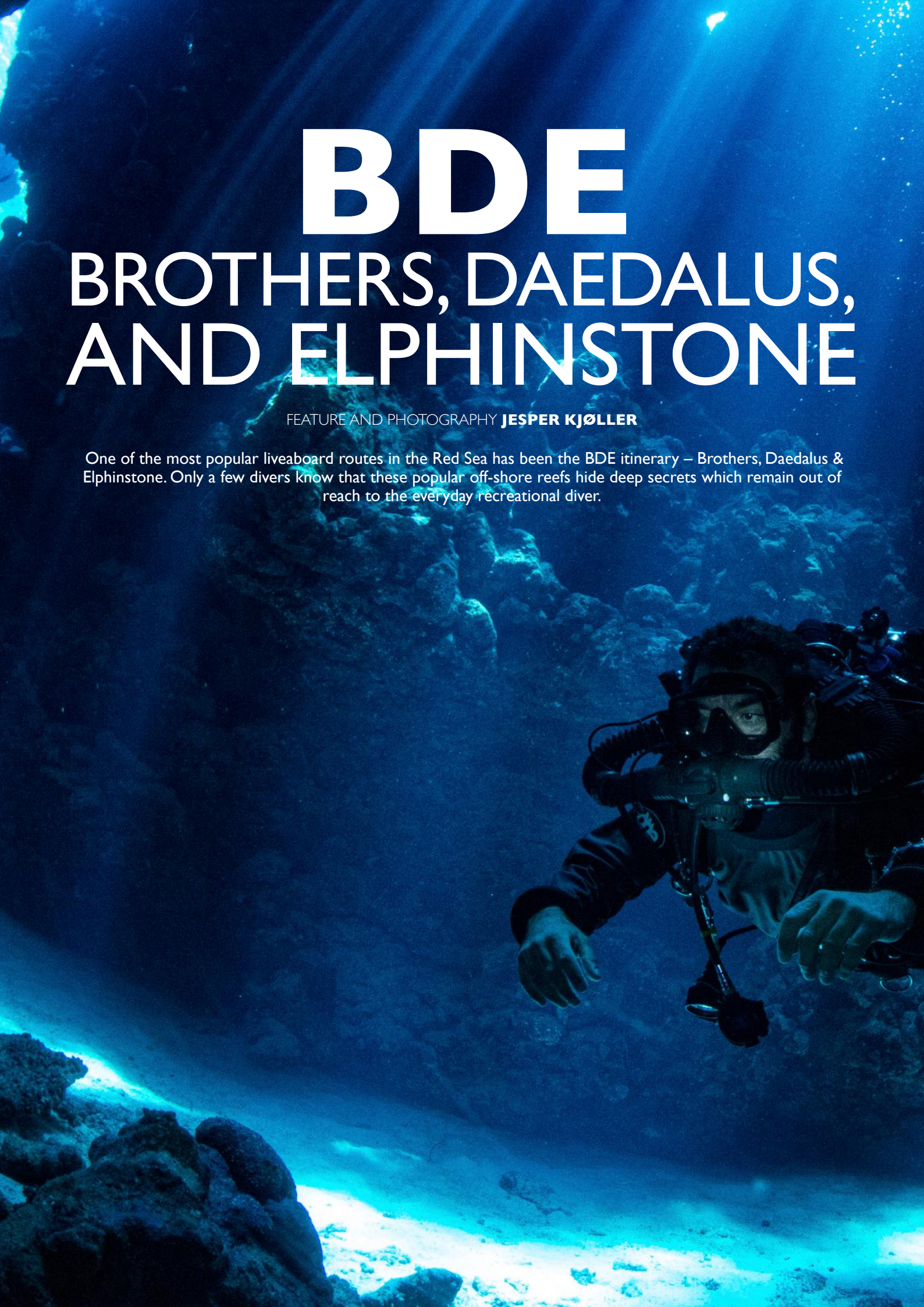
If you are diving with a buddy avoid taking pictures or shooting videos at the same time as it's extremely possible you are going to lose each other. One should take pictures or shoot video while your buddy leads the dive; then you can reverse roles for the second dive.

Some extra tips: it's essential to use a memory card with excellent quality, suitable for recording video clips and at least 16 GB storage capacity. A spare card is recommended. The gorilla tripod can be very useful and practically indestructible, even underwater.

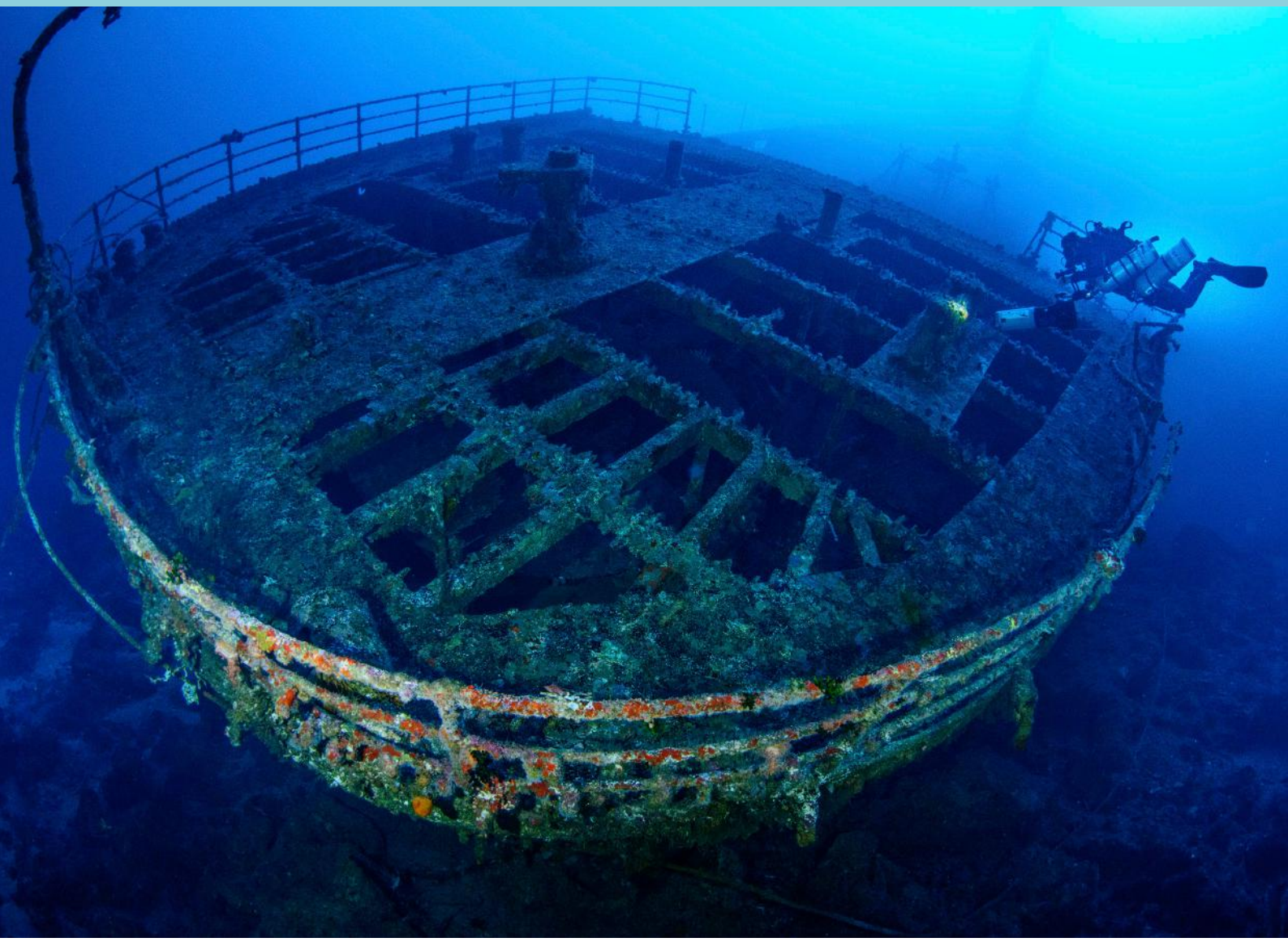
BDE
BROTHERS, DAEDALUS, AND ELPHINSTONE

FEATURE AND PHOTOGRAPHY **JESPER KJØLLER**

One of the most popular liveaboard routes in the Red Sea has been the BDE itinerary – Brothers, Daedalus & Elphinstone. Only a few divers know that these popular off-shore reefs hide deep secrets which remain out of reach to the everyday recreational diver.



A rebreather provides an unparalleled flexibility and our dives for all intent and purposes, only limited by the amount of decompression we are willing to endure at the end of the dive.



Faisal is posing next to Numedia's impressive stern at 80 metres – the deepest part of the dive.

For a few years now one of the most popular liveaboard routes in the Red Sea has been the BDE itinerary – Brothers, Daedalus & Elphinstone. Only a few divers know that these popular off-shore reefs hide deep secrets which remain out of reach to the everyday recreational diver.

It has been 18 years since I first visited Brothers Islands. The reefs are situated so far from the mainland that diving from a liveaboard was and still is, the only option. Much has happened since. Both in regards to the quality of the diving vessels that operate in Egypt and my skills as a diver, and underwater photographer. After my first visit back in 2000, I wrote one of my first magazine articles but had to get images from other photographers as I had not yet purchased my first camera (a Nikonos). The liveaboard was not particularly seaworthy nor particularly comfortable, and it was quite windy during the entire trip, so it was not exactly a pleasant experience – I was actually most comfortable, underwater. The relentless wind was so strong that the boat rocked violently, even within the shelter of the reef. Most of the guests remained permanently seasick during the three days at Brothers. It was totally worth it in the end though!

I still remember my first dive on Numidia where I saw my first hammerhead shark while we were holding on to the shallow parts of the wreck in a ripping current. Numidia drops down to 80 metres, but technical diving in the Red Sea was not developed at that time. Nitrox was barely available, so it was good old-fashioned air diving on single cylinders. As I said, a lot has happened since.

B – BROTHERS ISLANDS

The legendary Brothers Islands or El Akhawein, as they are called in Arabic, are the northernmost of Egypt's off-shore reefs. The two brothers are found about 200 km south of Ras Mohammad or 150 km southeast of Hurghada, which translates to an 8-9 hour cruise in good weather. The two Brothers are situated just fifteen minutes apart and they are formed by steep volcanic cones that rise up from the depths. Their location in an area that is otherwise surrounded by deep water has through the ages posed a danger to the shipping traffic through the Red Sea. Consequently, a 32 metre tall lighthouse is erected on Big Brother. The lighthouse was built by the British in 1883 and was renovated in 1993. Today it is operated by the Egyptian navy and on the surface interval between the dives, it is possible to visit the lighthouse to enjoy the view or buy a Brothers Islands T-shirt.

The islands' isolated location makes them an absolute delicacy, and many divers consider Brothers to be among the best dive sites in the Egyptian Red Sea. The remote position of the two islands, however, is also a disadvantage. Conservative diving is advised as help is far away. Night diving is not permitted and diving conditions can be challenging. Experience with diving in currents and competence in shooting an SMB is an absolute necessity.

BROTHERS TODAY

We make the cruise during the night in relatively rough weather – it is a bit of a rocky trip again. I'm on the deck before the sun rises, curious about where we are and about how the wind affects the conditions. If the wind is too strong, it may be too risky to visit the wrecks at the northern tip of Big Brother. In bad weather it will become too dicey to get back in the zodiacs if something goes wrong.

Most divers, limited by Nitrox's operating depth of around 30 metres and the gas volume in a single cylinder, rarely explore

The scooters make it possible to get to both wrecks at Brothers during the same dive. The skylight leads into Numidia's engine room.

anything other than the very topmost parts of the two wrecks located on the northern tip of Big Brother, Aïda and Numidia. But we are equipped with rebreathers, scooters (diver propulsion vehicles – DPVs) and trimix, so we are able to go deeper and stay longer.

The liveaboard operator Red Sea Explorers are specialists in supporting technical divers with one of the biggest highlights on their northern routes being the legendary four-wreck dive at Abu Nuhas. The scooters make it possible to visit Kimon M, Marcus, Carnatic and Giannis D on the same dive. At Big Brother you can make another super-dive with two wrecks on the menu. This is what we have planned today.

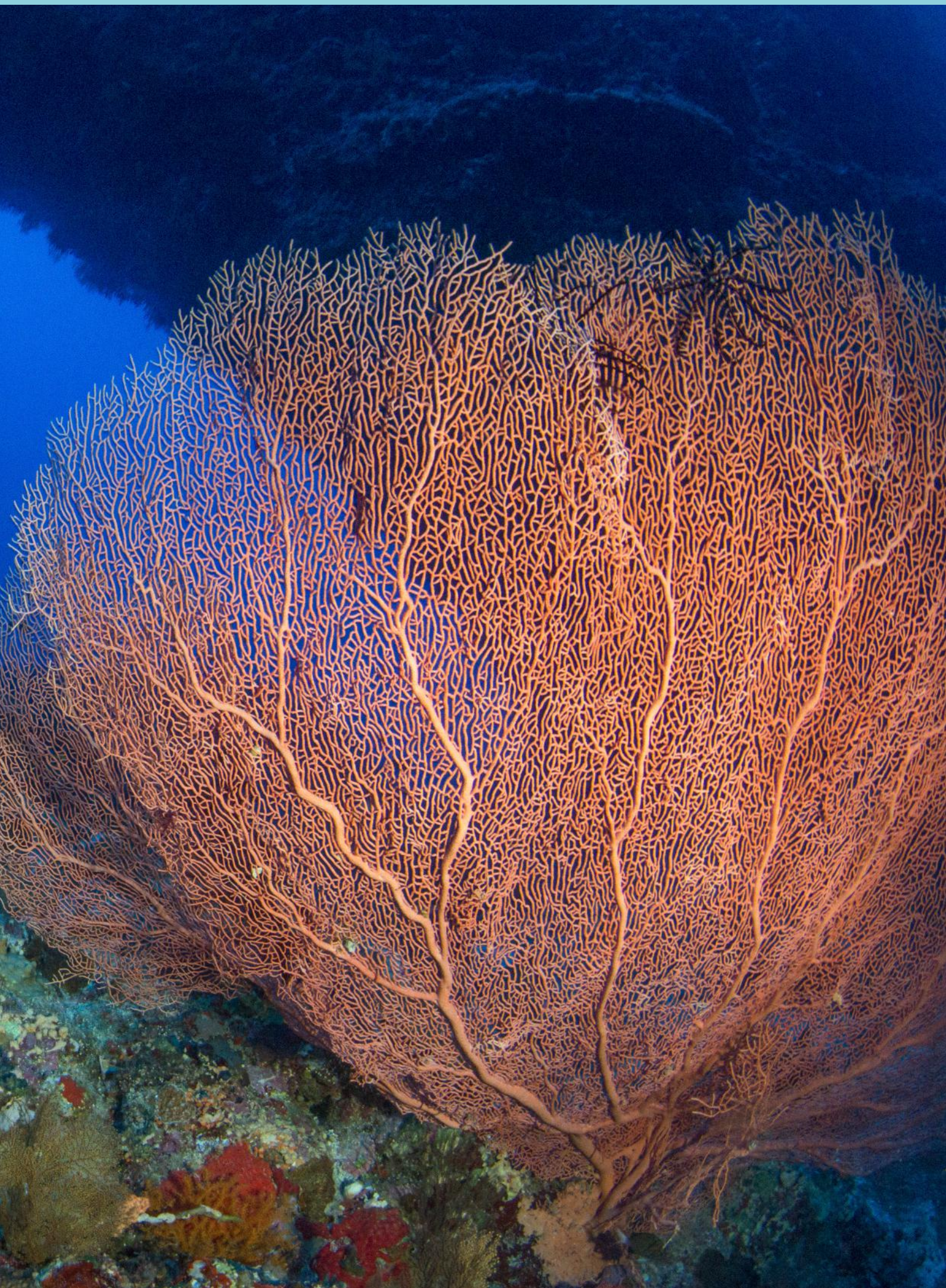
TWO-IN-ONE

After exploring and photographing Aïda with an average depth of about 60 metres, we steer our scooters towards Numidia. After approximately five minutes on the throttle, we pass the train wheel set that was lost from Numidia's deck when she hit the reef. We drop down towards the impressive stern at 80 metres. Numidia presents itself on its best side today, where the visibility is almost infinite. Michel and I let ourselves fall over the edge of the stern to have a good angle to get pictures of Faisal who is posing like the experienced underwater model he is. I have done this and other similar dives with Faisal so many times that we work almost telepathically together. He instinctively finds the good spots to pose and that is important as the time of 80 minutes must be used efficiently. Soon we begin to move up along the impressive wreck that lies on a 45-degree slope on the reef. We explore the huge engine room and swim out of the skylight to begin the almost two-hour long decompression as we are penalised after 30 minutes on the two wrecks with a maximum depth of 80 metres.

With very few exceptions, the wrecks in the Red Sea always rest close to a reef. It makes sense as it is usually the reef that sealed the ship's fate in the first place. Technical divers who do not like long decompressions in open water and who are equally bored at the sight of an ascent line, will be happy when decompressing after a wreck dive in the Red Sea. The two-hour decompression on Big Brother's steep walls is not a punishment, but almost a reward. We glide slowly back towards the south plateau where our mothership MV Tala awaits us. The scooters get a break as the current gently carries us back.

We begin our first deep decompression stops inside the engine room at 50 metres.

Passing through the Arch at Elphinstone which can only be dived on trimix – the bottom of the Arch is at 60 metres.



The marine life on Numedia is spectacular. Large lionfish dominate the deck and the soft corals are among the biggest I've seen in the Red Sea.

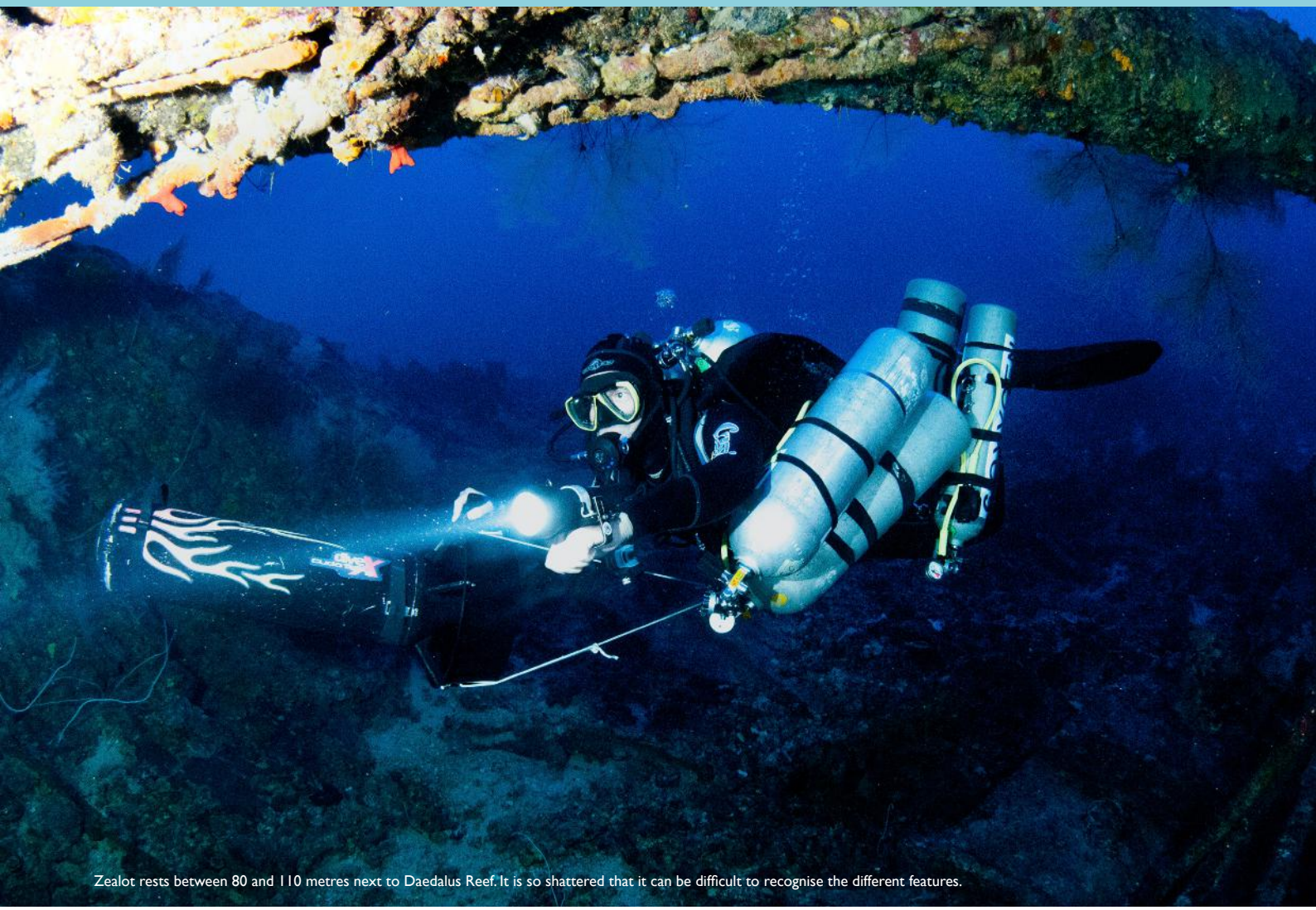
The big square rock under Elphinstone's arch at 60 metres is not a sarcophagus, but if you are narked it is easy to make that mistake.

FAMILY TRIP

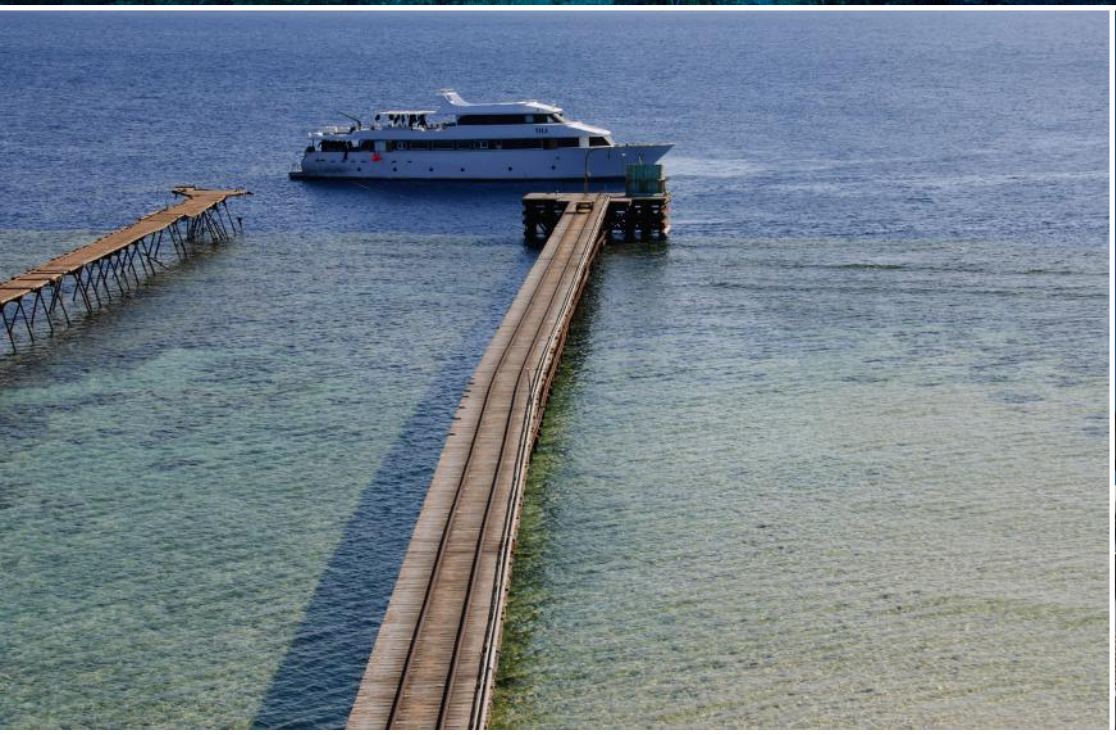
The boat is fully booked. A very pleasant group of Norwegians make up most of the guests, but there are also a couple of Lebanese, a Belgian, an Egyptian and myself, and my wife from Denmark. In addition to the two competent guides, Red Sea Explorer's Founder, Faisal Khalaf, is also joining the trip and he has invited his mother. If you have been on one of the vessels of the Red Sea Explorer's fleet, you will have learned to appreciate the family atmosphere on board. You feel as if you are travelling with a group of friends and family and not at all like a chartered tourist.

D – DAEDALUS

Daedalus Reef (Arabic name: Abu Kizan) is a 400 metre long and 100 metre wide reef, located approximately 90 km from Marsa Alam on the mainland. There is a small artificial island at the centre of the reef, supporting a lighthouse built by the French in 1863 during the construction



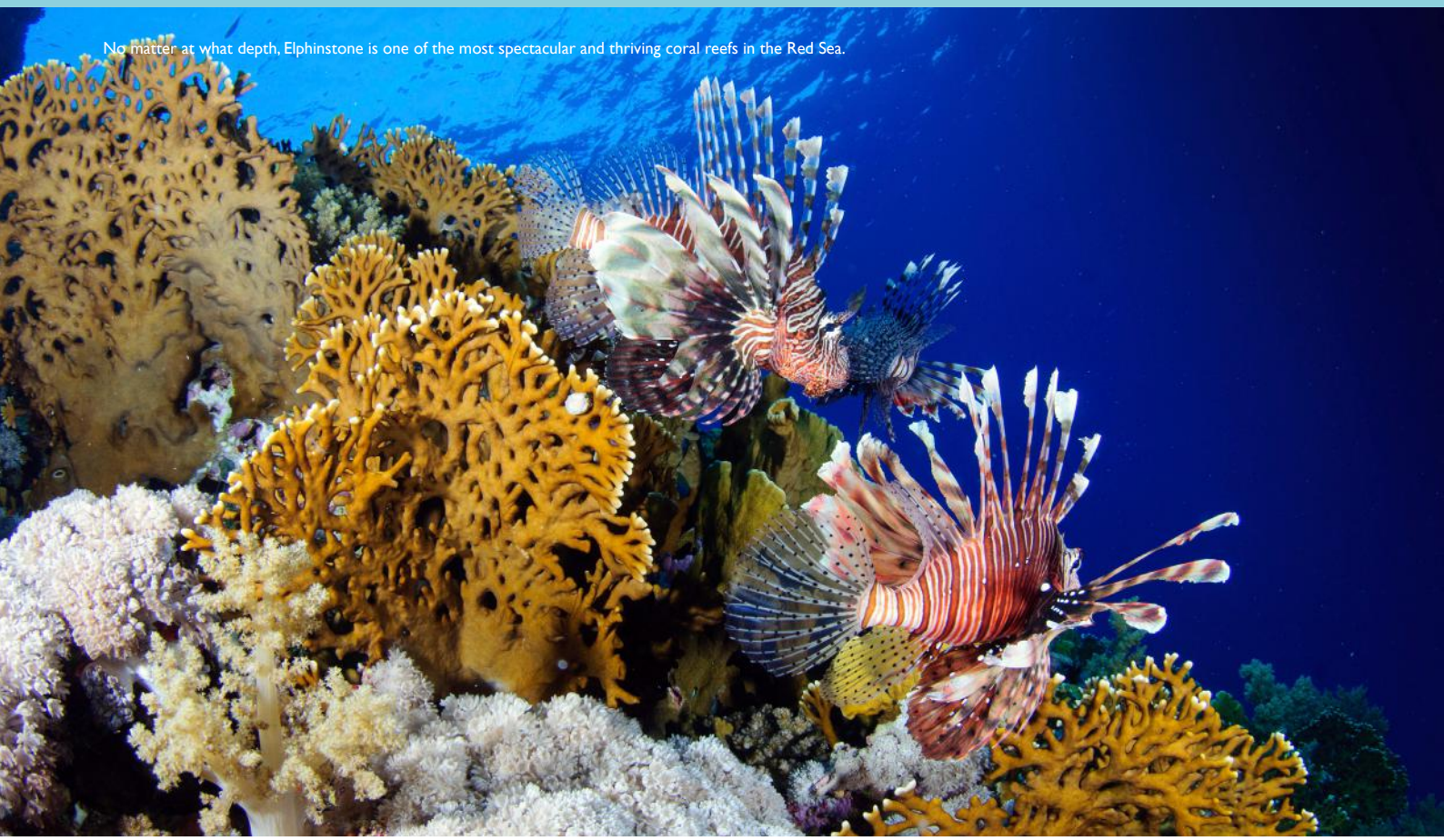
Zealot rests between 80 and 110 metres next to Daedalus Reef. It is so shattered that it can be difficult to recognise the different features.



of the Suez Canal. The lighthouse was rebuilt in 1931. The picturesque tower is 30 metres high and still active. It is run by the Egyptian Navy and they welcome visitors.

Daedalus Reef is well known for the frequent hammerhead shark sightings and the generally stunningly beautiful walls with an abundance of corals. Daedalus also has a secret found in the deep.

Well, even though it rests at 100 metres, the wreck after Zealot is perhaps not such a big surprise after all as the large field of debris and wreckage spread over the reef reveals the location. But I'm sure many divers have swam past the debris field without knowing there is a wreck deep down below. The debris is scattered over a larger area, so it can be difficult to find the Zealot. Our descent is a little bit off the mark and we end up cruising



No matter at what depth, Elphinstone is one of the most spectacular and thriving coral reefs in the Red Sea.

2-300 metres at 60 metres depth with the scooters before we finally see the contours of the wreck in the depth. We wasted valuable bottom time in our search of the wreck, but our rebreathers provide unmatched flexibility and we are only limited by how much decompression we are willing to pay at the other end. We have enough breathing gas to last us 6 or 7 hours.

If you have dived the Carnatic at Abu Nuhas, you have a very good impression of what type of vessel, Zealot is. However, Zealot appears somewhat more shattered, although probably only a fraction of divers have been here compared to Carnatic, which rests at 20 metres. Zealot is scattered over a larger area and it is difficult to form an overall overview. The helm, the propeller and the two anchors however offer some waypoints. After spending about 15 minutes on the wreck, averaging a 95 metre depth, we are approaching the maximum decompression we have agreed before the dive, and it is time to leave the site.

DECO-CAVE

As we approach the last and longest decompression stop at 6 metres where we are supposed to spend over an hour, we can feel that the surface has become rather turbulent and it is awkwardly difficult to stay stable at our target depth. If we swim out from the reef, the surge from the surface is less noticeable, but it is unsafe to stay where the zodiacs rush up and down the reef taxiing divers to and from the dive sites. Close to the reef, the surge is taking us for a ride, up and down – not a good way to do a deco. On a rebreather you cannot fine-tune your buoyancy with your breath, so it's hard work to compensate for surge. The 60 minute deco at 6 metres will be uncomfortable at best and it will feel like an eternity of hard work. I look for a solution. A rebreather is operating on a constant partial pressure of oxygen (ppO_2). The advantage is that you don't necessarily have to be at a certain depth during decompression, as long as you are at the ppO_2 from which the decompression is calculated. I find a cave in the reef at 7 metres – its big enough to accommodate the three of us. There is still a strong surge when the water flows in and out of the cavity – which is probably that very water movement that has carved out the cave throughout the centuries. I have to press my arms and legs against the rock to maintain position, but we can rest pretty comfortably while the minutes tick away. Necessity is the mother of invention. Finally, it's time to swim out of our temporary habitat and shoot a bag to the surface. We send up our bailout cylinders to the zodiac who has stayed with us during the entire dive. It is almost dark when we finally surface after almost three hours on our rebreather loops.

E – ELPHINSTONE

Elphinstone Reef (in Egyptian: Sha'ab Abu Hamra) is located close to the coast about 30 kilometres north of Marsa Alam. The reef is elongated and about 500 metres long from north to south. The spectacular walls drop vertically into the depths and the often strong currents can be very unpredictable. At the northern end a long narrow plateau extends far from the main reef. At the end at about a 35 metre depth, there is a huge crack in the reef as if a giant had cleaved it with an axe. This is a good place to hang out for a while to look for sharks.

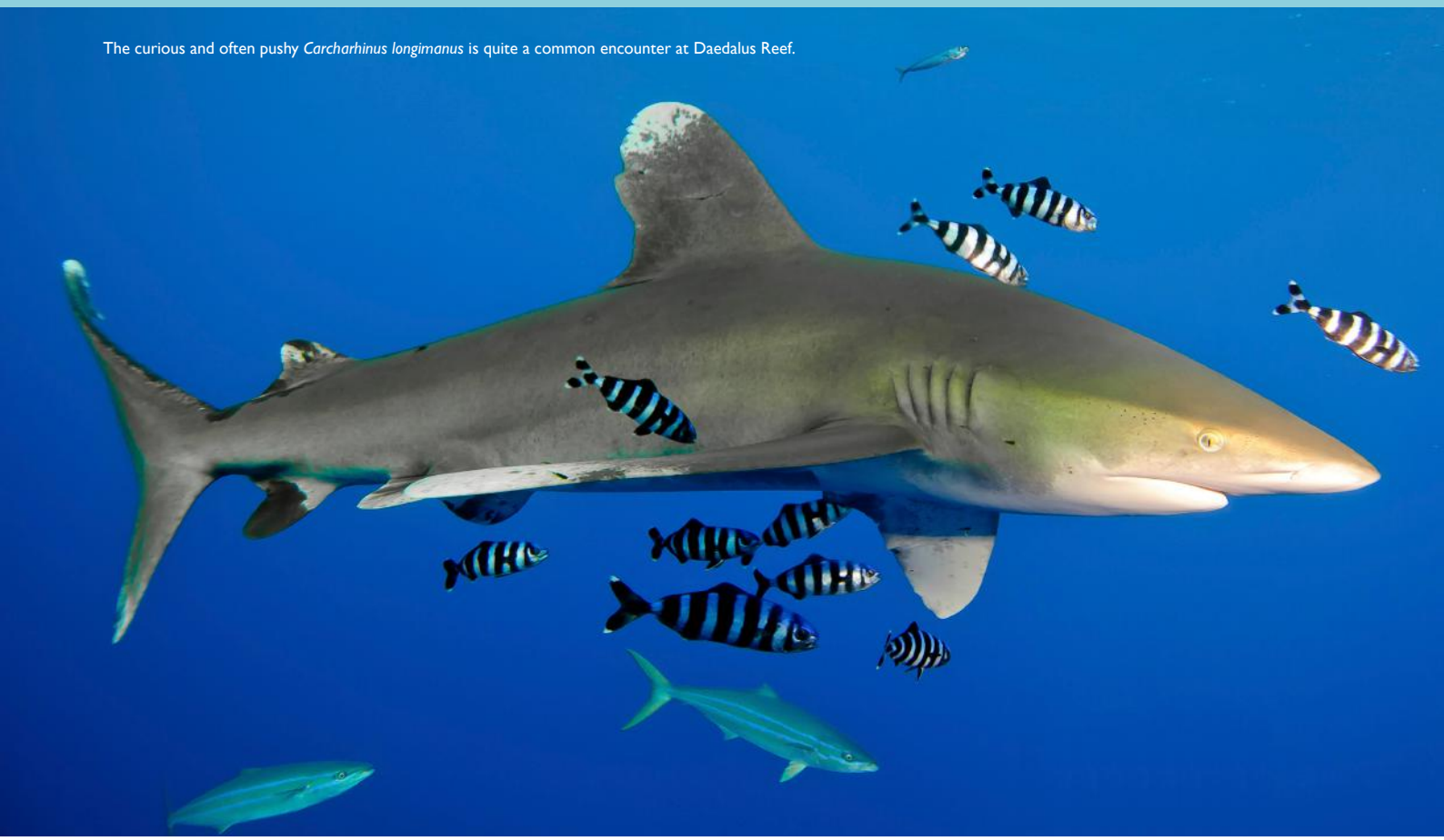
The southern plateau is somewhat smaller, but a few cleaning stations attract thresher sharks, mantas and other big game. Close to the surface along the reef or under the boats at the southern end, it is very common to meet the curious and sometimes very frisky *Carcharhinus longimanus* – the oceanic white tip shark.

The reef reportedly got its English name by Robert Moresby, an officer in the Indian Navy. He baptised it in 1830 after Mountstuart Elphinstone (1779-1859) who had just retired from his position as Governor of Bombay for the East India Company (1819-27).

There are no wrecks at Elphinstone – with its location close to the coast, the reef lies far from the sailing routes through the Red Sea. It was therefore not necessary to build a lighthouse. But Elphinstone still hides another deep secret…

PHARAOH'S SARCOPHAGUS

When Elphinstone is approached with the technical diving tools provided by Red Sea Explorers, a whole new world opens up below 30. Under the southern plateau of Elphinstone there is a big hole in the reef – The Arch. Admittedly in the old days, I used to dive under the Arch on air. Don't tell anyone! It was before I knew better, and before I had



The curious and often pushy *Carcharhinus longimanus* is quite a common encounter at Daedalus Reef.

Decompression is never boring when it takes place along the walls of a world class reef such as Elphinstone.

the opportunity to breathe trimix. It was foolish, as passing through the Arch forces you to go down to about 60 metres! But with rebreathers, scooters, trimix and the right decompression gases, it is a completely different experience…

On the bottom just below the Arch lies a large square rock. Divers who have been under The Arch on air have consequently been stupidly narced and have imagined that the square rock was a pharaoh's sarcophagus. With the more sober and clinical mindset that characterises a trimix dive, we can clearly see that the large square rock is in fact just a large square rock.

Most of the liveaboards are moored in the sheltered areas on Elphinstone's south plateau and from there it is easy to jump into the water and drop directly beyond the south plateau that stretches away from the reef. On top of the plateau, most divers who visit E-stone look for big game at the cleaning stations. We however have a different agenda. We follow the edge of the plateau to about 35 metres while I'm scouting for The Arch deep below us. A glare from below reveals the big hole in the reef, and we drop down and explore the Arch and the surroundings. The enormous gorgonian sea fans, the sarcophagus and the light from above are all very photogenic. We have planned 20 minutes of bottom time – a short dive on a rebreather, but we are accompanied by a relatively inexperienced tech diver on an open circuit, so we are subject to her limits. After taking lots of pictures under The Arch, we begin the ascent and look forward to a long Elphinstone dive while decompressing after our deep exploration.

S.S. NUMIDIA

Numidia's maiden voyage happened February 28, 1901, where she left from Glasgow under the leadership of Captain John Craig. She sailed to Calcutta and returned immediately after. However, the ship's second journey was going to be her last. On July 6, 1901, she left Liverpool, again with the course set for Calcutta with a general load of 7,000 tonnes and a crew of 97. Early July 19th after a smooth passage of the Suez Canal, the ship continued to the south and passed Shadwan Island at 19:00 that same evening. At 1:00 on July 20th, the lighthouse on Big Brother Island was visible on the horizon and Captain Craig changed the course with the intention of passing over one mile west of the reef.

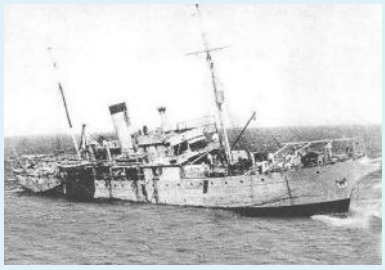
The captain left the bridge giving orders to the officer in charge to alert him when the ship would be right next to the lighthouse at Big Brother. At 2:10, a loud crash wakes the captain in his cabin. He hurried back up on the bridge to find the ship had rammed into the reef just under the lighthouse!

They spent the next two hours trying to get the ship afloat again, but they had no luck and Captain Craig ordered her to be shutdown. The bow was seriously damaged and the vessel took on water. A message was sent to Suez at 7:30 with the requests to assist. Captain Craig realised that the ship was lost and he ordered the crew to the lifeboats. He spent the next seven weeks on the island to supervise the salvage of the ship's cargo before the hull finally slid into the depths of the reef's northern tip.

During the naval hearing, it was determined that the mate probably fell asleep on guard and he was suspended for nine months.

POSITION: Big Brother North
WRECK TYPE: Steam Cargo Ship
BUILD YEAR: 1901
SHIPYARD: D. & W. Henderson & Co., Ltd., Meadowside Shipyard
ENGINE: Triple Expansion Engine
LOST: July, 1901
LENGTH: 137 metres
BEAM: 16.7 metres
DISPLACEMENT: 6,399 tonnes
COMPANY: Anchor Line, Glasgow
CREW: 97
NATIONALITY: British
DEPTH: 10-80 metres
HIGHLIGHTS: Soft corals, engine room

AÏDA



On the protected southeastern side of Big Brothers, an old rusty jetty was erected. It was used by the Egyptian soldiers stationed on the island for up to two months at a time. The jetty infront of the lighthouse facilitated constant supplies of freshwater and provisions as well as replacement staff every when needed.

On September 15, 1957, the captain of the supply vessel Aïda was tasked with replacing the military personnel stationed at the lighthouse on Big Brother. There was a terrible storm raging that day. Despite the rough weather, he neglected all warnings and carried out his mission and ended up on the reef. Almost immediately, Aïda began to sink, and the captain had no choice but to order the crew to abandon ship. A nearby tugboat came to the rescue and took 77 crew members including the captain on board. Meanwhile, Aïda drifted a short distance to the northwest before her hull finally settled at a steep angle against the reef wall.

POSITION: Big Brother North
WRECK TYPE: Troop Carrier & Supply Vessel
BUILD YEAR: 1911
SHIPYARD: Ateliers & Chanties de La Loire
ENGINE: Triple Expansion Engine
LOST: September 1957
LENGTH: 75 metres
BEAM: 13 metres
DISPLACEMENT: 1,428 tonnes
SHIPPING COMPANY: Egyptian Navy
CREW: 77
NATIONALITY: Egyptian
DEPTH: 38-60 metres
HIGHLIGHTS: Stern, rudder and propeller

ZEALOT

The sources do not agree completely on the dates, but it was presumably in the fall of 1887 that Captain J.A. Best, with a crew of 53 men and two passengers, left Liverpool bound for Bombay. According to the manifest, the cargo consisted of cotton bales and iron worth 24,700 Pounds Sterling. After crossing the Mediterranean on October 12th, Zealot approached the Red Sea through the Suez. The following morning, the vessel passed Shedwan Island just outside Hurghada and Captain Best set the course to 24 degrees to head west of the Brothers Islands.

First mate, Jonathan Russell was on first duty after being promoted to officer, and at 4:00 he took over responsibility and settled in the cardroom to work with the bearings. Daedalus's lighthouse was not yet in sight. 20 minutes later, he returned to the bridge and found not only that the lighthouse was in sight – but that it was right infront of the ship!

The rookie, Russell did not dare wake the captain as he was afraid of the reprimand. Instead of turning sharply, he made a few insufficient adjustments to the course. At 05:49 on October 14, 1876, Zealot hit Daedalus.

Captain Best turned to the bridge and ordered the engine to be stopped and the rescue boats to be launched. Best stayed onboard Zealot to try to rescue the ship, but he eventually had to leave the vessel as the last person before the ship finally sank.

At the naval hearing in Liverpool later that year, Jonathan Russell, the First Mate is charged for the sinking and has his certificate as First Officer suspended for 12 months. Captain J.A. Best is suspended for six months.

Some sources suggest that this was a cordial ruling given that it was the third ship he had lost in his career!

POSITION: Daedalus Reef
WRECK TYPE: Steam ship
BUILD YEAR: 1873
LOST: October 1887
SHIPYARD: John Readhead and Co., South Shields
ENGINE: Compound steam engine
LENGTH: 74 metres
BEAM: Not known
DISPLACEMENT: 1,328 tonnes
SHIPPING COMPANY: Glynn j. & Son Ltd., Liverpool
CREW: 53 crew and two passengers
NATIONALITY: British
DEPTH: 75-110 metres
HIGHLIGHTS: Propeller and rudder

THE CALL OF AGUSAN MARSH

FEATURE AND PHOTOGRAPHY **FRANCIS UY**

We rode a motorised single hulled boat for 3 hours with a captain who has plied the waters for 30 years and knows every inch of the water that flows through. The experienced captain expertly manoeuvred the canoe away from debris and logs floating in the river until we finally arrived at the floating village of Panlabuhan.

We woke up each day to the sound of the alarm, rushed out of bed to get ready for work and dragged ourselves out to face the traffic jam. We tensely hold the steering wheel wondering if there is still space to park when we get there.

This is my life's daily routine, forgetting how to live when one of my purposes in working is to make my life better.

Because of these morning rushes, I asked myself whether I could find a place where there is serenity to temporarily get out of this life's monotony.

As I was recalling the different places I had visited on this planet, Agusan Marsh popped up in my mind. Ahhh… the Agusan Marsh of my beloved Philippines.

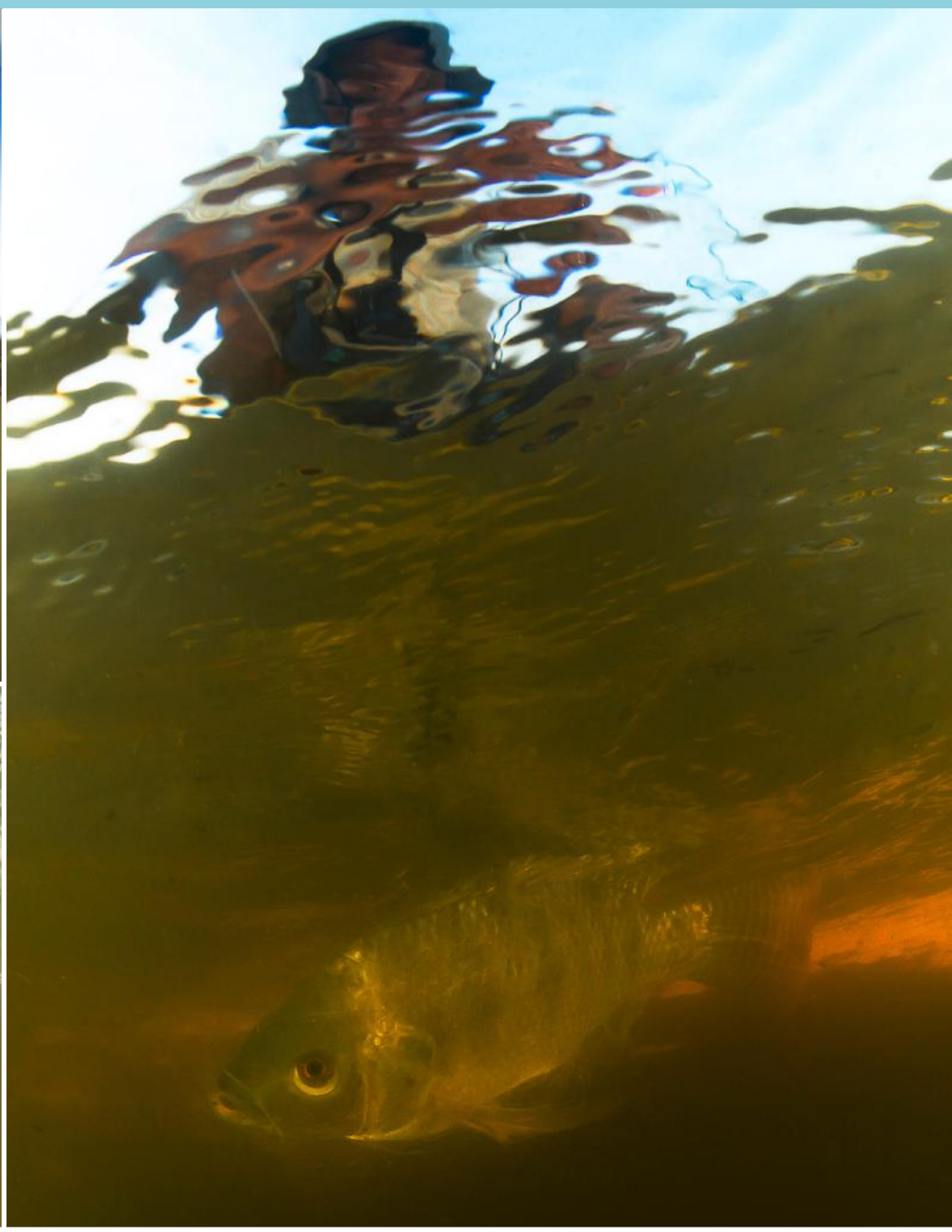
Back in the 90's, while I was working as a travel photographer for a well-known newspaper agency in my country, I happened to cover the Agusan Marsh. During this time, I was at the peak of pushing my diving career. Unsatisfied with this experience, I told myself to come back to this place someday and dive with the crocs.

Two decades later, it has finally happened! Together with a close friend, a Filipino US resident, we agreed to set off for Agusan Marsh in the Province of Agusan del Sur, Philippines. With the permission and guidance of the Department of Tourism and Provincial Government of Agusan del Sur, we explored the vastness of the marsh, a once in a lifetime opportunity.

The Agusan Marsh is the Philippines most ecological significant wetlands. It holds nearly 15% of the nation's fresh water resources in the form of swamp forests. In the dry months, thousands of birds come from as far away as Japan, China and Russia to escape the chilly winter winds of Northern Asia. There are known to be over 200 individual species for most parts of the year, making it one of Asia's most important transit points for wild birds. It is also the home of "Lolong", the largest saltwater crocodile in captivity, measuring at 6.17m and weighing 1,075kg. The Marsh is also home of the Manobo tribe. Manobo derived from the word "Mansuba" – man (person or people) and suba (river), or otherwise referred to as the river people. They are one of the Philippines indigenous groups, living on floating homes made of bamboo and nipa lashed to hardwood logs, freely rising and falling with the water levels. They lived within the vastness of the marsh and they have everything they need within the marsh.

THE FLOATING VILLAGE

We rode a motorised single hulled boat for 3 hours with a captain who has plied the waters for 30 years and knows every inch of the water that flows through. The experienced captain expertly manoeuvred the canoe away from debris and logs floating in the river until we finally arrived at the floating village of Panlabuhan. A small community of Manobos living in floating houses with the rise and fall of the water flowing in the marsh. It's like the scene from the Water World movie. The



village chief met with us and had us transferred to a much smaller dugout canoe. As the canoe slowly glided the calm waters, I got a glimpse of how the villagers live and adapt to their environment. Some kids peered out from their doors and windows, at first they were shy and curios by us, but then started giggling with their friends. The women were busy nursing the babies, cooking and weaving all kinds of stuff using the dried water lilies, while the men were busy fixing the nets for the next day's catch. Such a simple life but a very full one at that!

THE DIVE

We planned to dive in a remote area where there were no commercial structures and no dive shops around. All our dive gear had been prepared and taken by us in our wooden canoe. There was no going back in case we had missed anything so it was important to check equipment three times over. We paddled into the unknown, armed with our dive gear and our cameras.

My friend and dive buddy is an instructor, so it was a treat "fun dive" for us; we discussed our dive plan, did our buddy checks and submerged into the unknown. It was an exhilarating dive, not knowing how the crocodiles would react to us diving near them. The visibility was very murky, about half a metre or even less. The average depth was 5 metres. We saw plants and some small fish. The bottom composition was mud and silts. Sometimes we found ourselves underneath a group of water lilies forming a secret dungeon around us. My imagination always played games with me throughout the time we were underwater. At one point, I saw a big shadow. My heart rate increased to 200 bpm. I was so determined to get the winning shot, and as I got closer to the subject, it turned out to just be a tree log. Although we did not see any crocodiles during our dives, I could feel that they were lurking around us and hiding underneath the water lilies.

THE PHOTOS

Visiting the marsh gives you a glimpse of just how simple life is here for the Manobo tribe, their only means are to fish and plant vegetation to survive. They are not connected to the rest of the world as internet is non-existent. Sometimes I envy them; they are shielded from the pressures of society. They have satisfaction and contentment that some of us only dream about. The photos I took did not do justice to their way of life but they help to understand how the Manobo people live.

Getting to Agusan Marsh was an eye opener for us. I am in awe of how these people manage to live without the norms of technology. To be in a place surrounded by nature, away from urban hustle and bustle, living in a laid-back and contented life is so surreal.

My existence has been deeply rooted by the Manobos. Although I am Filipino-Chinese, one of my ancestors was from the Manobo tribe. My paternal grandfather married a Manobo woman, I am proud of my heritage and I am proud to share my experience with you.

TOBACCO AND ASTHMA

FEATURE **PETER DENOBLE**

Asthma is considered a concern when it comes to fitness to dive because of associated airway reactiveness and obstruction of small airways, which may cause pulmonary barotrauma or drowning during diving. Preparticipation screening specifically addresses asthma; when divers admit to signs or symptoms, a medical evaluation by a physician is suggested. Guidelines for medical evaluations are provided by diving medical societies.

On the other hand, tobacco smoking, which is a major cause of chronic obstructive pulmonary disease, is less stringently addressed in the Recreational Scuba Training Council (RSTC) screening questionnaire, and no specific guidelines are provided. Recently we have received questions about how respiratory function in people with asthma compares to respiratory function in people who smoke tobacco and how this affects the assessment of fitness to dive.

OBSTRUCTIVE LUNG DISEASE

Both asthma and smoking are associated with narrowing and inflammation of the small respiratory airways, which result in reduced airflow through pulmonary airways. However, the reduced airflow with asthma occurs intermittently and is reversible whereas with chronic smoking airflow progressively and irreversibly deteriorates and usually doesn't reveal itself until older age. With aging, about 20 percent of smokers and 23 percent of patients with asthma manifest chronic obstructive pulmonary disease (COPD) characterised by fixed airflow obstruction.

Asthma most often presents at a young age as recurrent episodes of increased airway obstruction that may vary in frequency and intensity. In adulthood asthma attacks become less frequent. Adult-onset asthma occurs in individuals 20 years or older. This type of asthma is frequently caused by allergies. An asthma attack may be provoked by exercise, cold and dry air or inhalation of hypertonic aerosols (normal saline used diagnostically to provoke a reaction). The respiratory airways are affected by inflammation, hyperproduction of mucus and the contraction of muscles around them. Respiratory flow may be reduced by 10 to 20 percent in mild cases and 40 percent in severe cases. In some cases respiratory function appears normal, but challenge tests cause hyperresponsiveness and reduced expiratory air flow. Narrowing of airways may be reversed by medications such as anti-inflammatories and bronchodilators. Anti-inflammatory medications such as inhaled steroids reduce swelling and mucus production in the airways. This relieves symptoms, improves airflow and makes airways less sensitive to provocative factors (cold, dry air, etc.). Asthma attacks may be stopped by bronchodilators – short-acting beta-agonists that relax bronchial muscles and open airways for easier air flow. Exercise-induced asthma may be prevented by long-lasting beta-agonists. People whose asthma is well controlled may lead normal lives that include exercise; they are less likely to experience an asthma attack while diving.

Tobacco smoking affects breathing both chronically and acutely. Acute effects of smoking include increased carbon monoxide and reduced oxygen levels in the blood as well as paralysis of cilia in the airways, which impairs removal of mucus. Mucus can block terminal airways and cause overexpansion of alveoli during ascent from a dive, which puts a diver at risk for arterial gas embolism (AGE). In smokers

as in asthmatics, airway hyperresponsiveness (as detected by a metacholine test) may be present even at a young age. In teenagers with a short history of smoking, a dose-response relationship was found between smoking and decreased respiratory flow measures (FEV1/FVC and FEF 25-75).

Boys that smoked 15 cigarettes or more per day had an average reduction in respiratory flow with a reduced volume of air in the lungs (FEF 25-75) of 4.0 percent and in some cases up to 7 percent. The effect on lung function of smoking one pack of cigarettes per day for a year (one pack-year) was a 0.36 percent annual loss of FEV1 for men and a 0.29 percent annual loss for women. In smokers as young as 30 to 40 years, clinical and pathologic manifestations resembling early-stage COPD may be present. However, only divers 45 and older who smoked are prompted to undergo medical evaluation by a physician if they acknowledge their habit in the RSTC form.

When assessing fitness to dive one should keep in mind that asthma is a condition that affected subjects have to live with, and thus they should not be unnecessarily excluded from scuba diving if they wish to dive and the risks are reasonably low. On the other hand, smoking tobacco is a matter of choice; divers are discouraged from it but some still do. How risky is it, and what interventions, if any, are necessary?

Is there evidence that asthma or tobacco smoking increases the injury rates (such as barotrauma and AGE) in scuba diving?

Claus-Martin Muth: Although it is reasonable to consider that smoking increases the risk for decompression-related injuries in diving, there is no clear evidence. Researchers from Duke University Medical Center could show that when decompression injury occurs, smoking is a risk factor for increased severity of symptoms.

In addition, we have to keep in mind the effects of tobacco smoking on the cardiovascular system, specifically vasoconstriction which decreases cardiovascular tissue perfusion. There is scientific evidence that this has an influence on the rate of nitrogen elimination after the dive. Again, this may increase the risk for a decompression injury. It is justified to advise against smoking and diving.

With regard to asthma the answer is, "it depends." Each asthma case is different, and evaluation of fitness to dive in people with asthma requires a thorough examination and must be evaluated on an individual basis. Divers with asthma should be instructed on how to behave and how to use a peak-flow metre for airway testing before planned dives.

Tom Neuman: Although it's tempting to hypothesize asthma would increase the risk of AGE in sport scuba divers, there is really no reliable evidence that well-controlled and properly treated asthmatics are at increased risk for AGE. The most comprehensive publication addressing this issue, "Are Ashtmatics Fit to Dive?," was from a workshop held by the Undersea and Hyperbaric Medical Society.

The conclusion of that workshop was that asthmatics who had normal pulmonary function test results (whether or not they were on medication) were candidates for diving. Tobacco smoking incurs the theoretical risk that damage to the airways (both reversible and irreversible airway obstruction) could cause sufficient outflow obstruction that air embolism might occur even on a normal ascent. Currently there is no evidence that smokers with normal airway function have an increased risk of air embolism compared to nonsmokers.

Regarding the respiratory effects of asthma and tobacco, are there any differences in how these conditions affect the respiratory system and the potential diving hazards that may result?

Muth: The key points were already mentioned in the introduction to this article. In addition to the inflammation smokers exhibit, the clearing mechanism of the airways is impaired. The thick bronchial mucus may create an air-trapping mechanism in the form of a partial obstruction with a valvelike function that allows air to get into the affected segment but not to come out. In asthmatics the problem is more general: if the respiratory tract reacts to a certain stimulus such as dry and cold air (which is common in diving), air-trapping can occur all over the lung.

Neuman: Asthma is most frequently characterised by partial airway obstruction due to mechanical constriction of the airways, increased mucus production and edema. This is a process that generally is completely reversible and preventable with appropriate treatment. On the other hand, damage from the inhalation of tobacco smoke has both reversible and irreversible components. Thus once structural damage to the airways has occurred from the use of tobacco , the effects on the lung are frequently not completely reversible, leaving the individual with an ongoing obstructive defect that might result in an increased risk of AGE. However, well-done studies that clearly indicate this theoretical risk is real are still to be done.

Is diver preparticipation screening regarding smoking status adequate, or does it need to be changed or updated?

Muth: Although there is strong evidence that smoking has an impact, the number of diving injuries and even fatalities is rather low and the number of divers that smoke rather high. I think it is more useful to publish articles like this one and to tell smokers that smoking and diving is not a good idea at all. Smokers who dive should abstain from smoking immediately before and after the dive. On the other hand, testing of lung function should be part of every examination of fitness to dive; when lung function is impaired, depending on the degree, there should be advice against diving. There is more than strong evidence that smoking will impair lung function over time, and smokers may have to retire from diving at a younger age than they would like to.

Neuman: The question about appropriate preparticipation screening for an asthmatic is fairly straightforward. The prospective asthmatic diver should have normal spirometry both before and after exercise. No further testing is needed. For long-term smokers with a quantitatively significant smoking history such a strategy is also probably appropriate. For the occasional smoker who is asymptomatic and who has a normal physical exam, pulmonary function testing is not warranted. From a numerical point of view, the greatest underlying medical risk to middle-aged divers is previously undiagnosed coronary artery disease. Anyone who is going to be involved in diving activities should undergo a clinical evaluation for the risk factors for coronary artery disease. If clinically important risk factors for coronary artery disease are present, a more thorough evaluation looking for occult coronary artery disease should be considered.

ACRONYMS

FVC – Forced vital capacity: the volume of air that can be exhaled from the lungs after maximal inhalation with maximal expiratory effort.

FEV1 – Forced expiratory volume in first second: the volume of air exhaled from the full lungs in the first second of expiration with maximal force.

FEV1/FVC –The ratio of FEV1 to FVC; normally it's greater than 0.8.

FEF 25-75 – Forced expiratory flow that occurs while the volume of air in the lungs is between 25 and 75 percent of FVC.

MEET THE EXPERTS

Claus-Martin Muth, M.D., Ph.D., is a professor of anesthesiology and head of the Division of Emergency Medicine at the Department of Anesthesiology of the University Hospital Ulm (Germany), Ulm University Medical School.

Tom Neuman, M.D., is a co-editor of the 5th edition of Bennett and Elliott's Physiology and Medicine of Diving and was the editor-in-chief of the Journal of Undersea and Hyperbaric Medicine.

EUSTACHIAN TUBE DYSFUNCTION:
THE TREATMENT WITH BALLOON TUBOPLASTY

FEATURE **COSIMO MUSCIANISI**

Eustachian tube dysfunction (ETD) is a common clinical condition of the middle ear that can affect patients of all ages. The causes of ETD are both extrinsic and intrinsic to the Eustachian tube, in particular stemming from the nose, the nasopharynx, or also from inflammation or stenosis of the Eustachian tube itself. The symptoms are hearing loss, dull hearing, and very rarely ear pain. These symptoms can occur when carrying out a variety of activities: air travel or travelling on fast trains, mountain hikes, and especially during diving activities, both when free diving or using scuba equipment.

This very important canal that connects the middle ear (tympanic cavity and attached cavities) with the nasopharynx was known as far back as the 16th Century. The Eustachian tube is formed by an osseous part and a fibrocartilaginous part. Its function is to provide ventilation, drainage, and protection to the middle ear, as well as maintaining the same pressure present in the external environment (atmospheric pressure) in the tympanic cavity. It is because of this equalisation function carried out by the Eustachian tube that the system composed of eardrum and ossicular chain can express its functions in the best way possible; furthermore, it prevents the formation of serous or catarrhal secretions in the tympanic cavity.

ETD provokes ventilation problems in the middle ear, resulting in an altered equalisation of the pressure between the middle ear and the environment, and the formation and stagnation of secretions in the tympanic cavity, up until the development of a full-blown barotrauma to the middle ear, which is greatly feared by divers.

If an ETD occurs during a scuba dive, due to the rapid increase of the environmental pressure in the descent phase, it will not be possible to spontaneously equalise (pressure equalisation) the cavities of the middle ear, since the physiological opening of the Eustachian tube will be prevented by the momentary negative tympanic pressure that maintains its walls collapsed.

The diver might then have to resort to special manoeuvres to force equalisation, if regular equalisation does not work. The basic requirement to equalise the middle ear effectively and without any risks when descending, is to promptly start carrying out equalisation manoeuvres, in other words force the opening of the Eustachian tube in the presence of small pressure gradients (from the very first metres).

The diagnosis of ETD can be made after a specialist otorhinolaryngology examination, as well as an instrumental investigation of the auditory functionality, and impedance testing. This way it is possible to clarify the causes of the dysfunction: the presence of adenoid vegetation or neoplasms in the nasopharynx, septal dysmorphisms, hypertrophy of the turbinates, salpingitis, etc.

In addition to the treatments already in use (thermal intratympanic insufflation, kinesiotherapy of the ear tube using Otovent, use of the Ear Popper), nowadays a surgical method is available that can cure this clinical condition: Balloon Tuboplasty.

This procedure uses a modified PTA catheter that is introduced inside the Eustachian tube, using a special microendoscope to allow its delicate and precise positioning. Once the catheter is introduced, the balloon located on its distal end is inflated by introducing saline solution, up until a pressure of 10 bar. This pressure is kept unvaried for two minutes. Then, the balloon is deflated and the catheter is removed under endoscopic vision.

Postoperative results are analysed using a specific scale, identified as ETS, that assesses objective and subjective parameters.

The results of this technique show that the dilation of the Eustachian tube is a safe and simple procedure, and represents a good treatment option to improve stenosis of the ear tube.

UPCOMING EVENTS

FILM TBA | VOX Cinemas, Mercato Mall
Wednesday 8th August 2018 | 18:30 Registration, 19:00 Start

DIVERS DOWN – PADI LADIES DAY

LADIES POOL PARTY | Divers Down Fujairah | Saturday 21st July 2018
Scuba refresher and pleasure dives for ladies looking to get back into diving, or Discover Scuba Diving experience for those that wish to try diving.

SOCIAL EVENING | Divers Down Dubai | Saturday 21st July 2018
Event plans are still to be confirmed.

EMAIL: Nicola.l@diversdownuae.com for bookings!

AL MAHARA DIVING CENTER – WORLD OCEANS DAY

UNDERWATER CLEAN UP | Intercontinental Hotel Abu Dhabi Marina
Friday 8th June 2018
Join an underwater marina clean up for World Oceans Day 2018! This event is hosted by Al Mahara Diving Center, The Intercontinental Hotel Abu Dhabi and Reef Check UAE.

UNDERWATER CLEAN UP | Al Mahara Diving Center, Beach Rotana Hotel AUH
Saturday 9th June 2018
Al Mahara Diving Center and Reef Check UAE would like to invite you to make a difference in the local marine environment by conducting a couple of underwater clean up dives at Abu Dhabi's most popular dive sites!

EMAIL: environment@divemahara.com for bookings!

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Emirates Diving Association

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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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