Inspiring People to Care About our Oceans Since 1995

# DIVERS FOR THE ENVIRONMENT

WWW.EMIRATESDIVING.COM | MAGAZINE | JUNE 2019 | VOLUME 15 | ISSUE 2

# DIGITAL ONLINE'S RESULTS ARE IN

## CELEBRATING A DECADE OF IMAGERY

SHARKWATER: EXTINCTION WITH VOX CINEMAS • **REEF CHECK NEWS** • CITIZEN SCIENTISTS • **WHAT ARE CORALS** • A NUDI THING • **UNDERWATER PHOTOGRAPHY** • DAN EUROPE

# OWN THE BOOK

The Best of Digital Online is available in hardback. This is a Limited Edition.
Get your copy from the EDA offices while stocks last.

## AED 300 for Non-Members | AED 200 for EDA Members


Harrison Ford has his copy!
Do you have yours?

BECOME AN EDA MEMBER TO ENJOY THE BENEFITS. REGISTER WITH US ONLINE:
**WWW.EMIRATESDIVING.COM**

EDA
جمعية الإمارات للغوص
Emirates Diving Association

EDA
جمعية الإمارات للغوص
Emirates Diving Association


## REGULARS


**5** EDA Director's Note

**28** Feature Creature
Tawny Nurse Shark *(Nebrius ferrugineus)*

**131** Roundup
Upcoming Events and Updates

**131** Did You Know?
The Sustainable Development Agenda


## NEWS


**6** An EDA Movie Night with VOX Cinemas
Sharkwater: Extinction

**8** A Recap of the Dive MENA Expo
Co-located with the Dubai International Boat Show

**12** In Line with EAD's 'Tolerance with Nature' Programme
80 Rehabilitated Sea Turtles Released Back into Abu Dhabi Waters

**14** Dubai Voluntary Diving Team
The Marine Environmental Guard

**15** Why Become A Citizen Scientist?

**16** The Environment Agency - Abu Dhabi
Releases First Batch of Fish into Abu Dhabi Waters

**17** Thoughts from a Freediver

**18** New Hope for Sharks and Rays
As Work Begins on Zoning Marine Protected Area


## KIDS CORNER


**20** The First Open Water Dive

**21** Debriefing


## REEF CHECK


**22** An Eco Diver in Kelp Forests:
The Annual Reef Check California Retreat

**24** Coral Reefs Now More Resistant to Ocean Warming than a Decade Ago

**24** Costa Rica Dive Instructors Gain New Way to Look at the Reef

**25** New Collaboration with Outward Bound Adventures to Provide Ocean Education to Urban Youths in Los Angeles County

**26** No-Trash Triangle Initiative:
A Report from Reef Check Italy

**27** New Eco Divers to Assist Egyptian Authorities in Monitoring Red Sea Reefs


## FEATURES


**30** Corals

**34** My Buddy
The (Monofin) Finswimmer

**38** The Adventures of a Nudiphile

**48** 75 Years of Sport Diving
Vintage Diving

**54** Diving with Cow Sharks


## UW PHOTOGRAPHY


**60** Capture Your Underwater Moments

**66** An Introduction to Underwater Photography while Freediving
Thanks to an Accidental Meeting with a Professional Photographer

**70** Digital Online's 2019 Results Are In
Celebrating 10 Years of Imagery

**74** The Sponsors and Prizes

**75** The Digital Online Judges

**76** The Winning Entries


### 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 2019. Send all articles, feedback or comments to: **magazine@emiratesdiving.com**

### COVER

PHOTO BY DONAVAN HASTINGS
1st Place Compact Digital Online 2019 Winner


REDUCE REUSE RECYCLE

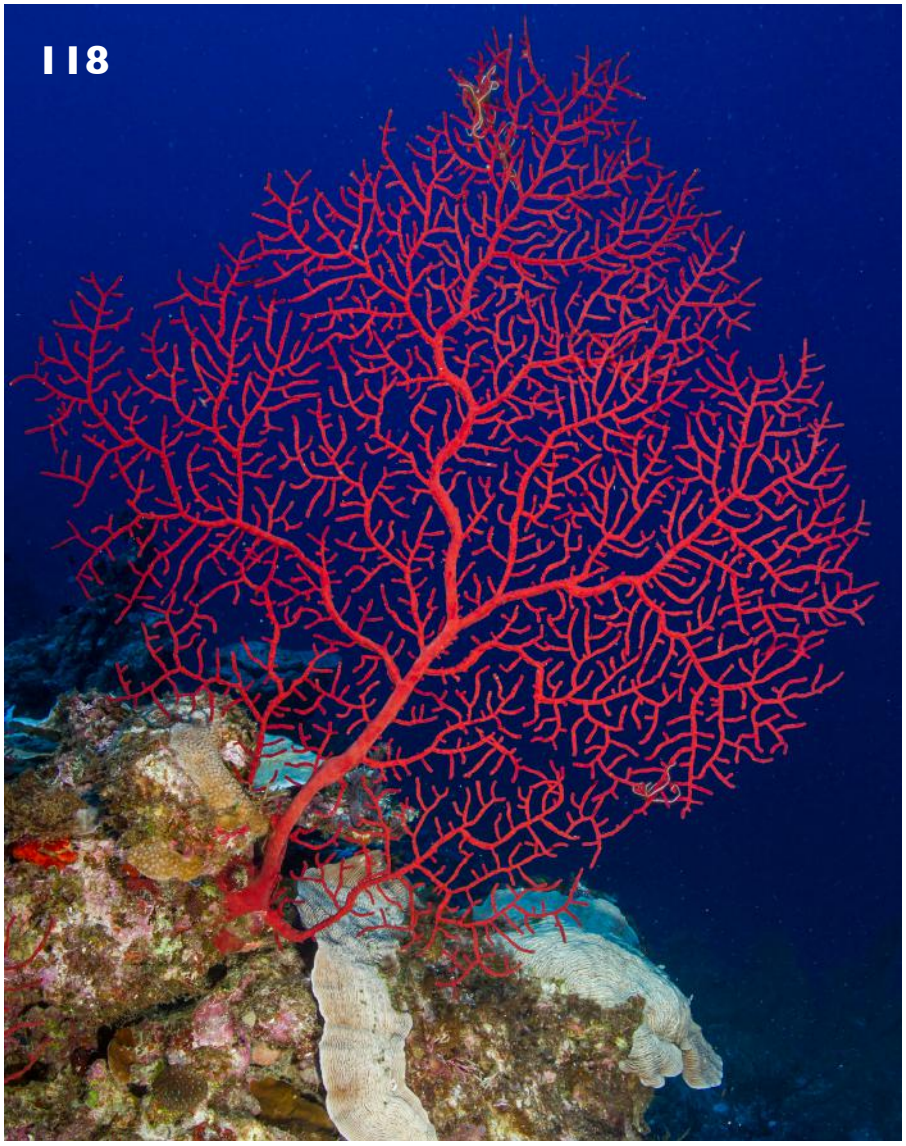
**90** The DSLR/MILC Entries
**102** The Compact Entries
**106** The Awards

## DIVING DESTINATIONS

**112** Diving Khasab
Exploring the Other Side of the Strait of Hormuz
**118** A French Territory in the Middle of the Pacific
New Caledonia

## HEALTH

**129** Recognition is Essential
**130** Overcoming Challenges while Diving




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

STEWART CLARKE
Stewart has been based in the UAE for over 11 years and has a passion for finding and documenting underwater critters, especially Nudibranchs. He has discovered many species previously unknown in the region and is recognised as one of the leading citizen scientists in the UAE.
**Instagram: @moistmacro**

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
Owner of a social media agency, marathon runner and triathlete, divemaster and heli rescue swimmer. You can check my website **www.nicodecorato.com**, contact me on social networks or email me at info@nicodecorato.com for information about my articles or just to say hello.

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

عـام التـسـامـح
YEAR OF TOLERANCE

# SUMMER TIME!

RAMADAN KAREEM, WISHING YOU AND YOUR FAMILIES A RAMADAN FULL OF BLESSINGS.

IBRAHIM AL-ZU'BI
EDA Executive Director

I would like to welcome you all to the June issue of Divers for the Environment. Half of 2019 has already gone and we have been busy in EDA. March saw the Dive Middle East Exhibition, DMEX – the leading dive exhibition in the region – launched under its new brand name – Dive MENA Expo, where the diving community of the UAE and the region meets alongside the Dubai International Boat Show to discuss dive related updates and share the latest technology in diving equipment.

Last month, we held our 10th Digital Online event – EDA's Underwater Photography and Film Competition – and announced this year's winners at the American University in Dubai (AUD). I thank all our underwater photography and video professionals for sending EDA amazing photos and videos of the varied marine life from all the places they have dived. It is very inspiring and beautiful as usual. I want to congratulate all the participants for enriching EDA's photo library with such amazing imagery – I am sure you will all agree with me when you see the photos in this issue. There are plans to publish a second Digital Online hardback book in the near future, so keep a look out for updates. I also want to thank the judges, the sponsors, and the EDA team for another successful EDA event in sharing our diving world, not only in the UAE, but the whole region.

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 photography 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 continues, and you will continue to send us news about your next underwater adventures. We look forward to seeing your next batch of water world snaps!

I do hope you enjoy reading our hot off the press summer issue of Divers for the Environment. We have a busy 6 months ahead, with activities and events we're getting ready for you. The EDA team is working tirelessly to have another successful year and we are looking forward to seeing you at the next EDA event.

Enjoy the summer.

Happy reading and dive safe!

Ibrahim Al-Zu'bi

Ibrahim N. Al-Zu'bi

# AN EDA MOVIE NIGHT WITH VOX CINEMAS
# **SHARKWATER**: EXTINCTION

EDA and VOX Cinemas, Mercato Mall teamed up to screen Sharkwater: Extinction, Rob Stewart's 3rd film on the 1st of May. It was a full house and we want to thank all our existing and new members for coming to be inspired by Rob Stewart's lifes work.


## FILM SYNOPSIS

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

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

Shark finning is still rampant, shark fin soup is still being consumed on an enormous scale, and endangered sharks are now also being used to make products for human consumption. Stewart's mission is to save the sharks and oceans before it's too late. But exposing illegal activities isn't easy; protecting sharks has earned him some powerful enemies.

Sharkwater (2006), Rob's first film, brought the devastating issue of shark finning used in shark fin soup to the world stage. His multi award-winning film changed laws and public policy worldwide, created hundreds of conservation groups. Today more than 90 countries have banned shark finning or the trade of shark products. Even so, Stewart finds sharks are still being fished to extinction.

Sharkwater: Extinction continues the adventure across four continents, as Rob travels through the oceans to investigate the corruption behind a multi-billion dollar industry. The crew goes through some of the world's most dangerous fishing ports run by international crime organisations that have infiltrated the fishing industry.

Rob's second film, Revolution, continued his quest to save sharks and the oceans. Revolution was the first feature film to platform the devastating effects of Ocean Acidification. Climate change was well known, but scientists were just realising the effects would be much worse than ever imagined. We were in danger of losing the coral reefs, and potentially the entire ocean ecosystem, which gives us 60% of our oxygen. Sharks, the top predator controlling the fish populations below them and the plankton that give us our oxygen, were being fished to extinction in an ecosystem they have controlled for 400 million years.

100-150 million sharks are killed every year, but only about half of them are reported, including endangered species. Shark populations have dropped more than 90% in the last 40 years. Without the oceans' main predator, marine ecosystems are being destroyed beyond repair.

Sharkwater: Extinction dives into remote underwater locations to reveal the catastrophic effects humanity has had on the oceans. Illegal overfishing of sharks across the planet has deeper consequences that puts the Earth's most important ecosystem in danger of collapsing, which threatens all life in, and above, the ocean.

Stewart dedicated his life to conservation, saying: "Conservation is the preservation of human life. And, that, above all else is worth fighting for." He taught the world to love the oceans and their creatures and not fear sharks through his iconic images of hugging and free diving with sharks and mantas.

**www.sharkwater.com**


VOX


VOX
VOX
VOX

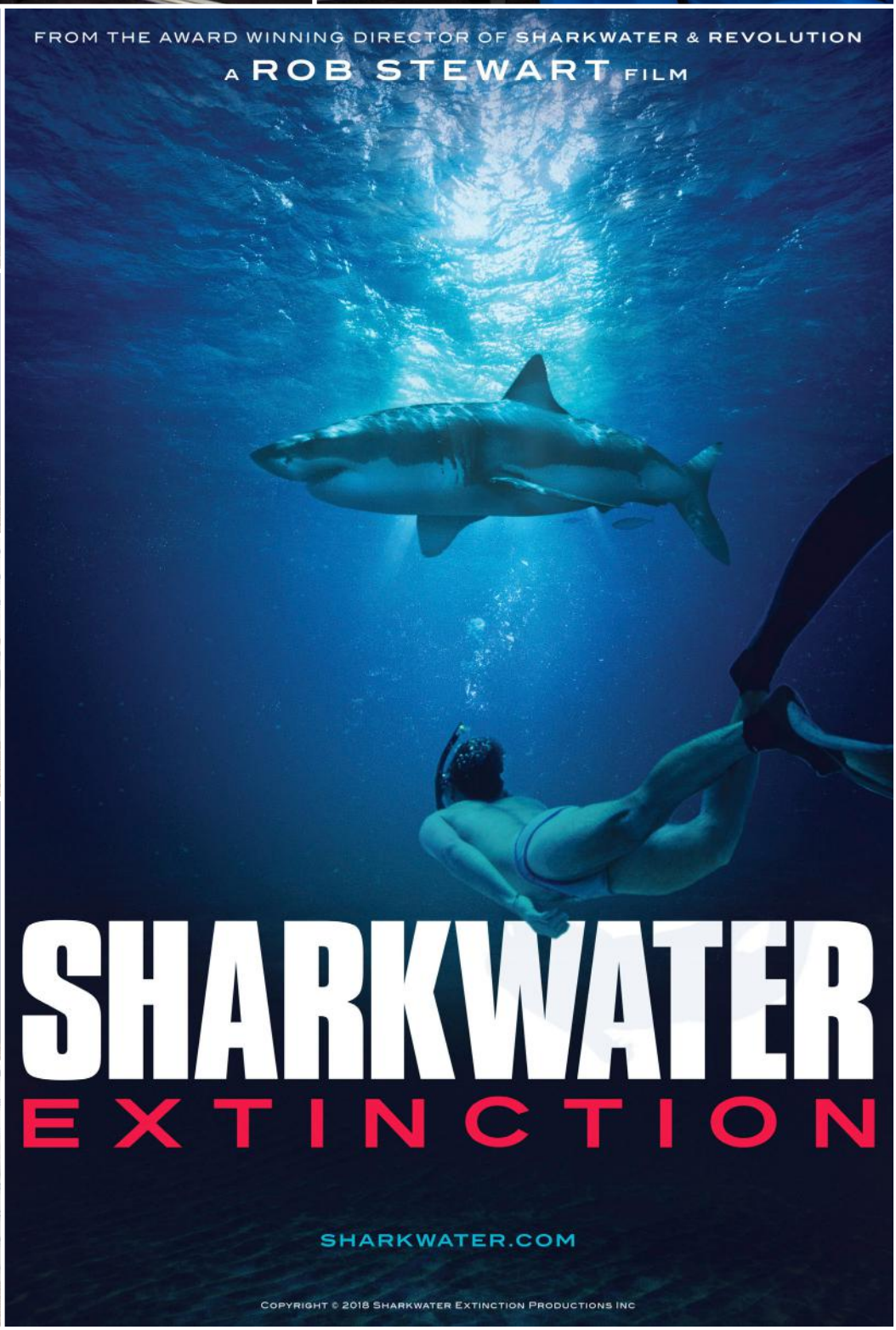

EDA


EDA


EDA


EDA


EDA


FROM THE AWARD WINNING DIRECTOR OF SHARKWATER & REVOLUTION
A ROB STEWART FILM
SHARKWATER
EXTINCTION
SHARKWATER.COM
COPYRIGHT © 2018 SHARKWATER EXTINCTION PRODUCTIONS INC

# A RECAP OF THE DIVE MENA EXPO

## 26 FEB - 2 MARCH 2019 | DUBAI CANAL, JUMEIRAH

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

DIVE MENA EXPO

### DIVE TRACKS

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




















OF INDONESIA
D-80

SHARKBANZ
D-22

DUBAI INTERNATIONAL
OAT SHOW

DUBAI INTERNATIONAL
BOAT SHOW



UNDERWATER WORLD
UNDERWATER
WORLD

GARMIN
GARMIN.

BEUCHAT


SEACRAFT

DIVE
MENA EXPO


DIVE
MENA EXPO

GARMIN

CRESSI

DELMA MARINE
PETER

Sea Deep



DIVE
MENA EXPO


EDA

WHAT CAPTURES YOUR IMAGINATION?
EDA

DIVE
MENA EXPO
SHARKBANZ
D-20

WHAT CAPTURES YOUR IMAGINATION?

DELMA MARINE
PETER




SEACRAFT




YAMAHA

PADI

TRY SCUBA DIVING FOR FREE




Deep Trekker

PADI






WE ARE
THE WAY THE WORLD
LEARNS TO DIVE


DUBAI INTERNATIONAL
BOAT SHOW


DIVE TRACKS


SEACRAFT

SEA@DEEP MARINE ART

DIVE TRACKS


UNDERWATER WORLD
BERMUDA
DIVING CENTER
PADI
EDA
SEACRAFT
CRESSI

# IN LINE WITH EAD'S 'TOLERANCE WITH NATURE' PROGRAMME

## 80 REHABILITATED SEA TURTLES RELEASED BACK INTO ABU DHABI WATERS

BY **ENVIRONMENT AGENCY – ABU DHABI** PHOTOGRAPHY **ALLY LANDES**

**Abu Dhabi, UAE, April 24, 2019:** To mark the UAE's Year of Tolerance in 2019, the Environment Agency – Abu Dhabi (EAD) – in collaboration with Jumeirah at Saadiyat Island Resort – released 80 critically endangered Hawksbill turtle yearlings (*Eretmochelys imbricata*) along a stretch of Saadiyat Beach in Abu Dhabi.

The turtles' release, which was attended by H.E. Dr Thani Ahmed Al Zeyoudi, the Minister of Climate Change and Environment and H.E. Dr. Sheikha Salem Al Dhaheri, EAD's Acting Secretary General, is just one of the initiatives of EAD's 'Tolerance with Nature' programmes, which aims to encourage efforts in social responsibility and environmental conservation.

The turtles were rescued last winter with the strong support of members of the public, fishermen, EAD rangers and other partners, including Abu Dhabi Ports, the Critical Infrastructure and Coastal Protection Agency, the Emirates Natural History Group, Sorbonne University Abu Dhabi and Saadiyat Rotana Resort & Villas. Following an initial health check, the turtles with minor injuries were tended to by EAD's experts, whereas those that were suffering from infections or diseases required more intensive care and were sent to the Dubai Turtle Rehabilitation Project.

The yearlings were rescued during the winter months (from November to March) when they become lethargic and experience a period of reduced activity – a time when small hitchhikers such as barnacles attach themselves to these docile reptiles, weighing them down and wearing them out. Many of the turtles also lacked proper nutrition and sufficient energy to make it through the season and ended up washed ashore or floating on the surface of the water.

Her Excellency Dr Shaikha Salem Al Dhaheri, Acting Secretary General of EAD said, "Our efforts to monitor and protect turtles dates back to 1998, and our commitment continues till this day. These efforts resulted in Bu Tinah Island being recognised as one of the ten most important sites for marine turtles in the Indian Ocean region by the Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia (IOSEA).

"Today's turtle release comes within our efforts to implement the National Plan of Action for the Conservation of Marine Turtles in the UAE 2018-2021, which was developed in collaboration with the UAE Ministry of Climate Change and Environment (MOCCAE) and seeks to protect marine turtles and their habitats in the country's waters. We are also working with MOCCAE to develop a single-use plastics policy to make UAE waters a safer environment for these turtles," Her Excellency added.

Linda Griffin, General Manager of Jumeirah at Saadiyat Island Resort said, "Jumeirah at Saadiyat Island Resort is proud to be involved in the release of so many rehabilitated sea turtles. We appreciate the efforts of everyone

Photo by EAD. HE Dr Thani Al Zeyoudi and HE Dr Sheikha Al Dhaheri releasing the turtles.

Photo by EAD. HE Dr Thani Al Zeyoudi and HE Dr Sheikha Al Dhaheri releasing the turtles.

who has assisted or alerted us over the past few months to a sick or injured turtle, and through the commitment of EAD, we are so thankful that they are in good health again and ready to return to the sea. We wish the turtles all the best on their journey and hope to see them back on Saadiyat in a few years' time, ready to nest!"

## ABOUT SEA TURTLES IN ABU DHABI

Marine turtles consist of seven species. Two of them are found in the waters of Abu Dhabi: the Hawksbill (*Eretmochelys imbricata*) and the Green Turtle (*Chelonia mydas*).

These species extensively use UAE waters for foraging (looking for food) and one of them, namely the Hawksbill, nests on sandy beaches with outcrops of vegetation off several offshore islands.

The two species of marine turtles have been spotted in Abu Dhabi waters between the islands of Abu Al Abyadh and Bu Tinah, as well as in the waters bordering the islands of Al Yasat and Muhayimat. These areas offer extensive seagrass beds, marine algae and coral reef habitats to the turtles.

Turtles nest on at least 17 offshore islands from mid-March to mid-June and EAD's aerial and field survey findings indicate that about 5,750 sea turtles inhabit Abu Dhabi's waters during the winter season and 6,900 during the summer season.

Since 1998, EAD has been successfully using satellite telemetry to track the migration of Hawksbills and Green turtles.

Since 1999, EAD has been carrying out a systematic survey of marine turtles in the UAE.

## ABOUT HAWKSBILL TURTLES

- According to the IUCN Red list for Threatened Species, the Hawksbill turtle is considered "Critically Endangered."
- Hawksbills are usually brown with splashes of orange or yellow.
- The Hawksbill turtle shell is elongated and oval. It has a small head with a hawk-like beak and two claws.
- Hawksbills feed on sponges, jellyfish, squid, shrimps and other invertebrates found in the coral reefs.
- Hawksbills are usually spotted near coral reef formations.
- In the UAE, Hawksbills have been found to be smaller in size than Hawksbills in other parts of the world, presumably due to the harsh environmental conditions (water quality) and the availability/quality of food resources.
- Hawksbills in the UAE have smaller clutches (38-115 eggs per nest) compared to Hawksbills around the world (160-180 eggs per nest).

### HOW TO HELP

If you find a stranded or injured sea turtle in Abu Dhabi, please call the Abu Dhabi Government Call Centre.
**Tel:** 800555

# DUBAI VOLUNTARY DIVING TEAM
## THE MARINE ENVIRONMENTAL GUARD

BY **AMNA ALSUWAIDI, DVDT MEMBER, TEAM REPRESENTATIVE IN ABU DHABI**

'The Marine Environmental Guard' is the Dubai Voluntary Diving Team's slogan in pursuit of a simple goal centred around a waste-free environment, as well as fighting against the Silent Killer – fishing nets. In 1995 Abdulla Muhsen Ali Alblooshi formed a team of divers who have since focused on this mission.

The team has achieved many accolades and participated in different events throughout the year that target this goal. In 2019 – the Year of Tolerance – the team focused more on spreading the culture of volunteerism, environmental awareness, research, cleaning and removing harmful substances from the marine environment.

### A RECAP OF EVENTS:

**1. Dubai International Boat Show**

The Dubai Voluntary Diving Team participated in the 2019 boat show alongside Al Yousuf Suzuki Autosport. An awareness film about preserving the marine environment was shown to the visitors during the show. Shireh Ghazl who films and directs the team members, is also the hotline's point of contact – 055 666 8070 – to report ghost nets found in the Emirates' seas. He highlighted the importance of volunteering and its positive impact for seafarers and visitors throughout the exhibition. The team received great public interest, encouragement and moral support from both the officials and the organisers of the show, as well as those involved in the marine environment who praised the team's performance and efforts over the years and expressed their admiration for the advanced level of training reached by the team in the field.

**2. Umm Al Quwain Fishing Festival**

The Dubai Voluntary Diving Team also participated in the Umm Al Quwain Fishing Festival under the patronage of His Highness Sheikh Saud bin Rashid Al Mualla, Member of the Supreme Council and Ruler of Umm Al Quwain. The team focused on raising the public's awareness against the dangers and impacts of fishing nets on the marine environment. They were honoured with a special visit from HH Sheikh Mohammed bin Rashid Al Mualla during the festival who expressed his gratitude and appreciation for the team's efforts in serving the marine environment.

**3. Victoria Star Wreck Clean-up**

The Dubai Voluntary Diving Team received a call through Shireh Ghazl about abandoned fishing nets covering the body of the Victoria Star wreck. The survey was conducted on the basis of the team's recovery plan, taking into account the quantity and size of the nets, the depth of the site, and the currents. The site is located about 8 miles offshore from the coast of Dubai. The ship is 81 metres long and laden with cement bags at a depth of 23 metres. The nets were fully recovered!

**4. GMC Truck Recovery**

With regard to rescue operations and cooperation with other voluntary teams and authorities, a special request was received from the Emirates Rescue Team to contribute to the recovery of their GMC truck 4WD vehicle. After five hours of attempts to withdraw the vehicle in poor weather conditions and low visibility – as well as the winding terrain of the valley – the operation was a success.

### A MESSAGE TO OUR SPONSORS

We want to thank EDA, Al Yousuf Suzuki Autosport, P&O Marinas, and Bermuda Diving Center for all of their valuable support which allows us to continuously preserve our marine environment in the UAE.

فريق دبي للغوص التطوعي
DUBAI VOLUNTARY DIVING TEAM

INSTAGRAM: @dubai.voluntary.diving.team

# WHY BECOME A CITIZEN SCIENTIST?

BY **KATHLEEN RUSSELL, REEF CHECK COURSE DIRECTOR AND AL MAHARA DIVING CENTER**

Citizen science is becoming an opportunity for the community to engage in a worthwhile cause whilst working with scientific researchers to access a vast array of data. This relationship creates an astounding synergy allowing for the creation, execution and analysis of research projects with limited personnel and access of resources. This new network of opportunities also provides an educational platform for the non-scientific community. However, citizen-science opportunities are not without its challenges. For example, the reliability and accuracy of the data sources and the global replication of this data to be used for research analysis can be flawed if not properly reviewed and checked. Citizen-science projects have changed the way science is used. They give access to non-scientists, scientific methodologies, increasing scientific literacy, and appealing to the next generation of scientists with a worthy cause. The value of citizen science allows the individuals to pursue their common causes while believing they have contributed to the research project. Few opportunities for marine enthusiasts and scuba divers exist. Like the opportunity for monitoring the health of the marine environment, collecting and reporting data for marine debris along the coast and beaches, and underwater in collaboration with global NGO's like Ocean Conservancy and Project AWARE. We can engage with active youths and individuals who are passionate about a cause and be educated at the same time.

A great example of a citizen science project providing local opportunities is the Reef Check coral reef monitoring programme. In the UAE, it was originally set up in 2010 by Emirates Diving Association spearheaded by EDA's marine biologist and specialist, Rita Bento. Reef Check authorised established centres to train thousands of citizen scientist divers who volunteer to survey the health of coral reefs around the world, and rocky reef ecosystems along the entire coast of California. These results and data points are used to improve the management of these critically important natural resources. Reef Check programmes provide ecologically sound and economically sustainable solutions to save coral reefs and creates partnerships within the local community volunteers, government agencies, businesses, universities and other non-profit organisations.

By using a standardised global scientific methodology, the Reef Check Eco Monitoring programme allows reef check trained divers to collect valuable data to establish the status of coral reefs and make informed marine management decisions. Enrolling in one of Reef Check's EcoDiver courses helps to monitor the health of local coral reefs and be able to compare global data. This is more of a rapid assessment and can provide early warning signs of impending deterioration or improvements of the marine environment.

Several EDA membership dive centres are collaborating to provide valuable opportunities to train divers to become citizen scientists and Reef Check's Eco Divers to monitor the coral reef across the UAE and Musandam coral areas. This synergistic approach with dive centres will provide alot of future data points for the scientific community especially in the crucial months where high sea surface temperatures are exceptionally high. The open source data can be viewed on Reef Check's website at **www.reefcheck.org**.

Another great example of community collaboration is the data points from the coastal clean-ups and the underwater clean-ups. With easy access to reporting data using online portals, non-scientific communities can report the details of their marine debris collected and add to the global data count. Project AWARE's online app is called Dive Against Debris and allows divers to report trash collected and reported in the same and new dive sites. Photos can also be uploaded to the portal. This reported data can be shared with anyone, at any time.

Similarly, the Ocean Conservancy, another global NGO advocating ocean conservation by creating action plans and programmes to serve its mission. This organisation also promotes citizen science in getting volunteers to collect global data of coastal clean-ups. The reported data is open source and available to everyone globally. The online portal is called Clean Swell. More details can be found on their website at **www.oceanconservancy.org**.

This past decade Al Mahara Diving Center in partnership with EDA, the Environment Agency of Abu Dhabi, Tadweer, Abu Dhabi Fishermen Coop Society, local businesses and youth communities has been advocating ocean conservancy by conducting and reporting all the marine debris collected underwater and along the coastline of Abu Dhabi to both the above organisations. There is a growing movement and cognisance about the impacts of single-use plastics and individuals are making lifestyle changes to not only reduce, reuse, and recycle, but also refuse and rethink. "Rethink" means to re-evaluate if you really need to buy items, and "Refuse" items which are a negative impact on the environment or may have a large carbon footprint. As marine enthusiasts, we have a common cause and by being citizen scientists, this allows us to participate in activities we enjoy whilst making it count for our cause. Join eco-friendly dive centres which are dedicated to the marine conservation causes and make each dive count.

AL MAHARA DIVING CENTER L.L.C.

If you are interested in becoming an Eco Diver to monitor artificial reefs or take part in Project AWARE's Dive Against Debris, please contact Al Mahara Diving Center.

**Email:** info@divemahara.com.

Quarterly surveys will be conducted with the Reef Check teams in the UAE and Musandam.

# THE ENVIRONMENT AGENCY - ABU DHABI
## RELEASES FIRST BATCH OF FISH INTO ABU DHABI WATERS

**ABU DHABI, 22 MAY 2019**
To mark the UAE's Year of Tolerance in 2019, the Environment Agency - Abu Dhabi (EAD), in partnership with HE Maryam bint Mohammed Al Mehairi, Minister of State for Food Security, has released the first batch of economically-important and over-exploited fish species into Abu Dhabi waters. The fish, which were produced by the Aquaculture Center and Marine Studies on Abu Al Abyad Island, were released to boost fish stocks and enhance the country's food security.

The release was part of EAD's Fish Stock Enhancement Programme, which includes releasing various species of economically-important and over-exploited fish species such as Hamour (*Epinephelus coioides*), Shaari (*Lethrinus nebulosus*), Qabit (*Rhabdosargus sarba*) and others, produced at different aquaculture centres in the Emirate of Abu Dhabi. The released fish were fitted with small tags carrying a phone number for reporting in case caught. This will assist researchers in assessing and monitoring the movements of the fish.

The fish release took place on Wednesday in the presence of HE Maryam bint Mohammed Al Mehairi, Minister of State for Food Security and HE Dr Shaikha Salem Al Dhaheri, Acting Secretary General of EAD and representatives from the Ministry of Climate Change and Environment.

HE Maryam bint Mohammed Al Mehairi, Minister of State for Food Security said, "The release of this first batch of fish represents a qualitative addition to our efforts in increasing the natural fish stocks and maintaining economically-important fish productions which is a key factor in the UAE's efforts to achieve food security, where fisheries are a vital source of food in the UAE."

She added, "We, at the Office of Food Security, aim to lead efforts to diversify the sources of fish from natural sources within the Gulf waters and protected areas by promoting research on the sustainability of the marine environment, as well as strengthening the aquaculture sector, which is one of the most vital sectors in food production. The sector can expand and bridge the gap between local production ratios and global patterns of production and consumption of 50% of global demand through fish farming."

HE Al Mehairi said, "This initiative, launched in cooperation with EAD and the private sector, will contribute to the enhancement of the natural stock of endangered species of local fish, thus contributing to the conservation of biological diversity."

HE Dr Shaikha Salem Al Dhaheri said, "With the quadrupling of the UAE's population over the past 20 years and a resulting increased demand for seafood and other uses in the maritime domain, the UAE's fisheries have come under increasing pressures as they have around the world. Dedicated UAE-wide socioeconomic studies indicate that one of the key pressures on fisheries is the overcapacity of the commercial and recreational fishing sectors – with the most landed demersal species, Hamour, Shaari and Farsh (*Diagramma pictum*) being overexploited by an estimated five times the sustainable limit. While the pelagic, Kanaad (*Scomberomorus commerson*), is being overexploited by up to three times the sustainable limit."

"With these findings in mind, we announced our Fish Stock Enhancement Programme, which will help rehabilitate our fish stocks for the first time and enhance them. Throughout the programme, we will continue to assess the extent to which the stockpile has benefited from the released fish. Moreover, more batches of fish, made up of different species, will be released in protected areas along the Emirate's coast," added Dr. Al Dhaheri.

EAD calls on all fishermen to report any tagged fish caught to the Abu Dhabi Government Contact Centre to assist researchers in the collection of information (e.g. species, location, and size if possible).

# THOUGHTS FROM A FREEDIVER

BY **BASSEL OUNAH**

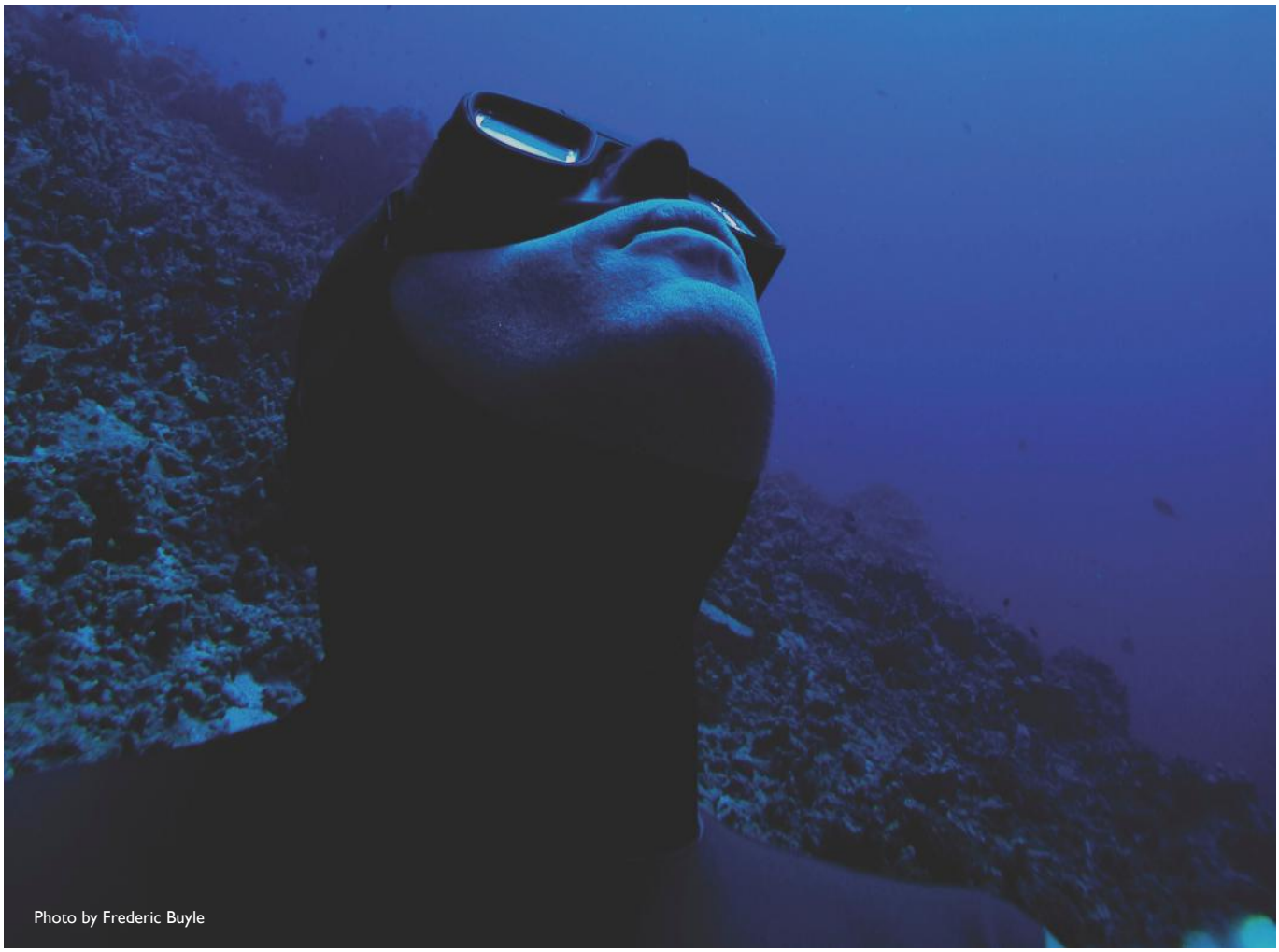


Photo by Frederic Buyle

In a world where the population is now over 7 billion people, in which almost every square inch of land has been mapped, much of it over developed, and all too much of it destroyed, the ocean largely remains the final unseen and undiscovered wilderness – the planet's last great frontier.

There are no mobile phones down there, no emails, no tweeting, no twerking, no car keys to lose, no terrorist threats, no birthdays to forget, and no penalties for late credit card payments.

All the stressful noise and distractions of life are left back up at the surface. The ocean is the last truly peaceful place on Earth.

My uncle, who had been a freediver, once told me, "You are going to forget everything from the land above, you will leave all your sorrows behind and be with only yourself in this magnificent world".

We are more closely connected to the ocean than most people imagine. We are born of the ocean. Each of us begins life floating in amniotic fluid that has almost the same makeup as ocean water.

Human blood has a chemical composition startlingly similar to seawater. An infant will reflexively breaststroke when placed underwater and can comfortably hold his or her breath for about forty seconds. That is longer than many adults, we lose this ability when we learn to walk.

As a freediver, the ocean is our home. You are searching for your inner peace in the depths, and you discover this state of mind once you pass thirty metres below. The human connection to the ocean is physical, you can sense it in your salty blood.

At sea level, we are ourselves! Blood flows from the heart to the organs and extremities. The lungs take in air and expel carbon dioxide. The heart pumps between sixty and hundred times per minute. We see, touch, feel, taste and smell.

When we are at twenty metres below the surface, we are not quite ourselves. Things feel different than they do on land. The heart beats at half its normal rate. Blood starts rushing from the extremities towards the more critical areas of the body's core. The lungs shrink to a third of their usual size. The senses numb, and synapses slow. The brain enters a heavily meditative state.

Freediving is a journey. We open the opportunity to learn more about our bodies physically and mentally. You will focus on yourself and feel each small change and enjoy the deep silent blue. It opens the mind to a different view. It's an experience which, once you start, you can not stop.

So you can imagine the special bond we have with our beloved blue world. Of course the sea has also witnessed a lot of wrong doings. As freedivers we feel a responsibility towards protecting our beloved waters and spreading environmental awareness whenever possible in order to protect our oceans from overfishing, illegal fishing, and plastic pollution. We have to support and work with organisations committed to protecting the oceans and inspire our communities by educating ourselves more within the cause. It's our responsibility to the underwater world that gives us life.

**ABOVE:** The research boat MY Navorca positioned off Cawili Island, Cagayancillo. Photo by Gonzalo Araujo | LAMAVE. **BOTTOM LEFT:** First-mate Don Don handles the research boat in rough weather. Photo by Sally Snow | LAMAVE. **BOTTOM RIGHT:** Seaweed farmer on Cawili. Photo by Sally Snow | LAMAVE.

**OPPOSITE PAGE TOP:** The research team. Photo by Sally Snow | LAMAVE. **BOTTOM LEFT:** A scalloped hammerhead encountered in Cagayancillo. Photo by Gonzalo Araujo | LAMAVE. **BOTTOM CENTRE:** Arena's stunning coral reefs. Photo by Sally Snow | LAMAVE. **BOTTOM RIGHT:** A researcher secures an acoustic receiver. Photo by Eric Chocat | LAMAVE.

# NEW HOPE FOR SHARKS AND RAYS
## AS WORK BEGINS ON ZONING MARINE PROTECTED AREA

BY **LARGE MARINE VERTEBRATES RESEARCH INSTITUTE PHILIPPINES (LAMAVE)**

Palawan, Philippines, 10 May 2019 – Scientists from World Wide Fund for Nature (WWF) Philippines and Large Marine Vertebrates Research Institute Philippines (LAMAVE) have set up an acoustic network to study shark and ray movements and habits in Cagayancillo. The research, funded by WWF-Singapore, is part of a three-year large marine protected area project in North Eastern Palawan. The acoustic technology will give the team an insight into identifying key habitats for sharks and rays to effectively zone and develop Cagayancillo's 1M-hectare Marine Protected Area (MPA).

The acoustic network consists of a number of acoustic receivers (underwater listening devices) that are placed underwater at a depth of 20-30 metres on strategic areas of the islands and atolls. The receivers "listen out" for "pings" transmitted by acoustic tags attached to select sharks and rays. The team successfully deployed three new receivers and replaced one that was deployed in Arena, an atoll in the south of Cagayancillo, in June 2017. Later this month the team aims to tag sharks in Cagayancillo waters, an output that was thwarted in April by rough weather and low encounters with sharks.

Cagayancillo is a remote archipelagic municipality in the heart of the Sulu Sea that lies 330 km east of Puerto Princesa and 170 km away from Tubbataha Reefs Natural Park. In 2016, the Local Government Unit declared the municipality the largest multi-use marine protected area in the Philippines. Unlike Tubbataha, which is a strict no-take zone, the Cagayancillo multi-use marine protected area


currently accommodates sustenance fishing, seaweed farming and commercial fishing, with current restrictions only designated to marine reserves within the MPA. The deployment of the acoustic network is one step in a wider research study towards zoning the MPA, with fish and coral studies also being carried out in a holistic approach to managing the ecosystem. The acoustic network will enable the team to understand how sharks and rays are using Cagayancillo's diverse habitats. The frequency of pings collected by different receivers will shed light on important areas for the species and give an insight into why species may be spending time there.

The success of Tubbataha Reefs Natural Park is a clear inspiration for the municipality of Cagayancillo, whose goal is to protect municipal waters to safeguard the ecological and economical importance, ensuring a thriving ecosystem for its people both for sustenance and economic gain through tourism. This research by WWF-Philippines and LAMAVE will provide a scientific perspective on the marine resources and how best to protect them, information that aims to compliment local knowledge.

"Working with the people of Cagayancillo in protecting the marine environment has always been striking the balance between safeguarding the marine wildlife and sustaining livelihoods. How to connect the lives of rays and sharks with that of the local communities, in real terms, remains to be the challenge we face. We earnestly hope that science and insights from the locals themselves will show us the way." – Marivel Dygico, WWF-Philippines.

### ABOUT LAMAVE

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

### ABOUT WWF-PHILIPPINES

WWF-Philippines has been working as a national organisation of the WWF network since 1997. As the 26th national organisation in the network, WWF-Philippines strives to protect some of the most biologically significant ecosystems in Asia.
**www.wwf.org.ph**

# THE FIRST OPEN WATER DIVE

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

After spending a fun hour in the pool, Nella told the boys that they were ready to dive in open water.

"Why do you say 'open water'?" Fred asked. "Is there something like closed water?"

"By open water we mean a large area of water that can be a lake or sea. A swimming pool is confined water. A pool is very good for training, but that is not open water."
"So, we are going to dive outside!" Skubba concluded enthusiastically.

It was not that he had not yet dived in a lake, but now he could do this with real diving equipment. And as a real diver.
"When? When?" he insisted.
"This Saturday," Nella replied.

And so, it turned into Saturday. Skubba and Fred were not alone. Other young divers were there too, and they were all looking forward to their first dive. They would finally get to do what they had all dreamed of. Some were in a bit of disbelief and some of them a little stressed. A lake is not a swimming pool. The water was not very clear and there were real fish. And it was cold.

As they stood in a semi-circle, the instructor gave them a briefing to tell them what they would do, what they should pay attention to and who they would buddy with to dive. Skubba liked that he was appointed to dive with Nella, because apparently, she was not the only one that was allowed to dive with them. The other instructors looked friendly, but he knew Nella best.

After the briefing, Skubba collected his diving equipment with Fred's help: the tank, the regulator and the BCD. Together with Nella they put his equipment together. After a final check, they carried it down to the waterfront including his weight belt, mask and fins. There they laid everything out neatly. Then she told Skubba that he could put on his wetsuit. She would join him when she was ready.

Exciting! Skubba was so nervous that Fred had to help him into his wetsuit. He could not even put his gloves on without his friend's help. Nella had told them during the training that divers assisted each other and, although Fred did not really dive, he felt like a diver by helping his friend.

Skubba was barely ready when Nella stood fully dressed and equipped next to him.
"Ready?" she asked him while she carefully checked everything.
"Yes!"
"Then we can go over and report to the 'safety diver'."
Skubba had paid close attention during the briefing so he knew who the safety diver was, and where she stood. He gave her his and Nella's names. Then he moved towards the water and put his equipment on. Skubba checked Nella's equipment after which she checked his. Everything was OK.
Together, they stepped further into the water. Another quick check. And...

# DEBRIEFING

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

Nella showed an OK sign to Skubba, by which she asked if he was ready to dive. As a trained diver, he replied with the same OK sign, signalling he was ready for his first dive. Then they released the air from their BCDs and they slowly descended. They broke the water's surface and Skubba entered the underwater world for the first time as a real diver.

Skubba immediately felt at home. This was his world. Thanks to the many swimming pool exercises, he knew how to use his dive equipment and therefore he could enjoy his visit to the fullest. Luckily Nella was nearby to help him occasionally. She also pointed several things out to him, a fish, various plants... He enjoyed every moment of it.

Fred stood next to the 'safety diver' at the edge of the water. Because he could only see bubbles, he asked the lady with her big sheet of paper what she had to do.

"Diving is not dangerous, is it?" he asked.

"No, diving is not more dangerous than football, for example, because we ensure that everything can be done safely. My job is to write down everyone who goes into the water and who comes out. If a team has been away for too long, I can send someone to see if there are any problems. I also look to the surface of the water to see if there are divers who come up and need extra help."
"And what's in those suitcases?"
"Oh, that's the oxygen bottle and the first aid kit. Do you know what that is?"
"Oh yes, we learned about it in the pool session."
"That is good." she replied.
"When will they come up?"
"It can take a while, because they just left... let me have a look... about 10 minutes ago."

Skubba was disappointed when Nella gave him the signal to surface. He wanted to answer with the signal 'No', but that would not be fair to his fellow divers waiting for their turn. Slowly he went back up, saying goodbye to this new world. Until next time!

"I see bubbles in front of us. They are getting bigger. There they are."

The friendly security lady stopped Fred, because she thought he would jump in. He was so enthusiastic. She did not know that Fred was afraid of water and would never jump in.

He went to the waterfront and took all the equipment from Skubba and Nella. He brought everything up, and doing that he got soaking wet. It made him feel like a diver. Fred was as wet as Skubba was coming out of the water.

Together they disassembled everything and put it back in its place. Fred helped Skubba to get out of his wetsuit. Nella asked them to go to her when they were done. Skubba told Fred everything he had seen and experienced.

After the dive Nella told them what they had seen. She also gave him Skubba some points to pay attention to the next time he would dive. She called this a debriefing.

# AN ECO DIVER IN KELP FORESTS:

## MY EXPERIENCE AT THE ANNUAL REEF CHECK CALIFORNIA RETREAT

BY **DANIA TRESPALACIOS, TROPICAL PROGRAMME DIRECTOR**


This past week, Reef Check held its annual Reef Check California (RCCA) Retreat. It was the first time that I participated as the Tropical Director. I came away with a tremendous sense of pride at what Reef Check has accomplished and new excitement for the potential for all Reef Check teams worldwide. I want to share my stories and ideas from the retreat with the whole Reef Check Family.

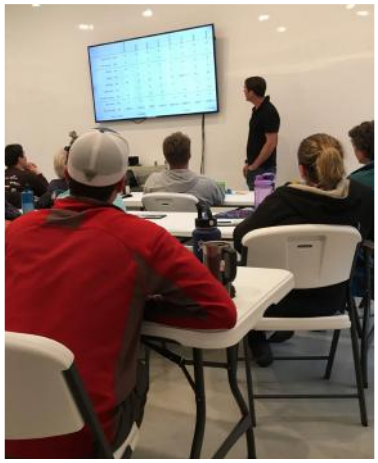
We met at Landels-Hill Big Creek Reserve. If you search for it on Google Maps, you will see about five roof tops, surrounded by vast forests and an undeveloped coastline, about 80 km away from the nearest town. Big Creek Reserve is owned by the University of California Santa Cruz in the middle of Big Sur, a massive stretch of the central California coast blessed with rugged forested cliffs that plunge into the Pacific Ocean, with a single paved highway meandering between beaches and cliffs. Big Creek Reserve is closed to the public, accessible only to educators and researchers. Directly offshore of the Big Creek Reserve lays the Big Creek State Marine Reserve as part of California's Marine Protected Area (MPA) network. RCCA, together with the University of California Santa Cruz, University of California Santa Barbara, and Humboldt State University, is monitoring this MPA network for the State of California and has surveyed the Big Creek MPA for over a decade. Big Creek is remote, rugged, beautiful and special, and I was happy to be invited.

The RCCA staff travelled to Big Creek from both ends of the California Coast. The three Regional Managers are the equivalent of Tropical Course Directors: they recruit and train volunteer divers (their EcoDivers), train Instructors (their Trainers), lead surveys and represent Reef Check at management meetings and all sorts of events. Tristin McHugh heads the North Coast, Dan Abbott heads the Central Coast, and Selena McMillan heads the South Coast. They are joined by Katie Kozma, the Southern California Training Coordinator, and Kate Vylet, the Climate Change Research Coordinator. In addition to leading trainings and surveys, Katie runs RCCA's Youth Education EMBARC Programme, and Kate runs RCCA's climate change research programme. Together with our Executive Director Jan Freiwald, and Reef Check's supporting rock Jenny Mihaly, this crew works with more than 350 trained volunteers to survey more than 100 sites a year throughout a state with 1,350 km of coast line. It is very impressive that this seemingly skeleton crew continues to grow the number of sites and volunteers yearly.

At the retreat, this crew meets in person to improve RCCA's survey programme, discuss ongoing projects, and prepare for this year's new monitoring season. The group discussed new species that would be added to the protocol, new monitoring sites approved by the State of California, and even a future expansion into neighbouring states. The RCCA staff had a great deal of questions for me, too: How many fish species do you count in the Tropics? Who trains the Trainers, and how do you make sure that EcoDivers keep up their monitoring and identification skills? How is the data collected shared with headquarters, and who uses it? How can we bring the California and Tropical programme groups together? The RCCA staff had great ideas – there is much that the Tropical programme can learn from California, and I am excited to work more closely with them in the future.

After two days of staff strategising, it was time to greet the Instructors. They have been chosen by RCCA staff to lead surveys and teach volunteer divers on their own. They, too, came from all over state – the prize for the longest commute goes to Dawn Bailey and Kevin Stolzenbach, who each travelled about 725 km from San Diego. The Instructors had varied backgrounds – construction, farming, theatre, engineering – but all shared a fierce love of diving, California's marine habitats, and Reef Check. During the classroom sessions, there were lengthy discussions about how to instruct volunteer divers to count abalone accurately, and how to best mentor divers that need improvement in their survey skills. And there were discussions on the state of California's kelp forests, and what Reef Check is doing to help protect them. Tristin McHugh gave a presentation on how kelp forests are under threat from exploding sea urchin






populations, and how Reef Check data has helped to monitor and track these ecosystem shifts. Keith Rootsaert, a volunteer Instructor from Aromas, gave a presentation on a new research project that he is leading with Reef Check in Monterey Bay to understand how urchin populations can be kept in check. And Janina Larenas, a volunteer diver that served as head chef for all 20 participants, gave a presentation on graphic design to help us all better communicate visually.

And there were connections with the Tropical Programme. Volunteer Stephanie "Stevie" Abbott, who travelled 670 km from Fortuna, was trained as an EcoDiver last year by Nikole Ordway Heath based with Force-E Dive Shop in Fort Lauderdale, Florida. She shared her Caribbean EcoDiver Kit with the California divers, and had much to say about the differences between the Tropical and California Fish Surveys: the first has an unimaginably large sampling window, the second requires identification of more than 30 distinct species in habitats where 5 m of visibility is considered very good! Instructor Dawn Bailey was proud to announce that data from her research dives in Palau had been accepted by our Reef Check database. The Instructors had questions for me too – was it true that wetsuits were always optional in the tropics?

On Saturday, everybody went diving – except the chef, the beach support, and your tropical correspondent. Even with these experienced divers, there were some challenges: possible high swells and currents, a tricky surf break at the beach, a swelled river mouth next to the beach entrance, a broken seal on a dry suit, and even a bloody nose. But within two hours, all divers were back on the beach, clothed, and comparing their survey numbers.

All the talk was about the 3 m long Great White Shark spotted on the transect – was it safe to get in the water again? Kate Vylet needed to switch out one of the climate change sensors RCCA is deploying along the California coast to measure pH, oxygen levels and temperature, and many folks wanted to check out the remote kelp forest of Big Creek without the constraints of a survey. The divers chose to wait a day. On Sunday, divers reported no shark, many more big fish (Of course! The large predator was gone!), and the absence of that eerie feeling that many felt on Saturday. There were plenty of stories to share during dinner, when the whole group gathered in one not-so-big cabin to relax and bond.

My experience at the Retreat reinforced three ideas. The first idea is that a small and dedicated group of people can have a big impact. Since its beginnings in 2005, RCCA has become a trusted partner for California's MPA network, often regarded as the best example of a well-designed and well managed MPA network. RCCA is providing the data needed for informed management, thus helping to protect and conserve the marine environment on which we all depend.

The second idea is that engaging citizen scientists in management and conservation is a powerful and effective strategy. The RCCA Instructors begin as volunteers and grow to become partners in conservation and research projects, taking the lead in teaching their own communities, engaging in the management process, ensuring that our oceans are cared for by a wide network of stewards.

The third idea is the importance of community. An important part of the retreat happened while sharing meals, walks, and cups of coffee. We humans are a social species: we thrive when we connect with others who share our passions and have something to teach us. By facilitating these connections, from the local to the global level, Reef Check generates a powerful resource. You may be sitting in Malaysia, or Reunion, or the Dominican Republic, and you may be thinking this all sounds familiar. This is because, whether you prefer kelp forests or coral reefs, these three ideas are at the heart of Reef Check.

I was very happy to join the RCCA retreat at Big Sur this year, and I am excited to explore how the RCCA team and the Tropical team can strengthen each other. Now, let's see if I can organise a Tropical Retreat…

# CORAL REEFS NOW MORE RESISTANT TO OCEAN WARMING THAN A DECADE AGO

Climate change and ocean warming threaten coral reefs globally with more frequent and deadly coral bleaching events. But a new study, using 20 years of Reef Check data, finds that corals can now withstand higher temperatures before bleaching than they could a decade ago.

The study was published March 20, 2019 in the journal Nature Communications. The study team included Ph.D. student Shannon Sully and professor Rob van Woesik at the Florida Institute of Technology, Deron Burkepile and Mary Donovan at the University of California Santa Barbara, and Reef Check founder Gregor Hodgson.

The team analysed Reef Check data from more than 3,300 sites in 81 countries to examine global coral bleaching patterns in relation to water temperature. They found that, compared to the previous decade, corals can now withstand 0.5°C (about 1 degree Fahrenheit) higher temperature before starting to bleach. According to Hodgson, this is most likely due to adaptation of both the corals and the microscopic algae that live in their tissues.

"We found that it took higher temperatures to bleach corals this past decade than it did 20 years ago," Florida Tech's Shannon Sully said.

"After watching a large section of the Great Barrier Reef bleach and some of it die over the past few years, it is a bit of good news that we may have a little more time to solve global warming," said Hodgson.

The authors suggest that the higher temperature threshold for bleaching in this decade is likely a consequence of the decline in temperature-sensitive corals during previous bleaching events, and that the remaining corals now are adapted to higher thermal stress.

The team also found that bleaching was significantly less common on reefs near the Equator despite similar thermal stress levels, contradicting expectations. Rob van Woesik said that many questions remain. "We are uncertain why equatorial reefs are more tolerant of recent temperature stress, but we do know that we must protect these equatorial reefs – and reefs everywhere – from other disturbances, lest we lose coral reefs that protect coastal inhabitants from storm waves and help feed millions of people worldwide," he said.

Jan Freiwald, Reef Check's Executive Director, was glad to see Reef Check's data put to good use. "Global warming is now the biggest threat to the survival of coral reefs – and humans. Reef Check's citizen scientist divers work hard to survey reefs all over the world to provide the data we need to make effective management decisions on a changing planet and reverse the trend of coral loss," he said, and thanked all of Reef Check's professional and citizen scientists who helped collect the data.

# COSTA RICA DIVE INSTRUCTORS GAIN NEW WAY TO LOOK AT THE REEF

BY **GEORGIA KING, GO PRO COSTA RICA**

Our team at Oceans Unlimited and Go Pro Costa Rica always loves learning about the underwater world. This last March, with much excitement, we began our Reef Check EcoDiver training. We had been looking for a way to track the health of our local reef here in Manuel Antonio, and we found the Reef Check EcoDiver training and methodology ideal. As well as learning more about our local environment, we want to use the information that we gather to monitor our new coral restoration project, Marine Conservation Costa Rica. By analysing our local reef data, we can see what changes the coral restoration project is making on the reef as a whole.

The start of our training was very exciting and important to us via our four senior instructors. Cristina, our Reef Check EcoDiver Trainer, began with a brief history of Reef Check and an overview of the programme. We then started with Fish Identification. Between the four instructors, we had the advantage of around 40 years of experience of diving in this area – I'm happy to say our fish identification was pretty sharp! Grunts and Snappers will forever be tricky to identify for me but I certainly learned some useful tips from Cristina to help. No matter what level I get to and how much I dive, there is always more to learn. This is one of the things I love about diving and the marine world.

After a bit more methodology and planning, we headed out to the reef for the afternoon dives. We set up our 100 m transect and identified and counted key fish families and invertebrate species. It was fun being out as a team, as we don't often get to dive together without the responsibility of catering to students. The Reef Check dives were challenging – it's always tricky to look at things in a different way and use new methodology, but new practices bring new perspectives that reveal even more beauty on the reef!

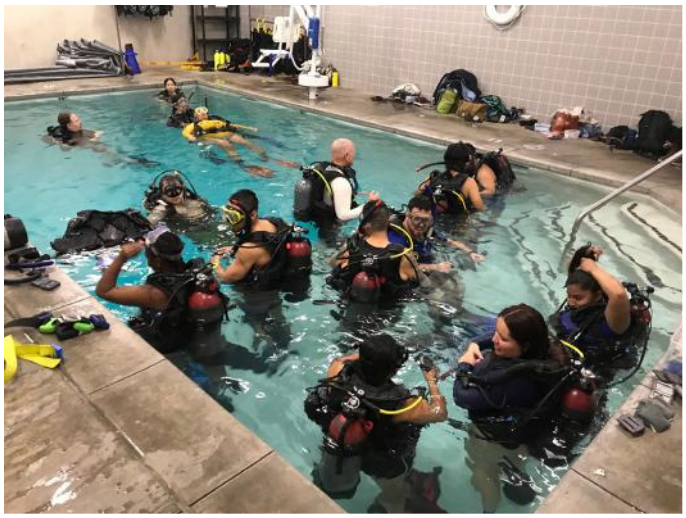
The second day we were in the classroom in the morning, taking quizzes, looking deeper at invertebrates and working on our substrate classification. It was extremely interesting to learn about the different types of algae and which ones are nutrient indicators and which are not. We all learned something new and it's going to give us a whole new way to look at the reef. On our afternoon dives we focused on substrate; this sounds easy but with 10 different substrate classifications and monitoring every 50 cm, with a bit of a swell, this was the hardest survey for me.

On the last day, we worked as a Reef Check team and put all the elements together for two reef surveys. We deployed the 100 m transect and then each took turns with Fish, Inverts, Substrate, and Site data, like depth, temperature and conditions. To challenge ourselves we each took the roles we found hardest, so I did invertebrates for one site and substrate for the other site. We managed to complete all data collection successfully after our excellent training.

Back in the classroom, Cristina showed us how to enter data on the Reef Check forms so we can upload our data onto the Reef Check website. Reef Check teams are uploading their data from around the world and we can see how reefs are changing over the years. It's wonderful to be part of this and to be able to monitor our reef with Reef Check. We hope that we can make it even healthier with our reef restoration project. Thank you, Reef Check!

# NEW COLLABORATION WITH OUTWARD BOUND ADVENTURES
## TO PROVIDE OCEAN EDUCATION TO URBAN YOUTHS IN LOS ANGELES COUNTY

BY **KATIE KOZMA, REEF CHECK SOUTHERN CALIFORNIA TRAINING COORDINATOR**




Reef Check and Pasadena-based Outward Bound Adventures Inc. (OBA) have teamed up to provide an exciting new training programme to young adults from communities that are traditionally underrepresented in marine sciences. Over the past two years, Reef Check has been growing its youth education programme, Educational Marine Biology Adventures with Reef Check (EMBARC), that was launched in 2017. EMBARC is a hands-on marine education programme that gives underserved inner-city students from Los Angeles a chance to become marine biologists for the day and experience the ocean environment first hand. During a boat trip, students gain awareness about the value of ocean resources, the threats that they face and learn about solutions that they can be a part of.

OBA is dedicated to engaging urban and low-income communities of colour in meaningful, outdoor experiences and strives to provide outdoor exposure and environmental education for underserved youths. Since 1962, OBA has engaged more than 80,000 inner city urban youths and families in their unique programmes. Working with Reef Check expands their outdoor education into the marine realm.

This new programme combines Reef Check California's citizen science training with our EMBARC youth programme, to provide more people from traditionally underrepresented communities our citizen scientist diver training and to teach them how to provide marine science education to urban youths.

Every year, OBA trains 30 young adults as wilderness leaders/instructors through its Diverse Outdoor Leaders Institute (DOLI) with a goal of exposing urban youth to national parks, forests and other wilderness areas. In February, we recruited 12 participants from the 2019 DOLI class to participate in our SCUBA and citizen science training programme.

Throughout March, the DOLI participants completed their NAUI Scuba Diver classroom sessions to become scuba divers. At OBA Headquarters in Pasadena, they also learned about marine ecology and Reef Check California. At the pool of Dive N' Surf in Redondo Beach, they donned scuba gear for the first time and got the chance to breathe underwater.

The following weekend they were ready for their first open water dive. The conditions at Redondo Beach's Veteran's Park were a bit challenging, but all of them made it through the surf and did a fantastic job going scuba diving for the first time.

They finished up their NAUI Scuba Diver certifications during a trip to the Casino Point Dive Park on Catalina Island. After several dives, there were happy faces and everyone was thrilled to join the ranks of the NAUI Scuba family. If they keep up the diving and get some practice this summer, these newly minted divers will have the opportunity to become fully certified Reef Check California citizen scientists in the future.

In the meantime, they will learn how to teach the marine science instruction on our EMBARC trips out of Marina del Rey and help teach OBA middle school students during four trips later this year. We look forward to continuing to imbue the DOLI students with a sense of excitement about the ocean, and raise their awareness of how scientific research, education and community engagement can help reverse current declines in the ocean's vitality, diversity, health and beauty. This work is funded by a grant from the Anthropocene Institute and we hope this is the first of many classes taught through this new collaboration of OBA and Reef Check.

# NO-TRASH TRIANGLE INITIATIVE: A REPORT FROM REEF CHECK ITALY

BY **GIANFRANCO ROSSI, REEF CHECK ITALY**

One hundred and fifteen disposable cups, 25 plastic bags, two flip-flops, a handful of bottles, a nylon rope and synthetic materials – a total of 6 kg of plastic found in the stomach of a dead sperm whale on the coast of Kapota Island, Indonesia. WWF Indonesia announced this in a tweet on November 20th, only the most recent of the many cetacean victims of the plastic pollution that characterises Indonesia's waters.

Indonesia is the country with the highest marine biodiversity on the planet supporting coral reefs with the highest number of hard coral species. In recent years, reefs around the world have suffered from mass coral bleaching events as a result of increasing global sea surface temperatures. After eight years of Reef Check Italy expeditions monitoring the reefs in the Bangka area of Indonesia, using Reef Check and Coral Watch protocols, the data shows an almost total absence of coral bleaching in this region. The corals appear to be in good health, but unfortunately the other life that inhabits these reefs does not seem so lucky.

The good news – lack of bleaching corals due to global warming – is overshadowed by the overexploitation of fishery resources. But the most evident threat to the marine environment comes from plastic waste at levels that have few comparisons worldwide. Indonesia is second only to China in contributing to marine plastic pollution. Plastic is everywhere, on land and in the sea.

Bottles, glass and other objects get transported by the currents and slowly descend from the sea surface to the bottom, interfering with marine organisms at every level. Debris can kill marine animals that become entangled or starved after having ingested particles that they cannot digest. Toxins are released from the plastic as it degrades. These toxins end up in the food chain and become very dangerous for marine animals and even human health.

Non-governmental organisations in Indonesia are working to reduce plastic waste with actions such as: educating children at school, organising beach clean-ups, finding solutions for better management of plastic disposal and searching for biodegradable plastics. One of these organisations, the No-Trash Triangle Initiative, is committed to combining local actions with scientific research to prevent the Coral Triangle from being suffocated by plastic. It was founded by marine scientists from Indonesia, Italy, and Germany.

One of the projects of the No-Trash Triangle Initiative involved participants of the recent Reef Check Italy EcoExpedition in Indonesia. Children from the Junior High School of Lihunu Village on Bangka Island carried out activities aimed at raising awareness on the importance of corals and the negative impact of pollution on reef health.

The presence of members of the EcoExpedition, from Italy, Spain and Hong Kong, was the starting point for discussing what motivated these divers to come to the children's island to study the health of corals. A strong motivation was the understanding that corals, which can appear to be rocks, are actually living organisms that provide livelihoods to the entire Indonesian population by supplying food and other resources.

The classroom activity culminated with the removal of plastic from the beach and a training to discover the wonders of the reef by means of a mask and snorkel. It was an incredibly exciting experience for both the children, who for the first time were wearing a mask, and for the expedition participants fascinated by so much enthusiasm.

The plastic removed during this event was a small amount compared to the amount that enters Indonesian seas each year (which according to estimates published in Science amounts to 1.9 million tons), but it certainly represents an invaluable contribution to the education of future generations of Indonesian citizens.


# NEW ECODIVERS TO ASSIST EGYPTIAN AUTHORITIES IN MONITORING RED SEA REEFS

BY **PROF. MOHAMMED M. A. KOTB,** **REEF CHECK EGYPT COORDINATOR & ECODIVER COURSE DIRECTOR**

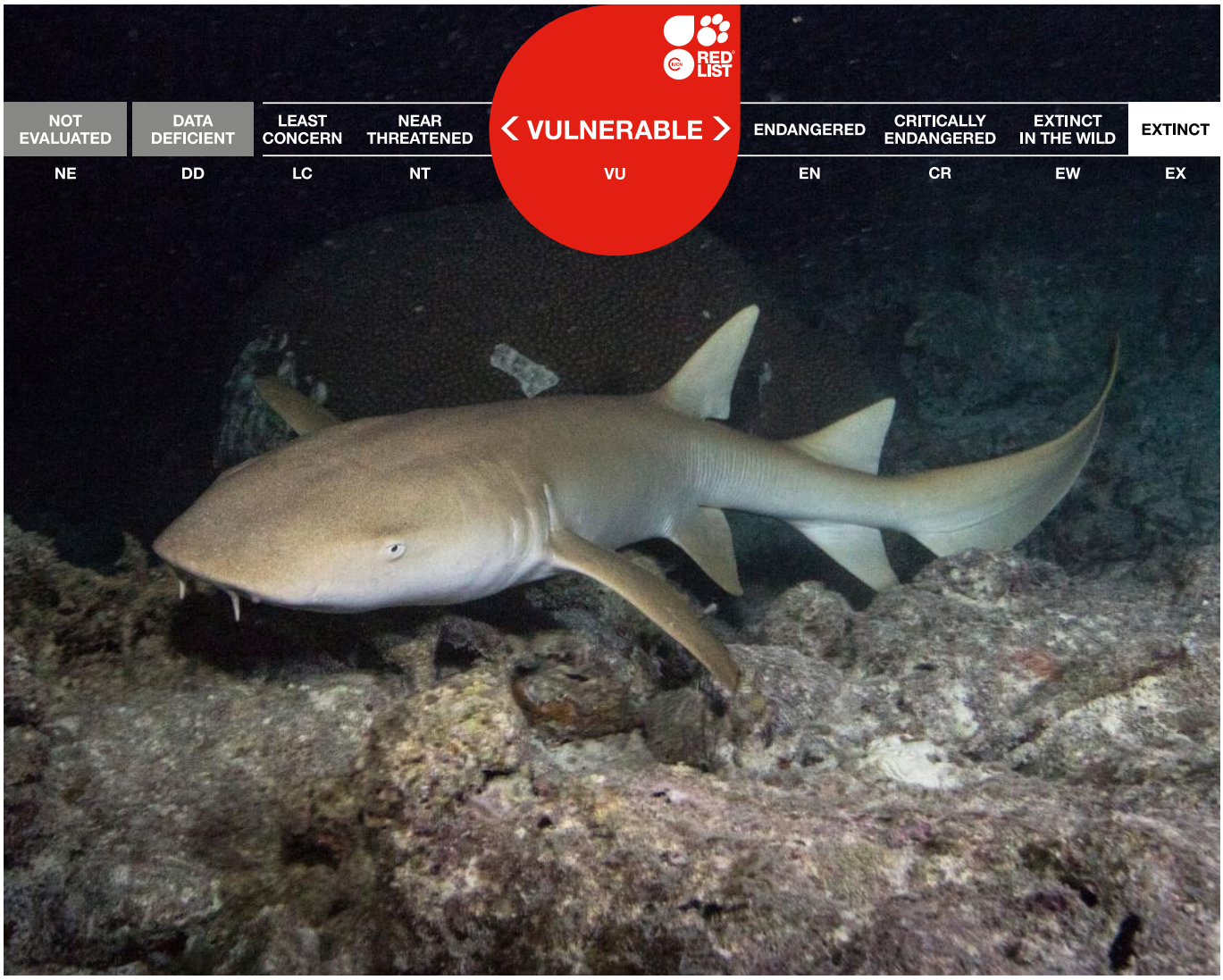
A Reef Check EcoDiver Training was held in Dahab, Egypt from March 20-24 2019. The training was organised by Mr. Ismail Abdel Azim, Dahab Protectorate Manager (Egyptian Environmental Affairs Agency-EEAA), with a generous contribution from Mirage Divers Diving Centre and the participation of 12 divers from i-Dive Tribe, a group of volunteers from different professional backgrounds who dedicate time and effort to conserving the Red Sea coral reefs in cooperation with Dahab Protectorates Authority. The training was designed and supervised by myself and covered other marine environmental aspects in addition to the Reef Check EcoDiver Training.

This training is considered a milestone in the formulation of a network of volunteer divers who are willing to participate in different activities with EEAA rangers all around the Egyptian Red Sea to conserve and monitor reefs. This was the culmination of a dream for me; I'm proud to see the i-Dive Tribe group and marine science students ready to participate with the EEAA rangers in conserving their local reefs.

# FEATURE CREATURE

## TAWNY NURSE SHARK (*NEBRIUS FERRUGINEUS*)

FEATURE **IUCN RED LIST 2003** PHOTOGRAPHY **SIMONE CAPRODOSSI**




**RED LIST CATEGORY & CRITERIA: VULNERABLE**
**Scientific Name:** *Nebrius ferrugineus*
**Common Name:** Tawny Nurse Shark
**Synonym:** Scyllium ferrugineum Lesson, 1831

### ASSESSMENT INFORMATION

**Justification:** A widely distributed continental and insular shelf species of the Indian, west and central Pacific Oceans. Restricted to a narrow band of shallow water habitat (5 to 30 m, occasionally to 70 m) that is heavily fished throughout all its range except Australia. Taken in inshore fisheries (demersal trawls, floating and fixed bottom gill nets and baited hooks) in Indonesia, Thailand, Philippines, Pakistan and India. Although there are limited data on population declines in these areas, reports of local extinctions in India and Thailand, combined with its narrow habitat range, apparently limited dispersion and low fecundity, indicate that the species is highly susceptible to local inshore fisheries and has declined in a large proportion of its range. Within Australia it is assessed as Least Concern because it is widely distributed and abundant, captured only in very small numbers in gillnets and beach meshing.

### GEOGRAPHIC RANGE

**Range Description:** Found on continental and insular shelves of the Indo-Pacific, often in the intertidal zone and from the surf line down to a depth of 70 m but more commonly between 5 and 30 m.

**Countries occurrence: Native:**
Australia (New South Wales, Northern Territory, Queensland, Western Australia); Bahrain; China; Djibouti; Egypt; Eritrea; India; Indonesia; Iran, Islamic Republic of; Japan; Kuwait; Madagascar; Malaysia; Maldives; Marshall Islands; Mauritius; Mozambique; New Caledonia; Palau; Papua New Guinea; Philippines; Qatar; Samoa; Saudi Arabia; Seychelles; Singapore; Somalia; South Africa; Sudan; Taiwan, Province of China; Thailand; United Arab Emirates; Viet Nam; Yemen.

**FAO Marine Fishing Areas: Native:**
Indian Ocean - eastern, Indian Ocean - western, Pacific - eastern central, Pacific - northwest, Pacific - southwest, Pacific - western central.

### POPULATION

**Current Population Trend:** Decreasing

### HABITAT AND ECOLOGY

It occurs on or near the bottom in lagoons, in channels or along outer edges of coral and rocky reefs, in areas with seagrass and sand on reefs, sandy areas near reef and off sandy beaches. It prefers areas in crevices and caves.


Young prefer crevices in shallow lagoons but adults are more wide ranging.

**Life History:** Ovoviviparous (aplacental viviparity) with uterine cannibalism in the form of oophagy. Pregnant females from Okinawa had one or two foetuses per uterus (297 to 595 mm) with the yolk sac reabsorbed and a greatly expanded stomach filled with yolky material in the larger fetuses and also had egg cases in the uterus (Teshima et al. 1995). It appears as though this species practices oophagy on relatively large, cased nutritive eggs (unlike lamnoids which have very small nutritive eggs) and is the first orectoloboid known to have uterine cannibalism. It is not known if the foetuses eat each other (adelphophagy) as with the grey nurse shark (*Carcharias taurus*).

**Reproductive periodicity:** Unknown
**Size at birth:** 40 to 80 cm total length (TL)
**Average litter size:** At least four per uterus suggested from egg cases, but the large size differences between foetuses in a litter suggests the litters are smaller, possible only one per female (Compagno 2001).
**Size male maturity:** 250 cm TL
**Size female maturity:** 230 to 290 cm TL
**Max size:** to at least 320 cm
**Systems:** Marine

## THREATS

Threats within Australia are likely to be minimal, there are no target fisheries, although it is taken in inshore fisheries throughout much of the rest of its range.

In the Gulf of Thailand, it was historically more abundant and it may have been adversely affected by the use of explosives and poisons on reefs in the Indian Ocean and western Pacific, particularly Indonesia and the Philippines (Compagno 2001). *Nebrius ferrugineus* often form small aggregations during the day and have a limited home range, with individuals returning to the same area every day after foraging. This behaviour together with small litter size, large size at maturity and inshore habitat suggest that it is vulnerable to local population depletion in areas of heavy fishing pressure. Furthermore, its docility and habit of resting in caves and crevices during the day make it susceptible to capture and harassment by divers, and reef destruction.

## CONSERVATION ACTIONS

There are currently no conservation measures in place for this species.

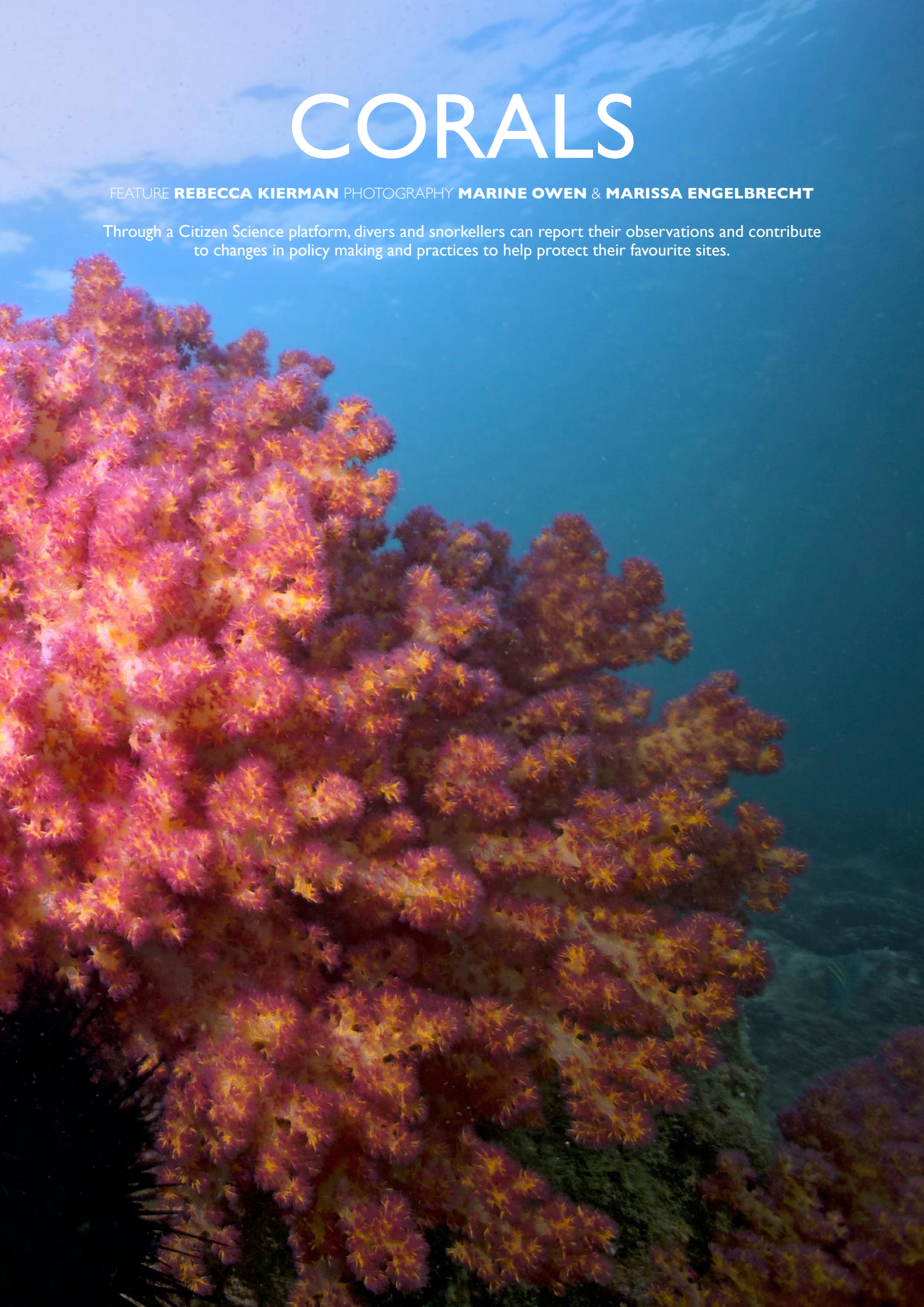
## CITATION

Pillans, R. (SSG Australia & Oceania Regional Workshop, March 2003). 2003. *Nebrius ferrugineus*. The IUCN Red List of Threatened Species 2003. **www.iucnredlist.org**

# CORALS

FEATURE **REBECCA KIERMAN** PHOTOGRAPHY **MARINE OWEN** & **MARISSA ENGELBRECHT**

Through a Citizen Science platform, divers and snorkellers can report their observations and contribute to changes in policy making and practices to help protect their favourite sites.






You read the title correctly! This is all about corals. You must be wondering if there is much more you can learn after your hours spent watching the beloved Blue Planet on repeat. We all know the basics by now, corals are animals that wouldn't live without the help of their friend, 'zooxanthellae', who provides corals with an energy source from photosynthesis. Meanwhile, all that microscopic algae asks for in return, is a place to live. It won't occupy much space – after all it lives within the coral polyp. Together they form a thin layer of tissue cemented into a skeleton that provides protection for the both of them. When they perish, the skeleton will go on to live their legacy worthy of celebration (probably amidst a tourist's bathroom decor from their holiday in the Caribbean).

So let me scratch the surface on our local corals here in the UAE, in particular the East Coast and explain some of the news you may have read about coral restoration.

Firstly these diverse environments are far from the same in any one location. With an approximate 4,000 species found worldwide, it's doubtful that you will see the same mosaic of species more than once. A large percentage of these known species are found in the coral triangle, located in the western pacific ocean, amidst the Philippines, Indonesia and Malaysia. Within the triangle, corals are densely populated and diversity is high. As locations from the triangle increases, diversity and density of reefs decrease. Towards the Gulf of Oman there is a lack of large land masses which in turn allow the corals to spread outwards and so there are many similar species here when compared to the coral triangle.

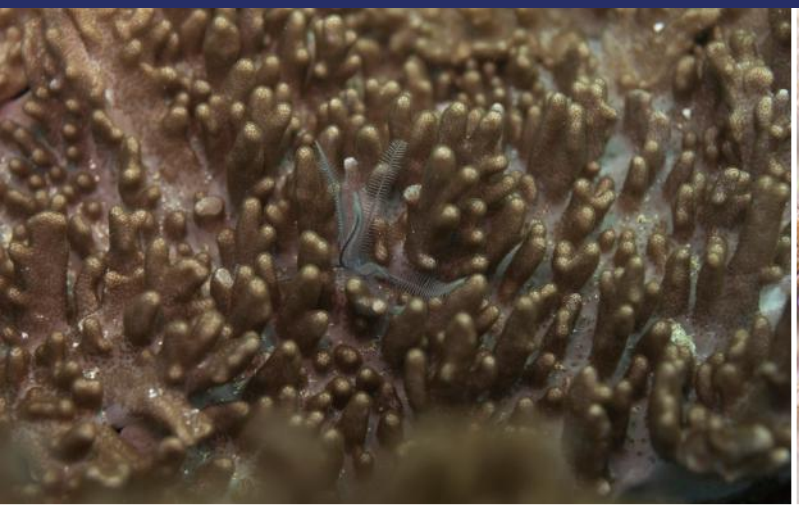
In the Gulf of Oman, approximately 75 coral reef species are found, this is a relatively low diversity for an area that seemingly ticks all the boxes on coral habitats. The reason for this is the unique geology of the area. As the last ice age concluded, during the Mesopotamian times, the sea level began to rise as a result of melting ice. This led to the shoreline of the Gulf of Oman to move landward by approximately 10 kilometres. Consequently, rich coastal and aquatic habitats were formed. Although this led to great advances in agriculture, there has since been limited geologic time for coral migration, colonisation and growth.

The Gulf of Oman hosts a unique environment, typified by a sharp drop off at the continental shelf towards the Indian Ocean with an average depth of 4,000 metres. Here, upwellings are assured along the coastline, and with them they escort cold, nutrient rich waters, which can be disastrous to coral reefs. Although upwellings can be predicted they still cause fluctuating cold waters. Generating great stress and triggering the coral to expel their zooxanthellae and leading to bleaching events. Although bleaching does not always kill the coral, it is similar to when we are starving. We are not dying, but we become more susceptible to disease and illness.

Moreover the nutrient rich water brought with upwellings, can prompt increases in plankton populations. You may notice that most coral reefs are found in crystal blue waters, as a result of the lack of nutrients found in the water, this is described as oligotrophic. Corals don't require nutrient rich waters as they are self-sustaining. Consequently increases in plankton can starve the corals as they fight for resources.

Coral fossils date back 450 million years ago, but despite their longevity of life on earth, corals are destined to a hapless fate. This is bad news as a citizen of earth. Coral reefs can provide us with vital ecosystem services, which provide humans with a wealth of benefits freely gained from the environment. These services are divided amongst biodiversity, coastal protection, fisheries, medicine, tourism and recreation. NOAA (National Ocean and Atmospheric Administration) estimated tens of billions US dollars are affiliated to the world's coral reef's. This includes our local communities here in the UAE who have flourished as a result of their connection to the ocean.

Here in the UAE, our reefs are divided amongst the Arabian Gulf and the Gulf of




Oman, which are accessible and adjacent to major population and industrial centres, as a result the local corals can suffer from problems such as sedimentation caused by construction, algal growth and physical damage from divers, boats and pollution.

Fauna found in the UAE, may it be terrestrial or marine, encounter high temperatures year round. As a result the creatures found here are surviving against the odds. This includes Corals, whom experience aforementioned temperature and nutrient fluctuations. This is particularly important to us, because this suggests these corals have or are evolving to become stress-tolerant. Interestingly it is something scientists are currently working on – manipulating the genome (genetic material) of corals, to help them survive in times of climate change and in general – the face of adversity.

So what's the good news? Well, first we need to look at the method in which corals reproduce. The first is the sexual type, male and female gametes unite to make a genetically new individual. The same method, you and I were made, easy. The second method is asexual reproduction, genetically identical clones are produced without parental gametes. This can be through budding or fragmentation. Fragmentation at a basic level, is a similar method in which we can take cuttings from plants to create new ones.

This type of reproduction has led to some interesting steps in coral reef restoration. As coral breaks, it stimulates the tissue to produce clones at a rate 25-50 times faster than normal. This process can create great amounts of biomass, but remember the 'new' corals are clones. This can cause a few problems for coral diversity. For example, if thousands of 'Rebecca's/myself' were produced, the population in the town of Dibba would decrease in genetic diversity. If there were a sudden change in environment that my genetic make up could not adapt to, the population of Rebecca's would be totally wiped out. Whereas if we have high diversity in an area, chances are, that there will be individuals with the ability to adapt. To summarise, high genetic diversity allows for natural selection and evolution to take place.

On the other hand, sexual reproduction, as we know creates genetically new individuals. In turn, genetic diversity is once again increased and aids better survival rates long term. This process can be manipulated by using sexually produced coral larvae that we can collate following spawning events. The larvae is then attached to a tetrapod structure which can fix themselves within coral communities. This method is similar to when you use seeds to grow a plant, rather than taking a cutting off of a plant to produce a clone. However with such little diversity in corals, there may be difficulties in cross-breeding communities effectively.

This is not to say that either method has a negative impact, in fact they have pulled communities together over a common goal and that's great. But to ensure our conservation efforts are not in vein, we need to focus on grass roots and ensure divers like you and I resonate our passion for the environment. Every action matters and when a group of like-minded individuals work together towards a goal, great things can be achieved.

## HOW TO GET INVOLVED

Through a Citizen Science platform, divers and snorkellers can report their observations and contribute to changes in policy making and practices to help protect their favourite sites. Initiatives like "adopt a dive site" or #everydiveasurveydive, both from Project Aware are great examples of ways to contribute to the preservation of the natural and cultural heritage of the UAE's waters. In this respect, Freestyle Divers is launching a few initiatives and invites divers and non-divers to get involved through a variety of programmes addressed to all ages.

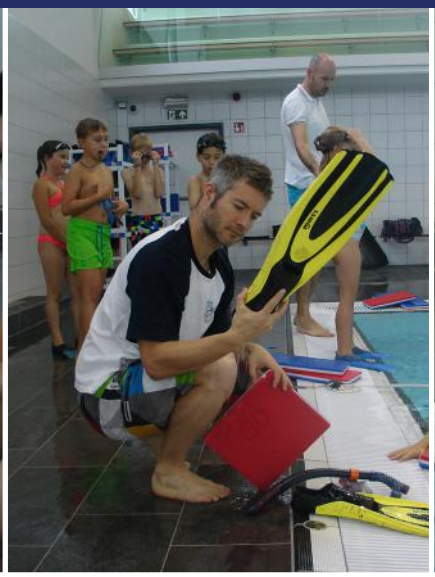
## THE FIRST PROGRAMME

The first of these is a Junior Marine Biologist practical course addressed to school children. This is supplemented by the collection of data on reef health and identification of the resident turtle population on a day to day basis. More will follow so stay tuned for more exciting news!


# MY BUDDY
## THE (MONOFIN) FINSWIMMER

FEATURE **PATRICK VAN HOESERLANDE**

A swimmer waves gracefully like a mermaid propelled through the water by a monofin. Wow. During my 25 m swim to the other side of the pool, I decide that I should definitely try this. Free warns me that this will be difficult at first. No one has two equally powerful leg muscles and the brain is not used to correcting the difference in strength with the fin's blade.



When I discovered my next buddy's specialisation, I hesitated. I had to interpret the word "buddy" very broadly to fit this kind of dive-related experience to this series. After all, this branch of subaquatic activity is very competitive and individual. It's not an environment where you expect a buddy to dive with you and look over your shoulder. I am convinced that finswimmers are "lone wolves".

My alarm clock sounds off its call to awaken to the day and get ready for my next buddy encounter. I drive through thick fog towards the city of Hasselt where the only Flemish finswimming school 'Nautilus' has its home base. Today's appointment is with Free Duerinckx. I wasn't really looking forward to this experience because, even though I love water, I feel best under its surface rather than on it. Moving forward on the dividing line between water and air has never been my strong point. My bad swimming style is probably the result, or is it the cause of my love-hate relationship?

Today I will jump into the water without a buddy, because he will stay on the side watching over me. For the first part of our 'dive' we have a rendezvous an hour before my personal torture session. I find it interesting to observe how he teaches youths. This way I can get a good idea of what finswimming is all about and ask questions. During the interview, I discover that there are a lot of disciplines within finswimming, including one wherein swimming is done underwater and with a dive tank. I should try that once and write about it!

His pupils are enthusiastic swimmers and their motivation works because a little of it rubs off on me. Sixty minutes later, I'm eager to give it a try.

It turns out to be a "solo dive" as I'm assigned a lane just for myself. In hindsight, it was not a bad idea as I would certainly have slowed the others down or got in the way. While I demonstrate my best finning technique, my buddy evaluates my style from the side. Fortunately, I swim better with fins than I do without so his judgment is not so bad (or has he spared me?). Even after he tells me that I may use my arms, he seems happy with what he sees. His suggestions should improve both speed and endurance. The list of things that I must watch out for is growing steadily. I am convinced that when I focus on applying all his tips, I do a very good job at embarrassing myself. It seems I must relearn everything again. Unfortunately, the time spent in the water is too short to get all those improvements imprinted into my muscle memory.

I get to use a snorkel for the following exercises. Now, I feel like a real finswimmer. In order to evenly distribute the resistance of the snorkel, it is positioned in the middle of the face held in place with a headband. Suddenly I transform from an accomplished explorer of the underwater world, to a fully-fledged surface skimmer. The motivation to do well increases. My swimming style suddenly improves, or so I think.

When I look to the swimmers in the lane next to me, I'm yanked out of my daydream. A swimmer waves gracefully like a mermaid propelled through the water by a monofin. Wow. During my 25 m swim to the other side, I decide that I should definitely try this. Sure enough, when I put my head above water on the instructor's side, Free suggests trying the monofin (can he read my mind?). He warns me however, that this will be difficult at first. No one has two equally powerful leg muscles and the brain is not used to correcting the difference in strength with the fin's blade.

As a doubting Thomas – *I will be able to do this because I have been diving for a very long time* – I start my first few metres with a monofin. I start out like superman. Three metres further, this fantastic feeling has given way to the sensation of a lobster wounded at the tail. I can hardly get the fin to move and when it does work, I end up spinning and rolling around. My first 25 metres of monofinning is sufferable. It must have been awful to look at me. I certainly had nothing compared to the smooth and graceful movements of the lady in the lane next to me.

Free supports my perseverance to keep trying and advises me to start with a quick bend of the knees. I succeed little by little. I got a few metres at the start, then I got to a dozen metres, and I even managed a full length, but it required all of my concentration. My admiration for the graceful movements of the mermaid increases with every stroke. During the rare moments that my monofin and body are one, I feel the power that is waiting to break free. I feel that the propulsion generated by the whole body does not need extra arm






power. I sense it and then the wounded lobster syndrome kicks in again. It's very frustrating!

Five minutes before the end, I am not willing to give the monofin back. I have enough self-relativity to bite through and, even though I feel ridiculous, I ask to give it a try underwater. Prepared for a variant of the injured arthropod, I take in some air and start with a leg stroke. Although still a bit unstable, I feel in control of the fin. Am I really better underwater? It goes amazingly well. On the other side, I convince myself that a full length underwater must be attainable. I focus on my breathing and I relax completely. I feel the power in my strokes and in no time I am back up again. 25 metres further. After that, I enjoy a few extra lengths of apnea swimming after which I reluctantly step out of the water. That was fun.

The second part of our 'dive' takes place the following week. This time we meet at the lake, the 'Zilvermeer', for the Belgian finswimming championships. Now I can stay dry because it is Free's turn to wet his chest. He will participate in the 4 km open water race with a monofin.

The start is a bit like that of a sailboat race. The swimmers decide for themselves whether they are warmed up enough to get in the water. I feel the cold when I see their thin neoprene suits, but unlike divers, these athletes do make a physical effort. An official counts the minutes. When the last minute starts, all participants are in the water and move to their favourite starting position. The 30 second signal is the last one they hear. There is no further countdown to prevent someone from falsifying the start by swimming underwater before the official start of the race. Suddenly the horn goes off signalling the start, and the group moves as one into motion. The water's surface changes into a wild foaming pool in no time. You must experience this to believe it.

After that I follow the race from a distance as a spectator. The finswimmers must follow markers indicated by moored buoys and that is more difficult than you might think. Every mistake in navigation is immediately punished by having to swim extra metres demanding extra efforts for correcting their course. After 4,000 metres, the participants finish one by one. Free is the first to touch the finishing line and wins the race. First or last, after my session in the pool, I admire every participant in this competition. Finswimming really is an underwater sport!

After the race, I have to revise my opinion on buddies for finswimming. Swimmers find a buddy in their opponents, in their training mates, in their supporters… If you look at it that way, then they have more buddies than we do as scuba divers.

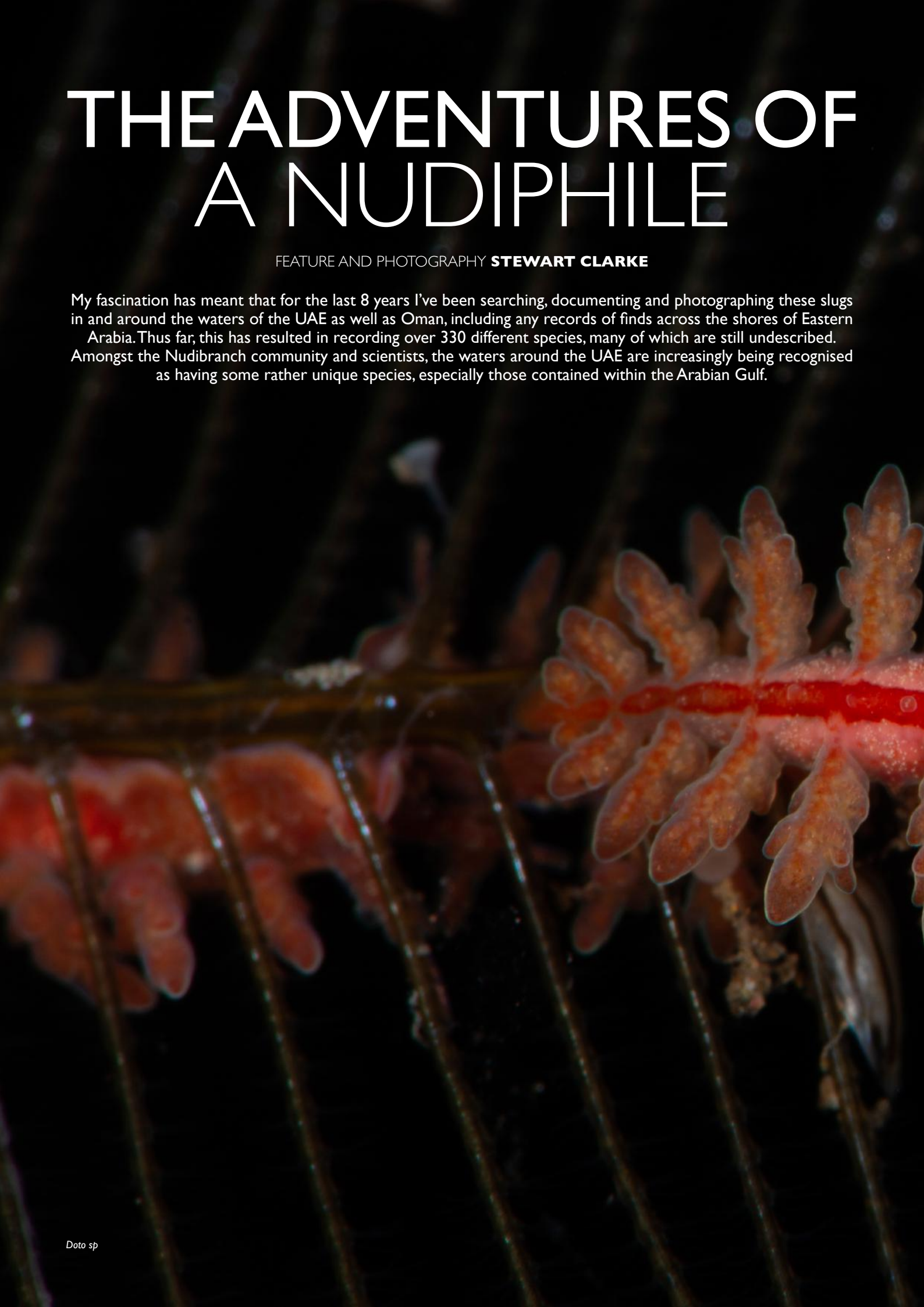
Thank you Free for being my buddy and coach, for introducing me to the discipline of monofin swimming. As I left the 'Zilvermeer' area, I check this facet of diving off my list. What will my next buddy introduce me to? Do you know someone who dives in a particular way and wants me as his or her buddy? Or are you such a diver? You can contact me through **patrick.vanhoeserlande@nelos.be**.

**Finswimmer:** Free Duerinckx
**First Dive:** 1988
**Total Races:** More than 100 outdoor competitions, including one world championship and 3 world cup masters.
**Club:** Nautilus, Belgium
**Titles:** Cup of Belgium (11 times), Belgian Champion (4 times), one gold and one bronze medal during the World Cup Matches for Masters, VI category.
**Other Certifications:** Life Guard
**Special Equipment:** A monofin, but for a finswimmer that is not so special.
**Favourite Race Inland:** Descent of the Ourthe (a Belgian wild river) when the water is at high tide.
**Favourite Competition Abroad:** The Dutch Championship in the Pieter van den Hoogenband swimming pool.
**Preferred Type of Competition:** Open and cold water.
**Most Spectacular Race:**
Descent of the Ourthe because the current is very strong, so the speed is high (about 12 km/h or 3.33 m/s). It is like swimming in an amusement water park's slide for three quarters of an hour.

# THE ADVENTURES OF A NUDIPHILE

FEATURE AND PHOTOGRAPHY **STEWART CLARKE**

My fascination has meant that for the last 8 years I've been searching, documenting and photographing these slugs in and around the waters of the UAE as well as Oman, including any records of finds across the shores of Eastern Arabia. Thus far, this has resulted in recording over 330 different species, many of which are still undescribed. Amongst the Nudibranch community and scientists, the waters around the UAE are increasingly being recognised as having some rather unique species, especially those contained within the Arabian Gulf.



*Doto sp*

**ABOVE:** *Doto sp.* **BOTTOM LEFT:** *Doto greenmyeri.* **BOTTOM RIGHT:** *Kabeiro rubroreticulata.* **OPPOSITE PAGE:** *Phyllodesmium iriomotense.*

So, despite knowing me for over six years now, I think my wife still struggles to understand my obsession with sea slugs. I still see the roll of her eyes when we are out in polite company and the inevitable question gets asked of me, "What do you get up to on your weekends?" or something along those lines. This is followed by blank stares from whoever is asking when I mention the word Nudibranch, followed by a creased brow and feigned interest which often turns to surprise and maybe a glimmer of genuine wonder when the Instagram pictures come out. Maybe they think I'm a bit weird, but then I probably am.

When I watch Blue Planet I do appreciate the amazing marine life and cinematography on display, but my wonderment only really reaches peak when a brightly coloured slug comes into view. I can't understand why the BBC's Natural History film unit has never made the bold decision to dedicate a whole episode to the wonders of these jewels of the sea. This fascination has meant that for the last 8 years I've been searching, documenting and photographing these slugs in and around the waters of the UAE as well as Oman, including any records of finds across the shores of Eastern Arabia. Thus far, this has resulted in recording over 330 different species, many of which are still undescribed. Amongst the Nudibranch community and scientists, the waters around the UAE are increasingly being recognised as having some rather unique species, especially those contained within the Arabian Gulf. One of these species even graces the cover of the go to identification book for Indo-Pacific Sea Slugs.

It was with this increasing interest of the species found here, and my connection to their study that I received an email back in December last year. Would I be interested

*Costasiella sp.*

in joining a scientific workshop devoted to Nudibranch taking place in Bali during the month of February? The only real decision to make regarding that question was could I go for 20 days or make do with just 10 – unfortunately work commitments meant it was the latter.

The location of the workshop was to be at a boutique dive resort called Villa Markisa which is in Tulamben on the East Coast of Bali. Strangely enough I had always wanted to visit this resort after having dived with its owner Christiane Waldrich in the Philippines back in 2013 and heard about all the amazing species located there just in front of the resort. Villa Markisa is also one of the few resorts that has its own dive boats, a rare commodity in Tulamben where most of the diving is done from the shore. Coupled with this is the fact that it sits just in front of Seraya Secrets, one of the more famous muck sites known to photographers.

Strangely enough the news of my trip garnered a new found interest in slugs from my wife who perked up when she heard I could take a buddy with me. The only problem with this is the fact that she doesn't dive, however she insisted I asked the question. So, I sent a quick email to the organiser that basically asked, "when you said I could bring a buddy – does this mean it should be a competent diver who can bring some value to the workshop and assist with the project overall?". This was soon met with the answer "Not at all, your wife can come if she wants".

So, within a few months I found myself standing on a black volcanic beach waiting to get started and immerse myself into the inky darkness just off the shore confident of discovering the diverse and strange creatures beneath the waves. This diversity comes about primarily due to the Indonesian Throughflow, a vast current that shifts over 15 million cubic metres of water every second (equivalent to 6,000 Olympic size swimming pools) and part of which passes through the Lombok Strait. Within this current lies a veritable soup of nutrients, eggs and larvae which is deposited all across the volcanic slopes on the east coast of Bali. What all of this means is that this area is a hotspot for Nudibranchs as well as many other types of marine critters. The purpose of the workshop was to systematically record as many of these slug species as possible, in conjunction with obtaining DNA records as well.

There would be a maximum of four dives per day, with just enough time in between to grab breakfast and lunch. The last dive of the day was always a night dive, usually taking place on the house reef just in front of the resort. We had a good mix of professional scientists as well as photographers and citizen scientists. It truly was an international meeting of various personalities with individuals from Russia, Germany, Holland, Japan, Indonesia, the USA, Sweden and the UK involved – all united by their love of slugs.

The first full day was utilised to do a few casual dives on the house reef as many of the other participants had yet to arrive. I was assigned a personal dive guide, a very capable young man called Edi who had a keen eye and an ability to find the most microscopic slugs I'd ever come across. Now for those that have not dived the volcanic beaches of Bali, the slopes leading down into the deeper water do not look very promising at first glance. It is generally featureless with patchy reef, debris and a pervasive gloom brought about by the dark colour of the bottom substrate. In addition to this, there can be periods of poor visibility brought about by river flows from Mount Agung during the rainy season. The average diver may fail to see the point of diving under such conditions, but to the underwater macro photographer, it is paradise.

That first casual dive resulted in 20+ species of slugs, all without any real effort. There were

*Costasiella sp.*

also many other critters including tiny Frogfish, Harlequin Shrimp, Hairy Octopus and all manner of crabs. It was a fantastic introduction to Bali muck diving and a great precursor to the 10 days ahead, best of all, this was to be found right in front of the resort.

The next four days went past in a blur. The diving was intense with a never-ending stream of subjects to photograph and catalogue, the final dive each day generally ended by 8 pm with just enough time to shower and grab dinner. My wife hardly saw me, and to be honest, it was exhausting – lots of fun but just physically draining. The variety of slugs was amazing, many of those we found were undescribed, new records for the area and on some occasions, what we thought was a completely new species never photographed or seen before. All of this diving was beginning to take its toll and I began to struggle with the dreaded man flu – this resulted in missing a few dives due to problems with equalisation. Despite these issues we still managed to find over 250 species during those first four days. We then decided that the morning of the fifth day would be a casual early morning dive on a very special site just up the coast from the resort.

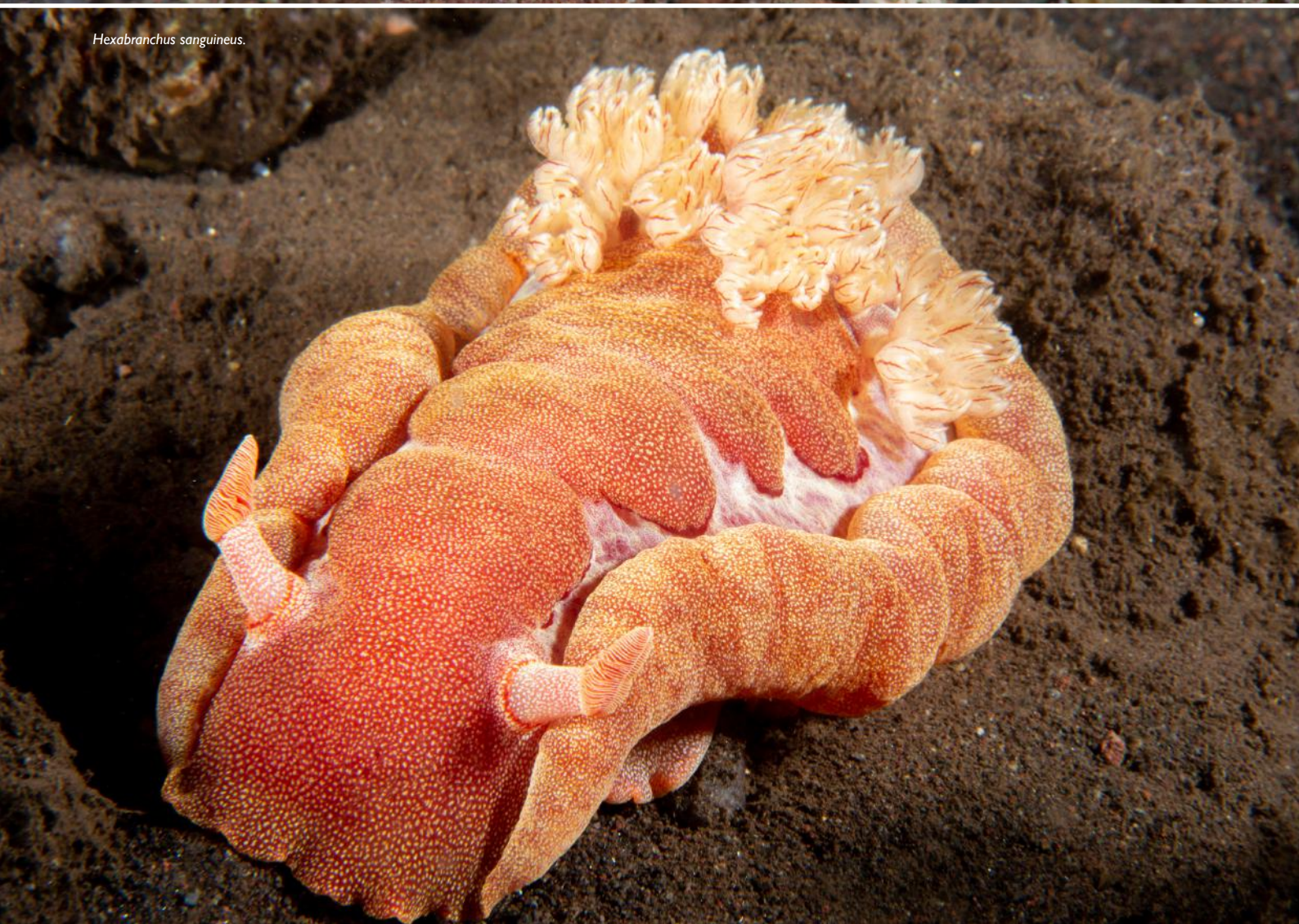
So, the following day and despite my man flu, I dragged myself out of bed at 5 am, boarded the dive boat and headed down the coast to the world-famous Liberty wreck. The USAT Liberty was a cargo ship that was torpedoed by the Japanese navy back in 1942 in the Lombok Strait. It attempted to make its way under tow to Singaraja Harbour in the north of Bali, but due to the ingress of too much water, it beached itself on the east coast to enable the unloading of its cargo. Here it sat for the next 21 years until the tremors associated with a large eruption of the Mount Agung Volcano shook it off the beach and it slipped down the slope and came to rest at its deepest point of 31 m with the shallowest part sat just 2 m below the surface. The wreck is covered with an abundance of soft corals, black corals and encrusting hard corals. It really is one of those must do sites, and the peaceful solitude of diving it just before 6 am is hard to beat. It's covered in life, with thousands upon thousands of creatures calling it home. There is even a land-dwelling monitor lizard that swims out to the wreck and hunts for fish, utilising air pockets trapped within the structure to gain extra breaths as it dives down to 12 m.

One of the highlights of this dive was during the safety stop when the resident group of Bumphead Parrotfish decided to carry out their early morning patrol of the wreck, these spectacular fish have been conditioned to the presence of divers so are not afraid at all and this is one of the few times when I wished I had packed the wide angle lens as these leviathan like fish cruise through the shallows amongst the divers.

Once that dive had finished and we had fuelled up at breakfast, we were soon back to "work" and found ourselves on the slope just adjacent to the wreck for the next dive. This was probably one of my favourite dives of the entire trip, the area was covered with Avrainvillea algae which is the home and food of *Costasiella* slugs….aka Shaun the Sheep. These tiny algae grazing slugs are very photogenic, but they are also very small and so can be challenging to shoot with any kind of current. There were at least three different species all within 20 metres of each other including the yellow and blue striped ones. There was also another one of my favourite slugs, *Doto greenmyeri* which is commonly referred to as the Donut nudibranch. The abundance of species was amazing and I estimate that on that dive alone our small group found over 60 different species.

Over the course of the next few days, whilst still nursing a worsening flu, I managed to tick off many of the species that were on my wish list. From the stunning *Phyllodesmium*

*Ardeadoris averni.*



*Hexabranchus sanguineus.*

*Flabellina loto.*

*Mexichromis trilineata.*

**LEFT TOP TO BOTTOM:** *Eubranchus occelatus*, *Eubranchus mandapamensis*, Octopus, Juvenile Frogfish, *Okenia sp.*
**ABOVE:** *Eubranchus virginalis*.

*iriomotense* which is often found down at 25 m on large stinging hydroids, to the delicate *Cyerce elegans* which hides amongst Halimeda algae and emerges at night to feed. The east coast of Bali is right up there with the best critter locations to be found elsewhere in Lembeh and Anilao. Not only was I able to find and photograph hundreds of slugs, I also got to expand my knowledge in the process.

One of the advantages of having a contingent of leading scientists on the trip, was that meal times were never boring (although I'm not sure if the wife agreed). The conversations centred around the growing field of DNA analysis and its impact on the categorization of slug species and genera. The whole field is undergoing a revolution and many of the assumptions of the past are being turned on their heads. This has resulted in the renaming of whole family groups and the recategorization of many species that had previously been thought to have been just colour forms. The scientists on this trip were at the leading edge of this work and I found it fascinating. Taxonomy used to be a much simpler process, a hundred years ago you could describe a new species and utilise drawings to help with identification. Then the process evolved to utilising microscopes to perform radular morphology with detailed photographs to help with descriptions. DNA analysis has now shown that even this method

is not foolproof for the separation of species and its really only on the genetic level that you can build up a robust picture of the evolutionary tree.

These conversations also convinced me that many of the species that reside in the waters of the UAE are more likely to be unique and separate species rather than what have previously been assumed to be colour forms. However, it is difficult to know for sure without having a proper study carried out and working through the bureaucracy of collecting and exporting specimens to a recognised lab able to carry out such a study. Hopefully a local marine biology institution may see it as a worthwhile endeavour in the near future.

The trip overall was a great success. Our small group managed to record and photograph over 550 species – all within a relatively short section of shoreline. After having visited Anilao many times in the past and been convinced it was the centre of Nudibranch biodiversity, I'm confident that Bali more than holds it own. The eruption in 2017 of Mount Agung has had a negative impact on the dive industry in Tulamben, with tourist numbers dropping and some businesses struggling. For me this provides a great opportunity to visit the area as prices have become more competitive and a lot of the dive sites are less busy, this in turn has helped some of the sites recover and biological diversity increase. So if you are looking for a dedicated diving holiday or just want to combine a few dives within a general visit to Bali – the Tulamben area is not to be missed.

P.S. My wife has informed me that she will not be coming on any more slug workshops in the future.

**ABOUT VILLA MARKISA**

Nestled at the foot of Bali's most famous volcano "Gunung Agung", a number of private bungalows offer individual service and great attention to detail. Bali's most famous site, Tulamben's USS Liberty shipwreck is just minutes away with via a high speed tender boat. For scuba divers who prefer critters, "Seraya Secrets" is directly in front of the beach.

**Email:** reservation@villa-markisa.com
**Website:** www.villa-markisa.com

# 75 YEARS OF SPORT DIVING
# VINTAGE DIVING

FEATURE **PATRICK VAN HOESERLANDE** UNDERWATER PHOTOGRAPHY **JEF DRIESEN**

When Dirk Deraedt and I thought about the concept of this series on 75 years of sport diving, we both agreed that a chapter about diving with the Mistral single stage regulator should be a part of it. There had to be a piece about the practical experience. However, this required that we find a functioning Mistral whose owner would give us permission to dive with it. I considered this a simple assignment, but nothing was further from the truth.





In this article I will cover the theory explained in the previous issue. A long time ago, I dived with a single stage regulator, but then I did not possess the knowledge to observe the differences in its function. Yes, my field of vision was 'bubble free' and the regulator sounded different, but I no longer remember this dive in any great detail. It was a dive to enjoy, not one to test the regulator and write about it. To be able to compose the review below, I had to find a working specimen and test it underwater. The clock was ticking towards the deadline!

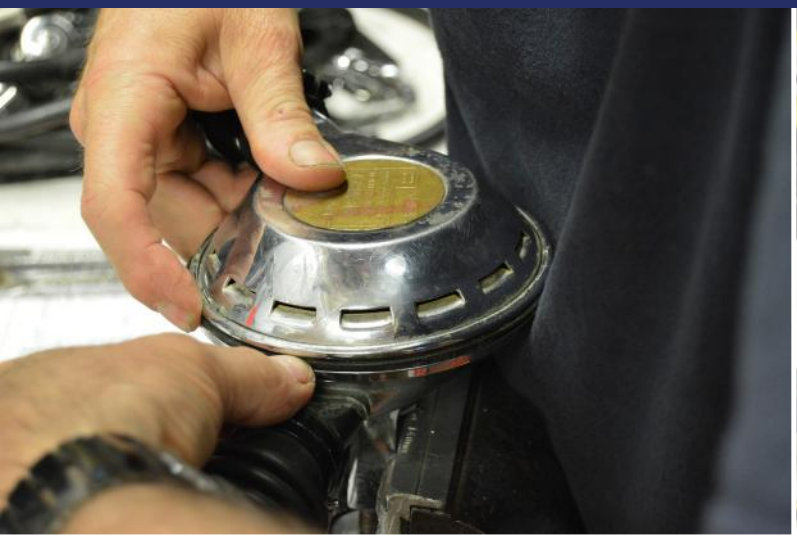
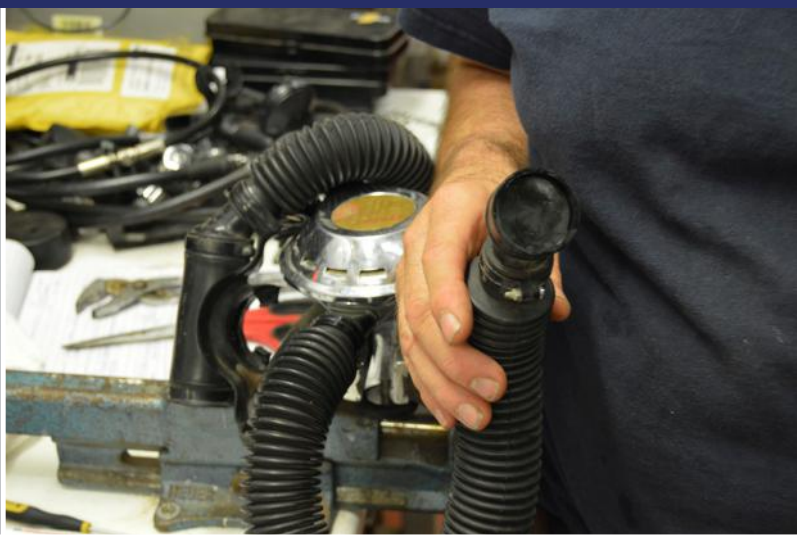
Before we begin with the third part of this series, I want to draw your attention to two important aspects. Firstly, the title does not really cover the load because this is not about diving with 'antique' equipment. This was and is not my intention. The title, "what is it like to dive with a single stage regulator?" would have been more explanatory, but sounded less attractive. Secondly, I would not send a fellow diver out with the regulator I tested, certainly not without additional repairs. Despite the precautions taken, the regulator was not completely safe. An important lesson from this is that it is not because you have an old regulator laying about that you can go diving with it. But you already know that.

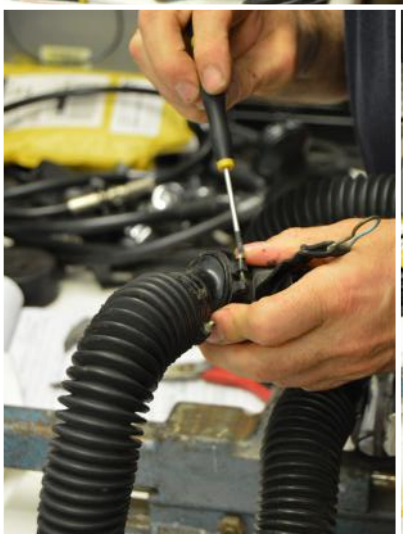
## THE QUEST

When Dirk Deraedt and I thought about the concept of this series on 75 years of sport diving, we both agreed that a chapter about diving with the Mistral single stage regulator should be a part of it. There had to be a piece about the practical experience. However, this required that we find a functioning Mistral whose owner would give us permission to dive with it. I considered this a simple assignment, but nothing was further from the truth. Many fellow divers had one and so I thought that I only had to ask to borrow one and test it out on a dive. After months of emailing and calling, I had to conclude that most people considered their Mistral a decorative piece or in some cases, a relic. Afraid that a return to the environment for which it was designed would destroy the decorative element of it, I could not lay a hand on a single specimen. Others were curious to see if their regulator would still work, but I had to refuse their offer because it was not a complete piece. When I finally found someone with a complete set, the necessary maintenance turned out to be too expensive. A month before the deadline, I still had no usable regulator in my possession.

At the last possible moment, I received a message from Loumar that I was allowed to test his single stage regulator during a real dive. His specimen had been a gift and he had dived with it for the last time without any problems… in 1995. After a visual inspection, I decided that the regulator looked to be in very good condition and that is was an excellent candidate for the accomplishment of my goal. Of course I would not jump with it into the water solely based on an external inspection, the device had to be thoroughly checked before I even thought about diving with it. Unfortunately, I neither possess the knowledge, nor the equipment to service a regulator, so I went knocking on Ronny's door at the Scuba Service Store.

Ronny had no experience with maintaining this old type of regulator. Only because I relentlessly insisted that he should at least have a look at it and after promising that he could stop at any time, he agreed to give it a try. Also, I would not dive with the device if he thought it would be dangerous. As agreed, he began with great precision dismantling the regulator. As he did so, I took photos for the article which would also be useful for reassembling it. After removing the lid, I noticed the good condition of the regulator. The only part that we were a little worried about, was the 'becque de duc'. The rubber outlet valve looked brittle, so we decided to leave it as we were afraid of damaging it. We did not have spare parts available, which meant that a broken part would result in cancelling the dive and the article. What was even more striking, were the small parts inside the regulator. I counted 25. And that was it. This limited number of parts made the Mistral a rock-solid regulator and it was popular with so many divers.




After having thoroughly cleaned all the parts, Ronny neatly reinstalled everything. The placement of the large diaphragm was more difficult than expected, but ultimately we were successful in keeping the rubber seal in its place with two pairs of hands. A flow test showed that it worked, although breathing would be heavy. This was probably because the regulator was not optimally tuned, but without good instructions on how to do that, we decided that it would serve its purpose.

Happy, I left Ronny's shop with a fully functioning and serviced authentic Mistral. During my dive breathing would be difficult, but I expected that it would be easier underwater – a modern two-stage regulator breathes heavier above water than under – and the rigidity of the brittle outlet valve could cause problems. However, I did not know what kinds of problems they would be. Difficulty to exhale?

In the days between my visit to the workshop and the actual dive, while enjoying a BBQ, I was telling my friend Remi about my project. Spontaneously he took me to his cellar. I suspected that he would offer me a single stage regulator because for some bizarre reason I believed that once I had found a working Mistral, other people would suddenly tell me that they had one too. To my surprise he did not offer me a regulator, but an original Fenzy and an analog decompression calculator, a prehistoric dive computer. With this equipment, along with an old mask I had found in one of my boxes, the picture was complete. I was ready for the dive.

## DIVING WITH A MISTRAL

The maintenance check had convinced me that the regulator I was now mounting to my tank was indeed a single-stage. The first commercial derivatives of the regulator of Cousteau-Gagnan, the CG45, were after all two-stage versions. The later Mistral, however, was a thoroughbred single stage regulator. Because I had observed through pictures that the regulator's casing was directed backwards, I mounted mine the same way. The manner in which the two tubes were now positioned, confirmed my idea that it was assembled correctly.

At the dive site, although we deliberately avoided the busy parking lot, passersby and other divers looked at us with a look of admiration. Was it admiration for the equipment, or for the guinea pig who was going to dive with this collection of antiques? I left it in the middle and focused on my part of the job.

From the theoretical research, I knew that: the inspiratory pressure drop decreases as the pressure in the tank decreases. To test this, I would almost completely empty my tank at the end of my dive. This would turn my environment into a jacuzzi.

The ambient pressure, as long as it is negligible in respect to the tank's high pressure, has no influence on the inspiratory pressure drop. This situation would not be valid at great depth with an almost empty tank, but because the 'Put van Ekeren' cannot be described as deep, and it would not be recommended for safety reasons to put myself in a potentially hazardous situation, testing this was not on my list.

The breathing comfort depends on the position of the diver. The greater the vertical distance between the mouthpiece and the regulator housing, the more breathing effort the diver must exercise. I would test this by diving in different positions.

Because it was not a normal dive, I took a few extra safety precautions: we would first test everything in very shallow water. Whatever would happen would give me the option to surface quickly in a controlled manner. My buddy and photographer was an experienced instructor and through a detailed briefing he knew exactly what to expect (and what was not normal). We had a clear signal in case something was to go wrong, and I had a second 'modern' regulator at hand.

During the first few minutes underwater, I was already experiencing the result of the stiff outlet valve: after exhalation, water easily poured into the exhalation hose and then into the mouthpiece. The valve probably did not close immediately after my exhalation due to its stiffness, causing water to enter. The exhalation valve on the mouthpiece apparently only controlled the air circulation and allowed water to enter into my mouth with every breath. I swallowed the first bit, but this was certainly not a permanent solution. Then I remembered the explanation of an older diver who had dived with a Mistral before. "If water gets into your mouthpiece, then hold the inlet hose up and the outlet down." Because drinking lake water was not a good alternative, I tried this manoeuvre out. And yes, the water disappeared. By frequently applying this solution, I could continue my test dive.

Diving felt strange as I did not see any bubbles and barely heard a sound. I doubted the operation of the regulator. Jef, my buddy, signalled that everything looked normal and I could breathe, so it had to be working, even without visual confirmation. I swam a few rounds to get used to the way of breathing and to give my photographer a chance to do his job. When I wanted to inhale, I had to use a lot of force for one breath of air. It was heavier than expected, but it was not too bad. It was now time for the real test.

As theoretically predicted, breathing in required a lot of effort, while exhaling went well. In an upright position, the difference in effort was smaller. I turned over onto my back and the mouthpiece provided me with an oversupply of air. I expected an easier inhalation, but this was too much. Upside-down breathing was better. There was, in contrast to the modern two-stage regulator, a clearly discernible difference in breathing comfortably depending on my position. This would vary less with depth, but I would not test that, nor the analog decompression calculator. That would have to wait.

I realised that I could reduce the inhalation effort by fitting the regulator backwards onto my tank, i.e. with the casing pointing towards the front. This strange set up would reduce the distance between my lungs and the regulator valve. The tanks Cousteau and his fellow divers used were unlike the thick 200 bar tank I was employing now, and so my distance would be bigger than theirs. Turning the housing the other side around would shorten that distance by only a few centimetres but it would result in easier breathing. I noticed that the tubes were really pulling at my mouthpieces so this convinced me that this was the way forward. I signaled that I would surface to modify my equipment configuration.

Back underwater I directly noticed the difference. Not only did I feel the mouthpiece – although upside down – it was better


without the traction and my breathing had clearly improved. I began to feel like, I guess, what a real Mistral diver must have felt underwater. The difference of breathing in the various positions had also decreased. It was still there, but not as pronounced as before. I was beginning to enjoy the absence of bubbles. I thought about replacing my modern regulator with this single-stage, but water in my mouth made me decide not to do this yet. Anyhow, after this dive I had to give the regulator back. After passing 30 dive minutes, I became a bit bolder. I decided to take the mouthpiece out to discover how to free it of water. I remembered that you had to do this by holding the mouthpiece high up, which causes the water to come out. I pulled the mouthpiece out and pushed it up. Almost immediately there was a local bubble curtain, and I put it back in my mouth. Yes, I could directly breathe. The water was out.

After everything had been tested and photos had been taken, I could take the final test. I transformed my environment into a local bubble bath by depleting my tank through my modern second stage. I fantasized about what people on the surface would think. When I read 20 bar, I decided that it was good enough. As I inhaled the leftover air, I observed my breathing efforts. An improvement in comfort was noticeable. I now had to make tangibly less effort to get air. The theory was correct.

Fortunately, we did not have to fin far to dry ground. The test dive went well and confirmed the findings based on the previous technical analysis. Even after so many years of being stored away, the Mistral worked very well. With a new outlet valve, the regulator would probably have worked flawlessly and provided a good adjustment. Based on a maintenance book, it would have worked like new.

My dive with the Mistral has been a few months ago now. I reluctantly returned the regulator and the other equipment to their rightful owners. I would have liked to dive with it a few times more, but circumstances decided otherwise. And yes, as predicted, others started offering their single stage regulators for me to test out. Meanwhile, I am now the proud owner of a Mistral. It is a more recent version of this regulator, with a high-pressure connection. I am determined to return this specimen back to its natural environment and it goes without saying, I will be accompanying it.

# DIVING WITH COW SHARKS

FEATURE **FERNANDO REIS** PHOTOGRAPHY **ALESSANDRO DE MADDALENA**

What is so special about the Sevengill Shark? Why do they have seven gills? This species feeds its blood with oxygen by passing the water through their gills. Up to here, this is nothing different from other sharks. However, it is this part of their body, the gill openings, which sets them apart from the rest of their cow shark family class.

## SOUTHERN AFRICA'S SHARK DIVERSITY

South Africa has developed a series of conservation activities and ecotourism alternatives based on the direct observation and study of sharks over the last 20 years. Due to the large diversity of shark species living in their natural environment not far from land, South Africa has become very attractive and unique for all those that wish to observe sharks. Anyone can participate in one of the many shark expeditions to learn more and study their natural behaviour.

In the beginning of this century, the notorious white shark (*Carcharodon carcharias*), most frequently named the great white shark, was considered in great danger of extinction. Fortunately today, due to all the conservation efforts that have been developed since then, many more studies have been applied about the white shark, making it better understood and respected as an essential apex marine predator. Today this species is listed as Vulnerable by the International Union for Conservation of Nature (IUCN), and is also included in the Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora – CITES. The species has received an increasing willingness of conservation, not only at a national level, but also on a worldwide level due to the many expeditions and shark biology courses developed by experts around the great white shark.

It is known that South Africa is a very special place when it comes to seeing and studying sharks in general. In fact, the southern waters of the African continent around Cape Town used to be known as one of the best places in the world to observe large diversities of shark species. There are always new daily experiences waiting to be captured by divers. There are three very well known areas for shark observations: False Bay, Gansbaai and Mossel Bay – where it is also possible to find large sea lion colonies, which are a favourite great white shark diet. It is quite special because white shark hunting grounds are very close to shore and to human communities.

False Bay is very close to Cape Town, and from there you can go on an expedition to Seal Island. You can also go offshore from Cape Point and look for blue sharks and makos, or head to Hout Bay to swim with seals or go to Cape Infanta where it is possible to find smooth hammerhead sharks, sand tiger sharks, bronze whalers or copper sharks, and of course some cat shark species too.

## THE DIVE

Last summer, (winter in the northern hemisphere) a rare event generated some changes to South Africa's marine ecosystem's normal activities. Before the end of April, we were in Cape Town, ready for another great white shark expedition. It was barely 7 am when our shark observation

boat left the harbour. With the first light of the morning, we started to feel a cold wind bellowing from the East, however a cover of grey clouds were hiding a flat sea in front of us. It felt like something special was about to happen and nature was giving us an atmosphere of suspense. In less than half an hour, we would be able to look for great white sharks just in front of Seal Island. But the species we were about to observe underwater was a different one.

Right in the middle of False Bay, situated about 100 metres from Seal Island, our boat stopped and we could perfectly see a new dawn of sea lion activities over populating the small rocks around us. We know that the regulation of prey density via direct consumption by predators is the most common form of top-down control in any habitat, but now something had happened.

The crew started chumming the water around the boat and we all waited to see if any white sharks would pop up. But no. The first visitors to surface that morning were the unsuspected broadnose sevengill sharks (*Notorynchus cepedianus*), also known as cow sharks.

Where were the great white sharks? A few months before, a pair of orcas appeared and the usual white shark population disappeared from the area. This has been observed in nature before, so it is nothing new, but it is quite rare.

These two orca whales are suspected to have killed and eaten the livers of multiple white sharks in the past few months in South Africa. They travel together and they both have bent dorsal fins which is very unusual in the wild. Because of that, they have been named "Port" and "Starboard". This is the direction in which their fins flop, Port to the left and Starboard to the right. Is it a coincidence? Or the result of a special incident?

Of course nobody knows what has caused this. Alessandro De Maddalena is a South African resident shark expert who has hosted and guided over 30 white shark expeditions over the years, and in his opinion, as well as some other marine life experts, those two orca whales probably went to steal fish from some offshore longlines as orcas used to do off Cape Town, and some fishermen fired at them with a gun. That's why the floppy dorsal fins have been hypothesized as a result of possible gunshot traumas. If they had been injured and unable to move at the proper speeds, they were perhaps no longer able to chase the fast dolphins, and they started to chase easier prey such as sharks. In this case, it is a behaviour caused by humans.

As my friend Alessandro previously told me, the sevengill sharks are not replacing the great white sharks in South Africa. They are simply moving from the shore, where they used to swim more frequently to Seal Island


Photo by Gaspare Schillaci.


Photo by Mariangela Piovesana.

when there were no white sharks looking for an opportunity to chase distracted seals. If you get the chance to one day dive in those waters, you simply must not miss a try dive with the sea lion species, *Arctopcephalus pusillus*. They are very playful animals and easily recognised by their external ears. When they are underwater they get really curious and are very acrobatic marine mammals.

## COMPLEX INTERACTIONS

Orca whales (*Orcinus orca*) are, apart from human species, the only predators that occasionally chase white sharks. It is known, that high trophic-level consumers and top predators such as white sharks and orca whales play an important ecological role through top-down chains (Jorgensen et al, 2018). There is an increasing recognition for non-lethal or behaviourally mediated mechanisms which can shape ecosystem structures. Non-consumptive mechanisms may include 'risk effects' in which prey are not chased, but respond behaviourally to the presence of a predator by reducing activity or shifting habitats to reduce risk. Risk effects can also initiate trophic cascades. Despite an extensive overlap in distributional range and trophic niche, observations of direct interactions between killer whales and white sharks are extremely rare, but have been recorded before off California and Southern Australia.

For the case in South Africa, behavioural responses of white shark species under threat from orca whales resulted in the local release of its food base, the sea lions. They simply left their usual habitat for "convenient" survival reasons. This phenomena, risks to have of course important top-down implications for the marine ecosystem. According to Jorgensen et al (2018) large-bodied upper trophic-level consumers have few natural predators. However, competition within predator guilds can lead to complex interactions and can strongly affect the distribution and abundance of the predator populations.

It has been discovered by analysis of a few stranded white sharks that orcas were exclusively eating their livers. In fact, the consumption of the highly-caloric liver of white sharks may confer ancillary energetic benefits to the whales. The white sharks avoidance behaviours in response to killer whales presence could also impact white shark fitness through restricting spatiotemporal access and activity to habitats that usually use to be more densely populated (Jorgensen 2018).

Since last year, it is known that intimidation and predation risk pervasively affects entire populations of white sharks and not just the individuals directly killed. Interactions between these two top ocean predators, tagged white shark (*Carcharodon carcharias*) individuals and identified killer whales (*Orcinus orca*) have been registered and investigated before in North-east Pacific waters. Specifically, it has been concluded that white sharks and orca whales exhibit a high degree of niche overlap along the western shores of North America, and it has been observed that in years when orcas occurred, white shark predations on elephant seals declined which can affect all the marine balance and generate cascade risk effects. As Jorgensen (2018) said, interactions between orca whales and white sharks may result in cascading effects at lower trophic levels by reducing consumptive (and possibly non-consumptive) effects on marine mammals.

## THE BROADNOSE SEVENGILL SHARK

So, it wasn't a complete surprise when we saw the first cow shark representative coming for the chumming that morning. And having understood all the circumstances, the best one could do was to jump into the water and enjoy a dive with this rare new visitor to Seal Island: the broadnose sevengill cow shark.

What is so special about the sevengill shark? Why do they have seven gills? This species feeds its blood with oxygen by passing the water through their gills. Up to here, this is nothing different from other sharks. However, it is this part of their body, the gill openings, which sets them apart from the rest of their cow shark family class.

Almost all the elasmobranchs have paired rows of five transverse gill openings to discharge water located on both of their sides, or on the lower part of the animal's head. But there are two species of sharks for which this number of gill openings is not enough. Among them, there are four species with six pairs of branchial openings and two with even more. It is in this group where we have found the broadnose sevengill shark (Notorynchus cepedianus), actually belongs to the family of cow sharks, Hexanchidae, and has developed seven pairs of gill openings. It is supposed that these characteristics allow these types of cow sharks to have more water outlets in their respiratory system and whenever they need it, a higher rate of oxygenation to their blood.

Normally it is a coastal shark common in some shallow bays and, we think that if it were not so shy, it would be possible to find it underwater in some recreational diving situations. Its habitat extends from the surface to at least 140 m (Ebert and Fowler, 2014). Normally living in temperate to cold sea waters around the world, except in the North Atlantic and the Indian Ocean, in the South Atlantic, it is suspected that it inhabits from southern Brazil and Uruguay, where it is a rare species, to the southern tip of Argentina, and of course along the South western coast of the African continent.

One of the most interesting things is that this "new" broadnose sevengill shark is its close relation with some very ancient sevengill shark-fossils. Evolutionarily they are related to the two species with seven branchial openings as with the old sharks, since the fossils of sharks of the Jurassic Period (200 and 145 million years ago) also had seven pairs of gills.

This cow shark family member has a bluntly pointed broad head with a wide mouth and small eyes, and presents a lumbar colouration between grey and brown with numerous small black spots validating also some designations of leopard shark, and it is ventrally white. Newborns and juveniles may have a black tip on its dorsal and caudal fins that fades with growth. Due to the fact of having seven pairs of gill slits, this beautiful and rare shark is also known as the seven-gilled shark. Because of this, it was once listed by the Guinness World Records as the shark that has the most gill slits! Biologically it is similar to the seven-branched shark (*Heptranchias perlo*), but the latter usually prefers warmer waters, has a sharper snout and lacks spots on its dorsal surface.

It has recently been observed in Argentina's waters, that these cow sharks can reach almost 3 m long and some females can weigh more than 100 kg, although the most common recorded sizes are up to 255 cm and at around 90 kg. According to Alejo Irigoyen, a researcher at the Marine Systems Study Center (CESIMAR) at the National Patagonian Center, and one of the biggest shark experts in Argentina, a great part of the weight of those "record" females is due to the oocytes (egg precursor eggs, or egg cells) that they carry. Being an ovoviviparous species that has a large number of oocytes for a shark (between 50 and 110), it is possible that a female animal in reproductive rest can weigh 20/30 kg less.

Despite that they are not classified with risk to extinction due to Deficient Data (IUCN, since 2005), these broadnose sevengill sharks are a beautiful and true living testimony to some Jurassic marine animals, but they are threatened by some sport fishing activities in their natural habitats.

## ACTUAL ALTERNATIVES

According to Alessandro De Maddalena, within the last few months, the two orcas have only been chasing the white sharks away momentarily. So, on a first analysis, this of course influences strongly on their temporary absence. But unfortunately, this is not about these two orcas, the real problem is another one. All shark populations are facing the process of being destroyed by fishing activities worldwide. It's not only a situation concerned to the great white sharks in South Africa or in Australia, but it also implicates makos, blue sharks, sand tiger sharks, hammerheads, sevengills, all of them… trawlers and longliners are wiping out the seas. That's the reality: overfishing!

Considering this, what can one do? Fortunately, there's a greater public interest rising around shark biology and shark behaviours. Participating in one of these shark expeditions that are now open to everyone's interest in South Africa can be considered a privilege for many divers. You don't need to be a shark researcher or university student to jump into the water guided by the best specialists. It is quite common to find professional photographers, amateur photographers, videographers and regular people simply interested in sharks, but now focused in shark conservation.

The most you can learn about sharks, the more you'll be able to understand about their actual situation and do something effective for the oceans sustainability. So, put your wetsuit on and jump into the water with us!

**SPECIAL THANKS TO:**

Alejo Irigoyen and Gastón Trobbiani – Researchers of the Marine Systems Study Center (CESIMAR) in Argentina, and members of the Argentina National Council for Science and Technical Research (CENPAT-CONICET).

Alessandro De Maddalena – Adjunct Professor of Vertebrate Zoology at the University of Milano-Bicocca in Italy, shark expert and author of 20 books on the subject, and scientific leader of many White Shark expeditions in South Africa, Australia and Mexico.

Gaspare Schillaci and Mariangela Piovesana – the Orca photographers.

**REFERENCES:**

Ebert, D. A., and Fowler, S., 2014. An Illustrated Pocket Guide to the Sharks of the World – Wild Nature Press, 2014.

Irigoyen, Alejo J.; De Wysiecki, Agustín M.; Trobbiani, Gastón; Bovcon, Nelson; Awruch, Cynthia A.; Argemi, Federico; Jaureguizar, Andrés J.; 2018. Habitat use, seasonality and demography of an apex predator: sevengill shark Notorynchus cepedianus in northern Patagonia – MARINE ECOLOGY PROGRESS SERIES; VOL.603: 147 – 160, 2018.

Jorgensen S.J., Anderson S., Ferretti F., Tietz J. R., Chapple T., Kanive P., Bradley R. W., Moxley J. H., Block B. A., 2018 Killer whales redistribute white shark foraging pressure on seals – Scientific Reports, 16 April 2019.

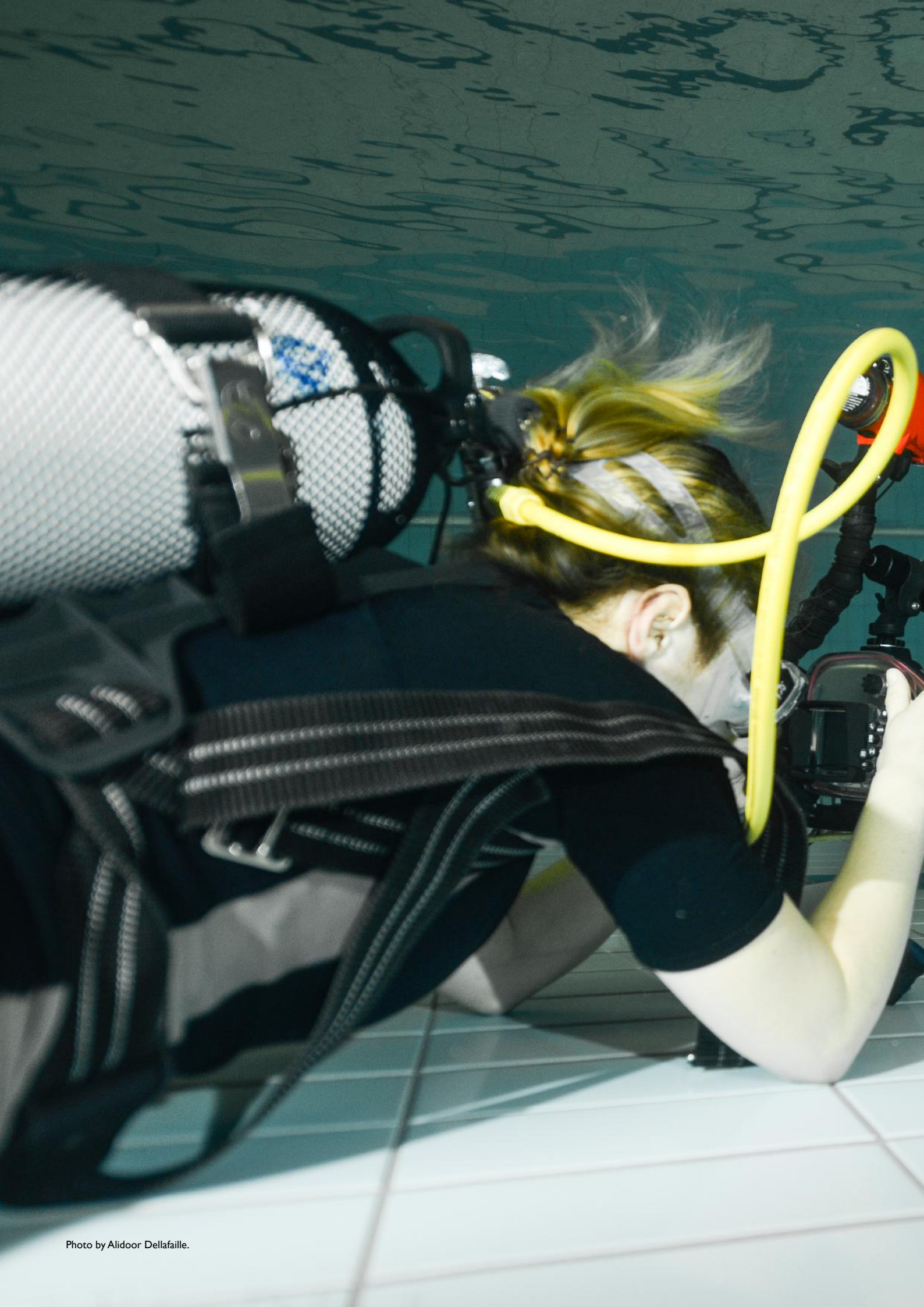


Photo by Alidoor Dellafaille.

# CAPTURE YOUR UNDERWATER MOMENTS

FEATURE AND PHOTOGRAPHY **PATRICK VAN HOESERLANDE**

If for any reason you think that underwater photography is something for you, then consider taking a course.
It does not take a lot of time and you do not have to buy a camera for it.
On the contrary, the course helps you purchase one.

If you had asked me until recently, my answer would have been that I would never take up underwater photography. Yes, sometimes I feel a bit jealous when I see beautiful underwater shots, but for me, it's more about the opportunity to dive on that magnificent dive site than it is about the skills to take amazing photographs. I do sometimes get frustrated when I have forgotten the defining characteristics of the fauna or flora encountered during a dive. Due to depth narcosis or age, I usually surface with inadequate information on what I have seen. If I then notice someone looking at the screen of their camera to identify what they have seen underwater, the thought flashes through my mind that it is maybe time to reconsider it.

Sometimes, I surf the net in search of a good second-hand underwater camera. If I could strike a bargain, I might be willing to buy equipment to take a quick photo when I see something. Until one blue Monday morning, during an editors' meeting, we were asked to choose a photo for a front page. I was the only one who proposed one photo which in my view was excellent. An image that, according to the experienced photographers around me, was substandard in terms of composition and colour. Their conclusion: certainly not that one. They promptly picked another. My conclusion: forget about underwater photography and stick to videography.

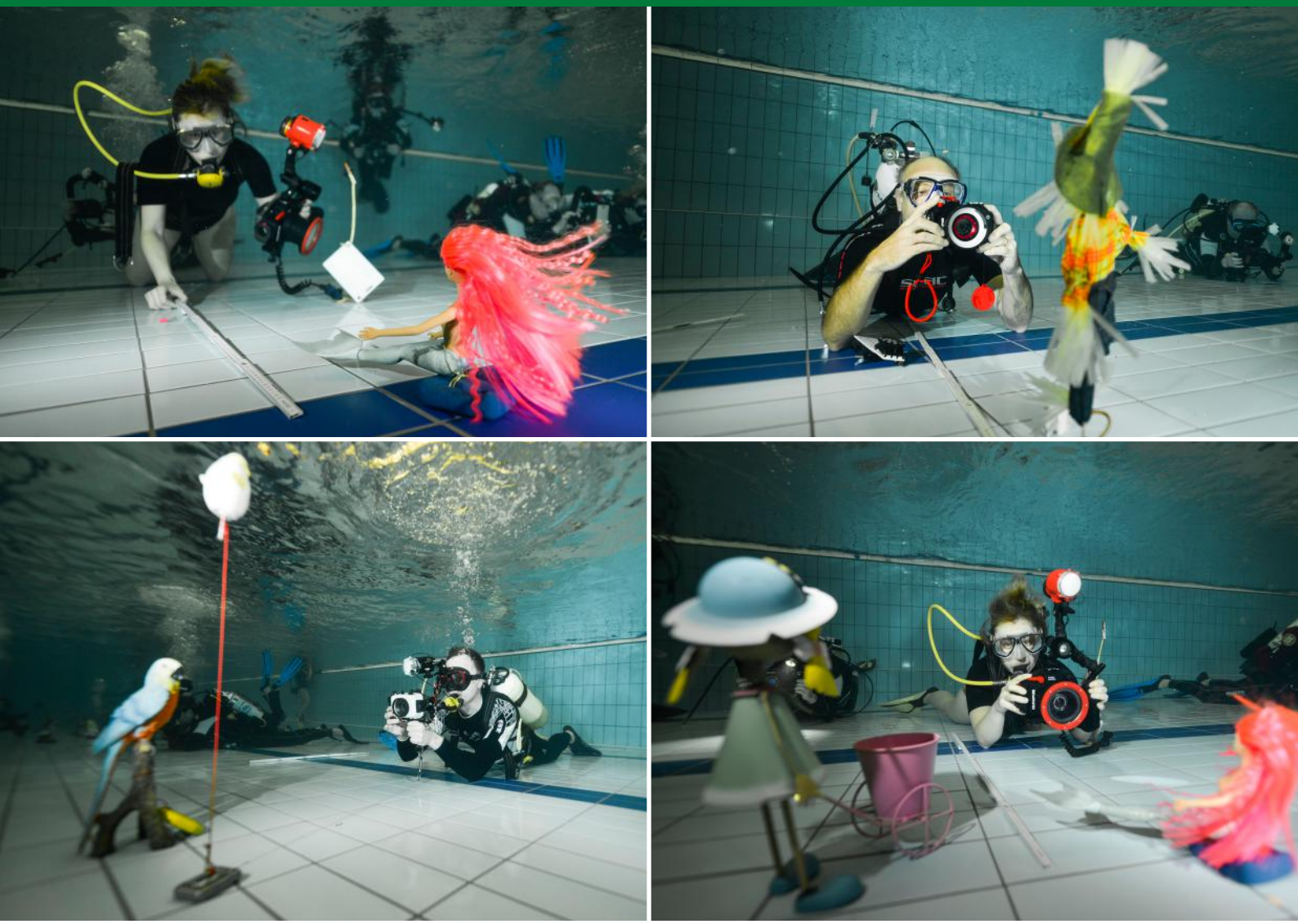
I have dived with my underwater housing and video camera for years – a similar model can be found in the 'history box' in the Flemish Dive Federation building. Recently I supplemented my very heavy 'yellow submarine' with an action cam mounted to my dive mask. By setting it to time trigger mode, I have added a non-video component and solved my issue with the determination to capture the fauna and flora on my dives. Underwater photography was but a vague memory in my mind, until I started up the series, 'My buddy'.

## ASPIRING TO BECOME AN UNDERWATER PHOTOGRAPHER

The idea of exploring the different aspects of our sport had consequences, in that, in addition to an article, I had to also supply photos. The topic being unique made it virtually impossible to use pictures from an archive or the internet. A series about diving illustrated exclusively with 'dry' pictures taken by a not-so-good photographer would not be attractive for our readers. Because of the concept, no one would accompany me on the dives, so I had to do it myself.

My initial solution was to set my action cam at 'one shot every 3 seconds'. I was aware that this would provide me with a bunch of useless photos, but chances were that a few would be great shots worth publishing. However, I would never be sure of success and with one dive per buddy this was too big a risk. Fortunately, in the beginning, diving photographers at the dive spots were happy to let me use their pictures. However smart, all of these were ad hoc solutions based on good luck. Because I wanted to continue the series, there was only one way that offered more certainty, and that was to ensure that I could take the pictures myself.

First step in the process of becoming an underwater photographer was finding an affordable camera that enabled me to take nice pictures at a decent price. That meant that I also had to look for a strobe with arm. Without this extra feature, I knew that the chance of publishable photos would be small. I scoured the internet for several hours, but the interesting devices always fell outside my predetermined budget. After a few weeks, I was fortunate to hear that our editor-in-chief wanted to sell his old camera and strobe. All, within my budget!



Pool photos by Alidoor Dellafaille.

With a bit of skill (and a lot of trying) I managed to get the camera to work with the strobe. In my ignorance, I thought that this cooperation was obvious, but I did not know what the term slave flash meant. I had to cover the camera's internal flash so that the light would not shine in front of my object. Light from the flash would light up dust particles in the water like a car's headlights in thick fog. However, at the same time, I had to make sure that the light-sensitive cell of my external strobe would recognise this light as the signal to flash. Moreover, everything I would build had to be water and diver resistant. An underwater engineering challenge.

Good equipment is only the first step and far from being sufficient to take good photographs, there is also a need for skill and knowledge. Attending the Underwater Photography Level 1 course seemed like a good start, so I signed up. To my surprise, a few weeks later I was sitting at a school desk in a classroom hidden in the WWI fort of Wommelgem, Belgium.

## THE THEORY

A picture is worth a thousand words, but no one tells you that writing has a completely different discipline from photography. Hiding behind the excuse that I am here to write an article, I step into the classroom with a certain degree of self-assurance. I look around and see a camera on the instructor's desk that is many generations more advanced and complicated than the one protected in my transparent underwater housing. I place my case with camera next to me, a bit embarrassed.

The course's programme is light and therefore there is no excuse not to take it. With only a three night investment, you'll have a certification. The acquired knowledge will even help to get better holiday shots. What is your excuse?

The first lesson is about aperture, shutter speed, and the combination of the two. Then the instructor gets into ambient light and strobes, and ends with the function of a camera. All concepts are explained at the level of a beginner and well-illustrated with photos. All levels of photography are shown, from great photography to mediocre examples, even mistakes. You can learn from the failure of others. Our instructor, Jef Driesen also demonstrates the concepts. He manipulates his camera and allows us to see the results. This way we immediately see the effect of certain settings.

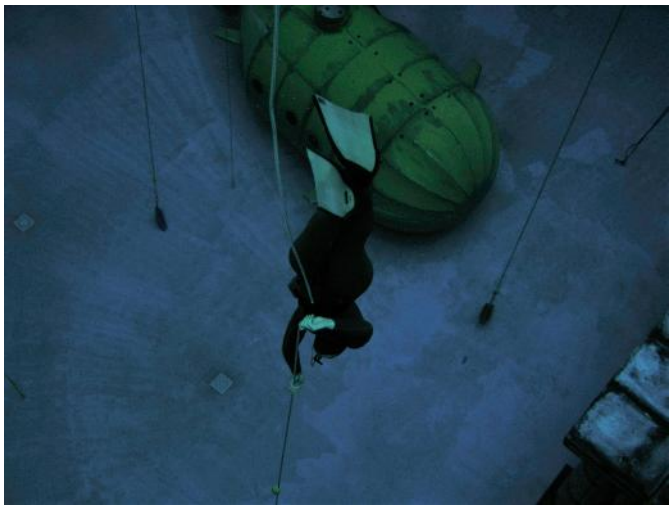
He then asks us to do the same with our cameras. A whole range of cameras come out. One more complicated than the other. The variety of possibilities is enormous and this is only a class of neophytes, although some have taken underwater photos for years. Before I realise it, we get our assignment for the next lesson: a practical session in the swimming pool.

On the second evening, we don our dive equipment and prepare ourselves for a long session at the bottom of the pool. The task is to try out the first lesson's theory with our cameras. We have to take pictures on the manual setting, without the automatic controls. We set the ISO to the lowest possible value as well as the shutter speed. With subjects at various distances from our lenses, we try out different aperture openings. For this, we had to bring an item that we could photograph far as well as close-up. I also discovered how my strobe really works. As usual, I had failed to read the manual beforehand.

We then played with other settings such as exposure compensation. The result was an exchange of battery power against a full memory card with almost a hundred photographs. I imagine this is the most amount of photographs one can intentionally take on one dive.

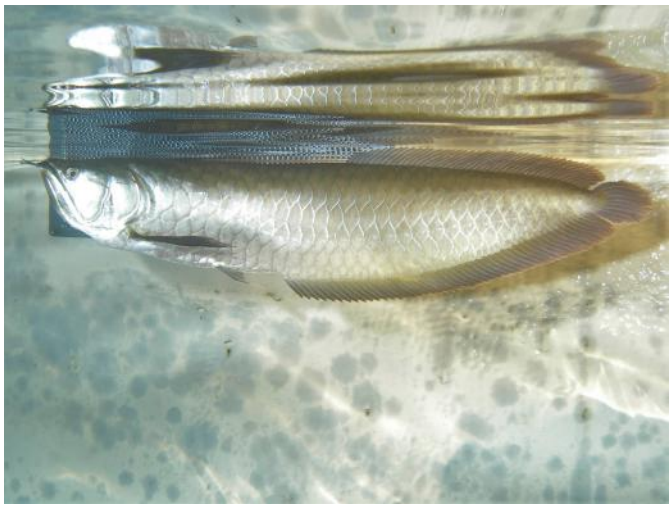
**WHO SEEKS, SHALL FIND:** This lobster was the only animal I encountered during this dive. It was well hidden and I wanted to photograph it without disturbing it. This photo was the best of a series of 8.

**JEF DRIESEN'S COMMENTS:** No comments, just a shame about the weed in front of the lobster. **PASS:** Yes



**FREE IMMERSION:** Freediver Linde on her way to 14 m in TODI. Although a little too dark to call it a success, I have retained this photo because it was taken whilst I was also freediving. As a photographing freediver, it is even harder to take an action picture.

**JEF DRIESEN'S COMMENTS:** Indeed a tad on the dark side, but nevertheless a great photo. It gives a nice atmosphere in which you as a viewer can see a story. **PASS:** Yes



**MIRROR IMAGE:** A bit too light but still a nice reflection.

**JEF DRIESEN'S COMMENTS:** Worthy attempt to visualise a reflection. Unfortunately, your photo is slightly overexposed. That's a pity, because for the rest it is a great photo. With silver fish you should always pay special attention to use less light. In post-processing, you can always correct a slight underexposure afterwards, but you cannot fix an overexposure. **PASS:** No

**CRAB WALKING:** Although slower than a fish, a crab is not so easy to photograph. After the first flash, they quickly get out of the way.

**JEF DRIESEN'S COMMENTS:** The subject is quite small, and the top half of your photo is black. You can use a black background to make your subject stand out, but here your subject disappears. Next time, try to get closer and shoot from eye level. Taking photos from above is almost always a bad idea. **PASS:** No

After the underwater exercises, there is a dry part: homework. Based on the quality of pictures taken, we had to determine the correct aperture setting for each distance. The purpose was to determine the guide number of the flash. Of course, the setting of the ISO value also affects this number. That is why we had to use the full manual setting so that the camera's computer would not try to compensate. Additionally, the position of one's strobe plays an important role. Add natural light to this and you realise that you have to know and work with your settings in open water. Fortunately, our items stayed in place on the pool's bottom, despite the long time that we needed to adjust our settings. A fish however, will not wait until you are ready.

The third evening session was back to dry exercises. The group discussed the results of the swimming pool session, though the interpretation of the results was not as black and white as I had expected. The sharpness and clarity of the photos are not as easy to get. It is clear that taking good pictures requires a lot of practice.

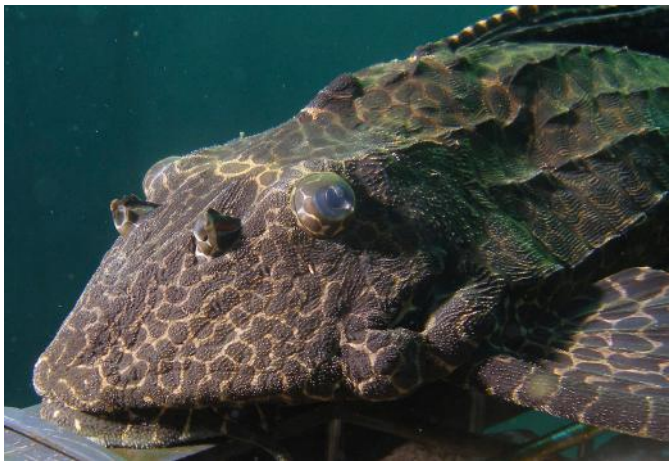
After the discussion, we were introduced to the composition of photography. You will probably first take a quick photo so you can at least determine the animal if you miss getting another shot. Then you get in closer to establish a clearer and better angle. After all, you'll enjoy your work more if you have a beautiful composition in addition to a clear recording of the characteristics.

In the end we discuss the different types of devices and equipment that can be used as an underwater photographer. The theoretical part is concluded with the final exam. The latter consists of drawing up a portfolio of 10 good photos that are not only sharp and well lit, but also enjoyable.

## PRACTICE

Taking ten photos did not seem like much, especially when there is no limit of time to get it done. However, the risk is that you postpone it until you forget about it. With the assignment in the bag and my camera in order, I had no intention to let this happen. I would take my camera out on my next dive and get my portfolio sorted out right away.

The following week, I spent an hour under the water looking for some good subjects.



**I'M GOOD HERE:** Nice close-up.

**JEF DRIESEN'S COMMENTS:** Nice portrait. Without a doubt one of your better ones! **PASS:** Yes

**MY BUDDIES:** An obligatory photo of the buddies statue. Their gaze is just as penetrating as when they were first sunk.

**JEF DRIESEN'S COMMENTS:** Nice photo. Those bright eyes definitely add something extra. Just a pity that it is not sharp. Almost all your photos are with a shutter speed of 1/30. That's really on the edge of motion blur. In automatic mode and with ISO 50, your camera simply does not have enough light so it goes for that slow shutter speed. Start by setting your ISO value a little higher, for example 200. That's already 4x more light. But it is even better to simply shoot manually, and thus force the camera to take a higher shutter speed if your camera allows this. Shutter control can also help, but then your camera will probably go for a larger aperture. **PASS:** No

**THE SUITCASE:** Several trials but unable to get a good composition and a bit dark.

**JEF DRIESEN'S COMMENTS:** Composition is ok, but your subject is dark. Did your strobe fire? **PASS:** No

**HERE I AM HANGING:** The fish just kept hanging there but always turned its flank towards me. I had to cut the photo because of a black line on the surface below the fish.

**JEF DRIESEN'S COMMENTS:** Great photo. A strange blue "haze" around the head of the fish. It looks like a reflection of the flash light on the fish. Bizarre. **PASS:** Yes

Back at home, I counted my harvest of about 80 photos with the chance of ten good ones amongst them. And yes, in the evening I did indeed distil a complete set. There were even a number of fish photos in the collection. I remember from the underwater videography course I had done, that you always have to tell a story, so I came up with a title for each image. After I had uploaded the set to the internet that night, I did a bit of work on improving the light and reframing them, and then I proudly pushed the send button.

I read the results the following day with great disappointment. There were indeed a few acceptable photos, but others were below standard and the titles had not impressed. The criticism was justified and constructive. It is clearly not easy to reach level 1. There is only one thing left and that is to put my wetsuit back on and go out and take more pictures. Thinking I would be able to collect enough good pictures in one dive was a little naive, so I dragged my camera to every dive site during the next few weeks.

With the second submission of my reworked portfolio, I had more success. The selection reached the required minimum level. A few weeks later, I received my certification in my mailbox. Success!

## AND NOW?

The course definitely taught me the basics and changed my view on underwater photography. I will never become a good photographer, because I like to tell a story and lack the ambition to become one. Nevertheless, I have considered taking Level 2 of the course, but I will first have to gain more experience and perhaps participate in a competition. Maybe I should purchase a more powerful device. After all, I have occasionally bumped into the limitations of my current camera.

Whether or not I have become better at taking photos, you will be the judge from the images that will illustrate my future articles.

If for any reason you think that underwater photography is something for you, then consider taking a course. It does not take a lot of time and you do not have to buy a camera for it. On the contrary, the course helps you purchase one. In any case, after the course you will be able to better appreciate good underwater photography. Good luck!

# AN INTRODUCTION TO
## UNDERWATER PHOTOGRAPHY WHILE FREEDIVING
### THANKS TO AN ACCIDENTAL MEETING WITH A PROFESSIONAL PHOTOGRAPHER

FEATURE **NICO DE CORATO** PHOTOGRAPHY **ANTONIO VANNI**

Be aware of what you're trying to shoot and have your settings configured before heading down as you risk having no chance to make changes once underwater. Don't play with settings while you are holding your breath, clearing your ears, or composing a shot. You need to simplify and have the shot clear in your mind before starting.

No BCD, no regulator, few or no weights. Compared to scuba diving, being underwater without gear gives you a feeling of freedom. It is said that freediving takes more effort than scuba diving if you are looking for as many details possible of the ecosystem. Carrying a camera rig while freediving can be especially taxing, but it can also produce spectacular results.

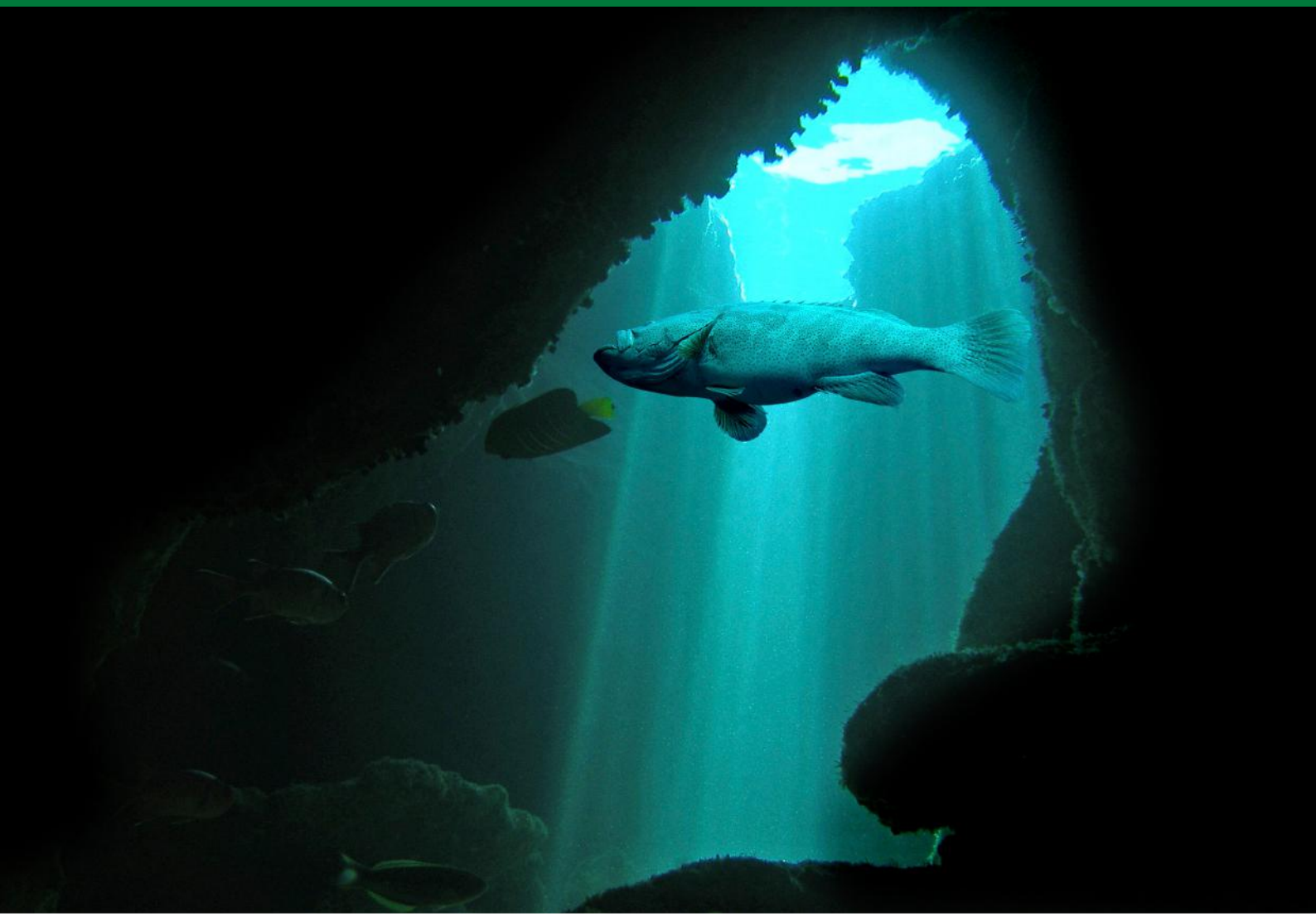
First of all, just like scuba diving, you must become proficient at freediving before bothering with a camera at all. If you're not comfortable in holding your breath, clearing your ears, and taking pictures, then start from the beginning. Try each skill in your local pool. Swim laps underwater. Become proficient at clearing your ears.

At this point I have to be honest, I'm not a proficient freediver, so I took the chance of a casual meeting with a professional photographer and freediver, Antonio Vanni to get more information on this topic.

*"Thank you for giving me the opportunity to reopen old files, rediscover memories and unique experiences of my life I have shared with my wife Monica when we were younger. But lets end the nostalgia and get to the point.*

*Underwater photography has always just been a hobby for me, nothing more, and I have always given priority to the pleasure of diving rather than looking to take the perfect photograph. When I go on vacation I need to get away from my work… in my case it means to stop taking photos.*

*I decided to send you some of the pictures I took a few years ago with an Olympus compact camera during my freedives in Marsa Alam when it was still just a quiet fishing village of Southern Egypt. Since the construction of the International Airport in 2001, the place attracts more and more divers each year. They go there for the pristine reefs and to avoid the crowded dive sites of Sharm El Sheikh and Hurghada in the north of the Red Sea. The marine life is amazing there*



*and most of the dive sites are still unspoilt with pristine reefs and corals. There are chances of meeting bottlenose dolphins or spinner dolphins, as well as sea turtles and the very rare and endangered dugongs.*

*Maybe the impossibility of spending so much time choosing the right frame or waiting patiently for a fish to "pose", together with my obsession to respect the marine environment makes me think these are photos of a certain interest, not for the quality or their striking presentation. Rather that we can classify them as "straight forward photography" in a marine environment. This is pure documentary photography, a story of what happened around you while you were swimming in those spots. A sort of, "underwater journalism."*

Antonio and I went on to talk about freediving photography and in doing so, I caught some interesting tips.

Be aware of what you're trying to shoot and have your settings configured before heading down as you risk having no chance to make changes once underwater. Don't play with settings while you are holding your breath, clearing your ears, or composing a shot. You need to simplify and have the shot clear in your mind before starting.

Correct streamlining, buoyancy, equalisation, movement awareness, and relaxation are some of the very important parts of freediving. Each inefficiency will take precious air from your lungs. This is why most freediving photographers choose more compact camera designs which are easy to control, setup and swim with, instead of heavy equipment with big lenses, lights and strobes. Many photographs taken while freediving are obtained with natural light. But of course, according to your subject and the environmental conditions, you may need to use strobes. If there's bright, mid-day sun and you're working on split level shots in shallow water, there's no need for them. But on a dark and overcast day, you will need artificial light in order to take your photo!


Mademoiselle

# DIGITAL ONLINE'S RESULTS ARE IN

## CELEBRATING A DECADE OF IMAGERY

# DIGITAL ONLINE 2019

## EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMPETITION

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

DIGITAL ONLINE'S MAIN OBJECTIVES ARE:

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

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

EVENT BY EDA

EXHIBITION HOST

PRINTING SPONSOR

PRINT WORKS

PRIZE SPONSORS

### DIGITAL ONLINE 2009-2019

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

The film category was introduced as an extension to the competition in 2012 to share our underwater world through motion pictures and deliver a better understanding of the habitats and surroundings. The event has seen continuous and steady growth of new underwater photographers taking part and joining many of our regular yearly participants. The enthusiasm and passion strives on, and the drive to bring our underwater world's conservation to the forefront increases over time. The purpose of Digital Online is to keep our underwater world visible by displaying its hidden beauties and to exemplify its importance to all life on Earth through the powers of its ecosystems.

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

### COMPETITION CLAUSE

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

### HOW THE SCORES WORK

Scoring is on a basis of 100 points: 30 for technical merit, 30 for composition and 40 for impact from each of the judges. Based on these criteria, each judge is free to give a total score from 0 to 100.

As guidelines for judging, an entry with a total score of 300 points means that the image does not have any major faults but at the same time does not have any significant strengths and has little or no impact. Entries with less than 300 points indicates that these images have serious technical and/or compositional flaws and have no impact. (Impact is the viewer's initial response to a stimulating image and is the WOW! factor of an image.) Photographs with more than 400 points means that these images have impact based on various factors such as mood, imaginative work, subject matter and are above average in terms of technical merit and composition.

### HOW PRIZES ARE AWARDED

A photographer cannot win more than once in a section. If the scores tie the winner in any of the categories, the prize will move on to the next candidate with the highest score in order to give others a chance, provided there are enough entries in that category.

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

### THE PRIZE SPONSORS

We would like to thank all our devoted and new sponsors for taking part in Digital Online 2019's event, for without them, the competition would not take place.

A big shout-out to our international prize sponsors: Scandi Divers in the Philippines, Fun & Sun Dive & Travel in the Philippines, and Sundive Byron Bay in Australia, and to all our local prize sponsors: BFC Travel Management, Al Marsa Musandam, MTM Marine, Grand Stores, Freestyle Divers, Divers Down, Al Mahara Diving Center, Sandy Beach Dive Centre, The Palms Dive Center, Al Boom Diving, and Le Meridien Al Aqah Beach Resort and Spa Fujairah.

### THE JUDGES

We would also like to thank David Diley, Steve Woods, Jana Murray, Simone Caprodossi and Francis Uy 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.

### THE AMERICAN UNIVERSITY IN DUBAI

A very big thank you to AUD for hosting our Awards Night and Exhibition Opening for the 5th 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 605 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*

**OVERALL WINNERS 2019**

**Overall Video:** Khalid Sultani (502)
**Overall Compact:** Shijo Skaria Jose (1364)
**Overall Local:** Yousef Alshekaili (1716)
**Overall DSLR/MILC:** Philippe Lecomte (1796)

| | DSLR/MILC | B&W | MACRO | UAE | WA | TOTAL |
|---|---|---|---|---|---|---|
| 1 | Philippe Lecomte | 448 | 443 | 470 | 435 | 1796 |
| 2 | Ola Khalaf | 436 | 506 | 424 | 424 | 1790 |
| 3 | Stewart Clarke | 464 | 451 | 455 | 351 | 1721 |
| 4 | Yousef Alshekaili | 423 | 409 | 418 | 466 | 1716 |
| 5 | Michael Rall | 422 | 405 | 407 | 470 | 1704 |
| 6 | Sultan Althahab | 452 | 428 | 436 | 382 | 1698 |
| 7 | Mohamed Abdulla | 404 | 485 | 375 | 429 | 1693 |
| 8 | Khaled AA Alhosani | 374 | 466 | 426 | 421 | 1687 |
| 9 | Iyad Suleyman | 325 | 478 | 375 | 443 | 1621 |
| 10 | Levente Rozsahegyi | 390 | 374 | 367 | 471 | 1602 |
| 11 | Steven Board | 433 | 363 | 389 | 354 | 1539 |
| 12 | Chris Combes | 416 | 344 | 343 | 370 | 1473 |
| 13 | Hani Omar | 429 | 403 | 330 | 272 | 1434 |
| 14 | Marisa Engelbrecht | 351 | 367 | 363 | 228 | 1309 |
| 15 | Ahmed Alkaabi | 328 | 432 | 461 | 0 | 1221 |
| 16 | Nassim Miri | 321 | 349 | 317 | 226 | 1213 |
| 17 | Ahmed Abdallah Al-Ali | 408 | 367 | 425 | 0 | 1200 |
| 18 | Sibylle Blumenthal | 350 | 450 | 396 | 0 | 1196 |
| 19 | Peter Mainka | 190 | 322 | 336 | 191 | 1039 |
| 20 | Mohamed AlQubaisi | 0 | 369 | 295 | 365 | 1029 |
| 21 | Marine Owen | 310 | 290 | 378 | 0 | 978 |
| 22 | Alexandra Huth | 320 | 0 | 266 | 299 | 885 |
| 23 | Rudolpho McEniry | 299 | 0 | 293 | 264 | 856 |
| 24 | Sunjay Keshup | 276 | 0 | 0 | 357 | 633 |
| 25 | Nicola Bettio | 219 | 294 | 0 | 0 | 513 |
| 26 | Ahmed Ramadan | 0 | 347 | 0 | 0 | 347 |
| | **COMPACT** | **B&W** | **COMPACT** | **UAE** | **WA** | **TOTAL** |
| 1 | Shijo Skaria Jose | 351 | 310 | 271 | 432 | 1364 |
| 2 | Ola Khalaf | 434 | 457 | 447 | 0 | 1338 |
| 3 | João Menezes | 385 | 407 | 395 | 0 | 1187 |
| 4 | Donavan Hastings | 290 | 458 | 350 | 0 | 1098 |
| 5 | Mohamed Hayek | 432 | 370 | 0 | 294 | 1096 |
| 6 | Ahmed Ramadan | 195 | 193 | 276 | 283 | 947 |
| 7 | Rudolpho McEniry | 278 | 354 | 271 | 0 | 903 |
| 8 | Sunjay Keshup | 0 | 439 | 394 | 0 | 833 |
| 9 | Lynette Ferreira | 341 | 222 | 249 | 0 | 812 |
| 10 | Charina Bunuan | 0 | 314 | 286 | 0 | 600 |
| 11 | Emil Duffey | 282 | 257 | 0 | 0 | 539 |
| 12 | Michael Rall | 0 | 428 | 0 | 0 | 428 |
| 13 | Michelle San Buenaventura | 0 | 383 | 0 | 0 | 383 |
| 14 | Dario Trombetta | 357 | 0 | 0 | 0 | 357 |
| 15 | Nassim Miri | 0 | 320 | 0 | 0 | 320 |
| 16 | Peter Mainka | 0 | 277 | 0 | 0 | 277 |
| 17 | Leah Valderama | 0 | 264 | 0 | 0 | 264 |
| 18 | Chris Combes | 0 | 190 | 0 | 0 | 190 |

| | VIDEO | TOTAL |
|---|---|---|
| 1 | Khaled Sultani | 502 |
| 2 | Khaled AA Alhosani | 300 |
| 3 | Mathieu Noe | 278 |
| 4 | Peter Mainka | 155 |

# THE SPONSORS AND PRIZES

## Digital Online's 15 Prize Sponsors are giving this year's winners 27 prizes to choose from!

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

1. **SPONSOR:** Scandi Divers | www.scandidivers.com
   PRIZE: Destination Package – 5 night accommodation in Puerto Galera, Philippines.
   WINNER: Ola Khalaf | 1st Place MILC: Macro (506)

2. **SPONSOR:** Fun Sun Dive Travel | www.funsundivetravel.com
   PRIZE: Destination Package – 5 night accommodation for 2 pax at Fun & Sun in Dauin, Negros Island, Philippines.
   WINNER: Khaled Sultani | 1st Place Video: Chasing Tales (502)

3. **SPONSOR:** BFC Travel Management | www.bfctravels.com
   PRIZE: Destination Package – 4 days/3 nights in Terengganu, Malaysia.
   WINNER: Levente Rozsahegyi | 1st Place DSLR: Wide Angle (471)

4. **SPONSOR:** Sundive Byron Bay | www.sundive.com.au
   PRIZE: 3 days diving package for one person (up to 3 dives per day) at Julian Rocks Marine Park, Australia.
   WINNER: Mohamed Hayek | 1st Place Compact: Black & White (432)

5. **SPONSOR:** Al Marsa Musandam | www.almarsamusandam.com
   PRIZE: 2 Night Liveaboard Dhow Cruise to Sheesa in the Musandam.
   WINNER: Stewart Clarke | 1st Place DSLR: Black & White (464)

6. **SPONSOR:** Grand Stores (2 Prizes) | www.grandstores.com
   PRIZE: Rollei Actioncam 525 Silver
   WINNER: Ahmed Alkaabi | 2nd Place DSLR: Best of the UAE (461)
   WINNER: Sultan Althahab | 2nd Place DSLR: Black & White (452)

7. **SPONSOR:** Al Mahara Diving Center | www.divemahara.com
   PRIZE 1: 2 dives (tank and weights included) on an Abu Dhabi coral reef site for 2 divers.
   WINNER: Khaled Alhosani | 3rd Place MILC: Best of the UAE (426)
   PRIZE 2: Bamboo Shark Diving Course (worth AED 1,200) for a certified diver.
   WINNER: Khaled Alhosani | 2nd Place Video: Chasing Tales (300)

8. **SPONSOR:** Le Meridien Al Aqah Beach Resort & Spa
   PRIZE 1: One Club Room night including breakfast with a one hour massage.
   WINNER: Mohamed Abdulla | 2nd Place DSLR: Macro (485)
   PRIZE 2: A 50% discount voucher on room rates.
   WINNER: Yousef Alshekaili | 3rd Place DSLR/MILC: Wide Angle (466)
   PRIZE 3: Family day pass, including access to the rope course activity centre.
   WINNER: Iyad Suleyman | 3rd Place DSLR/MILC: Macro (478)
   PRIZE 4: Family day pass, including access to the rope course activity centre.
   WINNER: Ahmed Ramadan | Compact: Wide Angle (283)

9. **SPONSOR:** MTM MARINE LLC | http://bit.ly/MTMMarine
   PRIZE 1: MARES Mask X-Vision Ultra LS
   WINNER: Charina Bunuan | Compact: Best of the UAE (286)

   PRIZE 2: MARES Mask Sealhouette
   WINNER: Mohamed Hayek | Compact: Wide Angle (294)

   PRIZE 3: MARES Mask Juno
   WINNER: Mathieu Noe | Video: Chasing Tales (278)

   PRIZE 4: MARES Dive Computer Set.
   WINNER: Ola Khalaf | 1st Place Compact: Best of the UAE (447)

   PRIZE 5: MARES Regulator Set.
   WINNER: Philippe Lecomte | 1st Place DSLR: Best of the UAE (470)

10. **SPONSOR:** The Palms Dive Center | www.thepalmsdivecenter.wordpress.com
    PRIZE: 2 dives for 2 pax with free nitrox upgrade for dives deeper than 18 metres. Includes 40% discount on room rates and 40% discount on food and beverages at the Radisson Blu Fujairah.
    WINNER: Donavan Hastings | 1st Place Compact (458)

11. **SPONSOR:** Divers Down | www.diversdownuae.com
    PRIZE: 6 Dives Package on East Coast including equipment.
    WINNER: Shijo Skaria Jose | 1st Place Compact: Wide Angle (432)

12. **SPONSOR:** Sandy Beach Dive Centre | www.divesandybeach.com
    PRIZE: Double tank dive trip with or without equipment, including tanks and weights.
    WINNER: João Menezes | 2nd Place Compact: Best of the UAE (395)
    WINNER: Dario Trombetta | 2nd Place Compact: Black & White (357)

13. **SPONSOR:** Freestyle Divers | www.freestyledivers.me
    PRIZE: DPV (Diver Propulsion Vehicle) Course for two people.
    WINNER: Sunjay Keshup | 2nd Place Compact (439)

14. **SPONSOR:** Al Boom Diving | www.alboomdiving.com
    PRIZE: 2 dives in Fujairah with full equipment for 2 people.
    WINNER: Michael Rall | 2nd Place DSLR: Wide Angle (470)

15. **SPONSOR:** Emirates Diving Association | www.emiratesdiving.com
    PRIZE: A beautiful landscape hardcover photography book: The Best of Digital Online – EDA's Underwater Photography and Film Competition.
    WINNER: Lynette Ferreira | Compact: Black & White (341)
    WINNER: Michael Rall | Compact (428)
    WINNER: Steven Board | DSLR/MILC: Black & White (433)

# THE DIGITAL ONLINE JUDGES

## **DAVID DILEY** | SCARLET VIEW MEDIA
Film-maker, Underwater Cinematographer and Digital Colourist

David Diley is a multi-award winning Film-maker, Underwater Cinematographer and Digital Colourist from the UK best known for his work with sharks and large marine megafauna as well as his multi-award winning feature documentary, "Of Shark and Man". His profile has increased rapidly thanks to his work on a wide variety of projects for film and television, alongside his commercial work for a number of household brands.

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

**WEBSITE:** www.scarletviewmedia.com
**FACEBOOK:** @daviddileyfilmmaker

## **STEVE WOODS** | GILI SHARK FOUNDATION
Underwater Photojournalist

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

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

**WEBSITE:** www.stevewoodsunderwater.com
**FACEBOOK:** @SteveWoodsPhotographer

## **JANA MURRAY** | SERAPH PRODUCTION
Underwater Filmmaker

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

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

**WEBSITE:** www.seraphproduction.com/underwater-filming
**LINKEDIN:** www.linkedin.com/in/janamurrayseraphp/

## **SIMONE CAPRODOSSI** | SUNDIVE BYRON BAY
Underwater Photographer

Simone is an Italian underwater photographer, awarded in several prestigious competitions and published internationally. After over 10 years of corporate life in Dubai, he recently moved to Australia where he now co-owns and manages Sundive Byron Bay, a PADI 5 Star Dive Centre offering dives at the amazing Julian Rocks in Byron Bay. After travelling to and photographing many unique diving destinations worldwide, he also runs expeditions with Sundive to help others experience and photograph his favourite ones such as the Sardine Run and Djibouti. Simone was the Overall Winner of Digital Online for two consecutive years until he became a judge for the competition and has been a main feature contributor to the EDA magazine, 'Divers for the Environment'.

**INSTAGRAM:** @scaprodossi
**FACEBOOK:** @SimoneCaprodossiPhotography

## **FRANCIS UY**
PADI Course Director

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

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

**INSTAGRAM:** @francisuyfoto

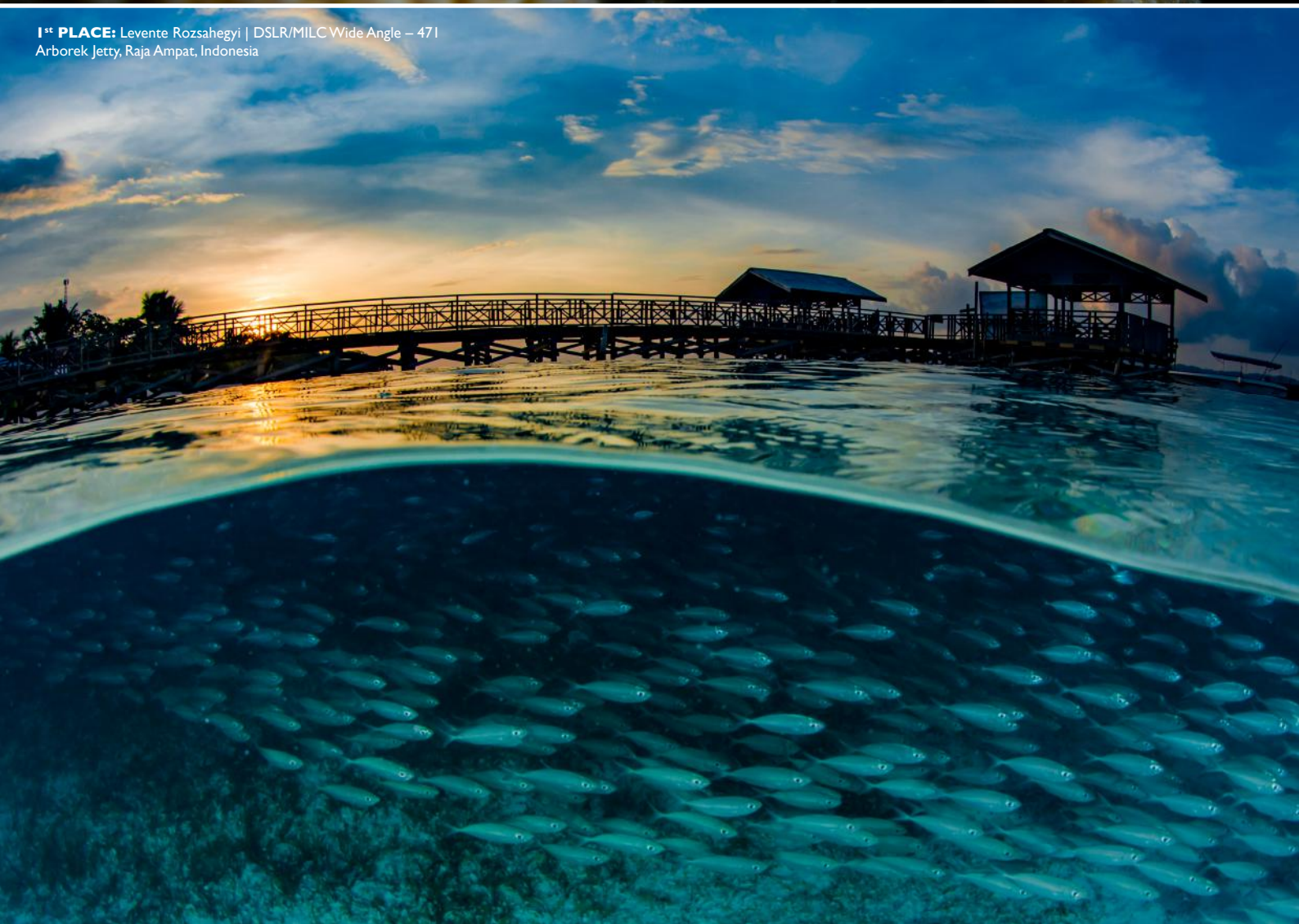
## **ALLY LANDES** | EMIRATES DIVING ASSOCIATION
Project Manager, Editor, Graphic Designer, Photographer & Videographer

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

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

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

**1st PLACE:** Olah Khalaf | DSLR/MILC Macro – 506
Martini Rock, Khorfakkan, UAE



**1st PLACE:** Levente Rozsahegyi | DSLR/MILC Wide Angle – 471
Arborek Jetty, Raja Ampat, Indonesia

**1st PLACE:** Philippe Lecomte | DSLR/MILC Best of the UAE – 470
Khorfakkan, UAE

**1st PLACE:** Stewart Clarke | DSLR/MILC Black & White – 464
Bali, Indonesia

**1st PLACE:** Donavan Hastings | Compact – 458
Catalina, Los Angeles, USA

**1st PLACE:** Ola Khalaf | Compact Best of the UAE – 447
Dibba, UAE

**1st PLACE:** Shijo Skaria Jose | Compact Wide Angle – 432
Yanuba Jetty, Raja Ampat, Indonesia

**1st PLACE:** Mohamed Hayek | Compact Black & White – 432
Al Fahl Island, Muscat, Oman

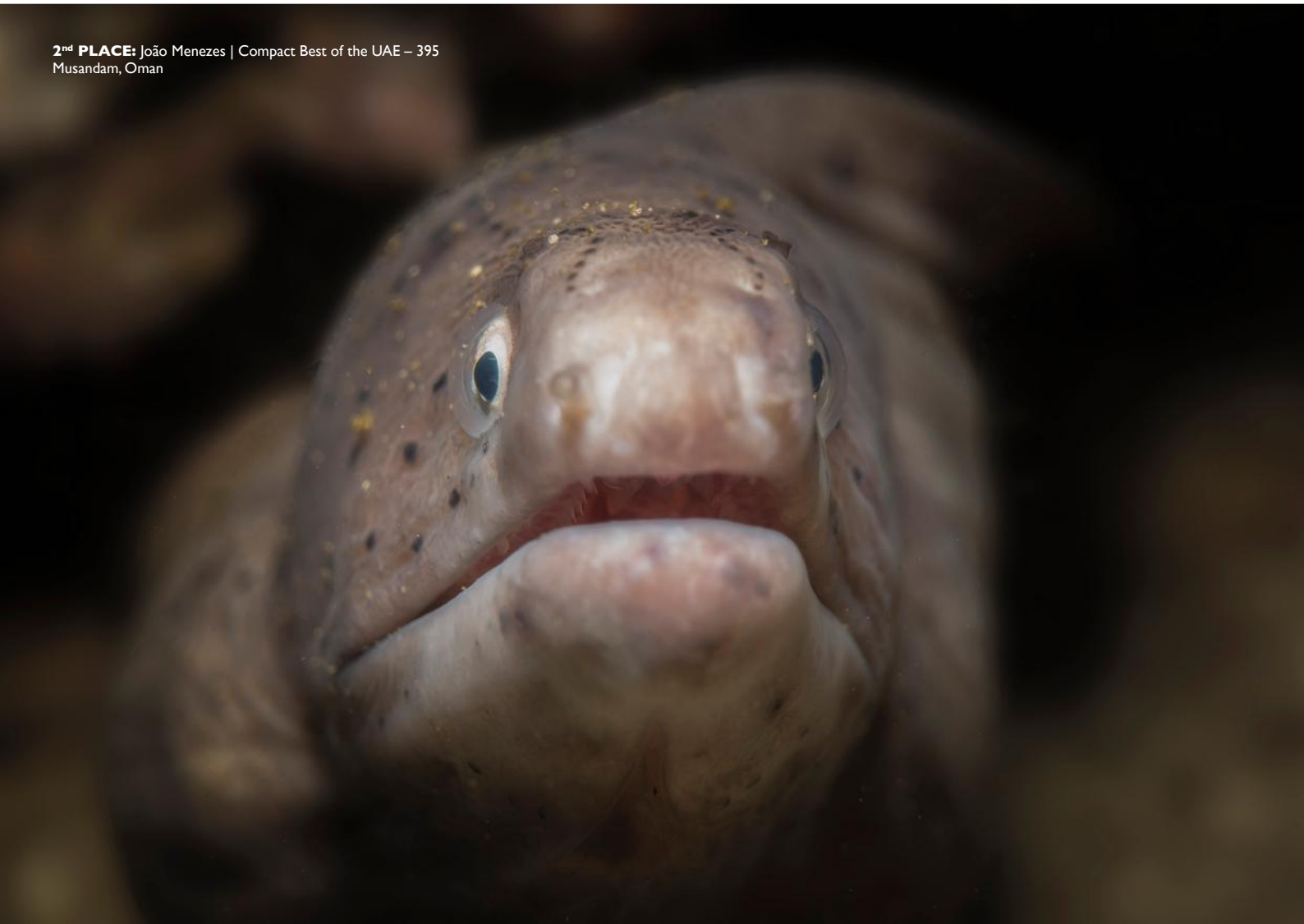
**2nd PLACE:** Mohamed Abdulla | DSLR/MILC Macro – 485
Lembeh, Indonesia

**2nd PLACE:** Michael Rall | DSLR/MILC Wide Angle – 470
Aliwal Shoal, South Africa

**2nd PLACE:** Ahmed Alkaabi | DSLR/MILC Best of the UAE – 461
Deep Reef, Fujairah, UAE

**2nd PLACE:** Sultan Althahab | DSLR/MILC Black & White – 452
Fujairah, UAE

**2nd PLACE:** João Menezes | Compact Best of the UAE – 395
Musandam, Oman



**2nd PLACE:** Sunjay Keshup | Compact – 458
Daymaniyat Islands, Oman

**2nd PLACE:** Mohamed Hayek | Compact Wide Angle – 294
Yolanda Reef, Ras Mohamed, Egypt

**2nd PLACE:** Dario Trombetta | Compact Black & White – 357
Mirbat, Oman

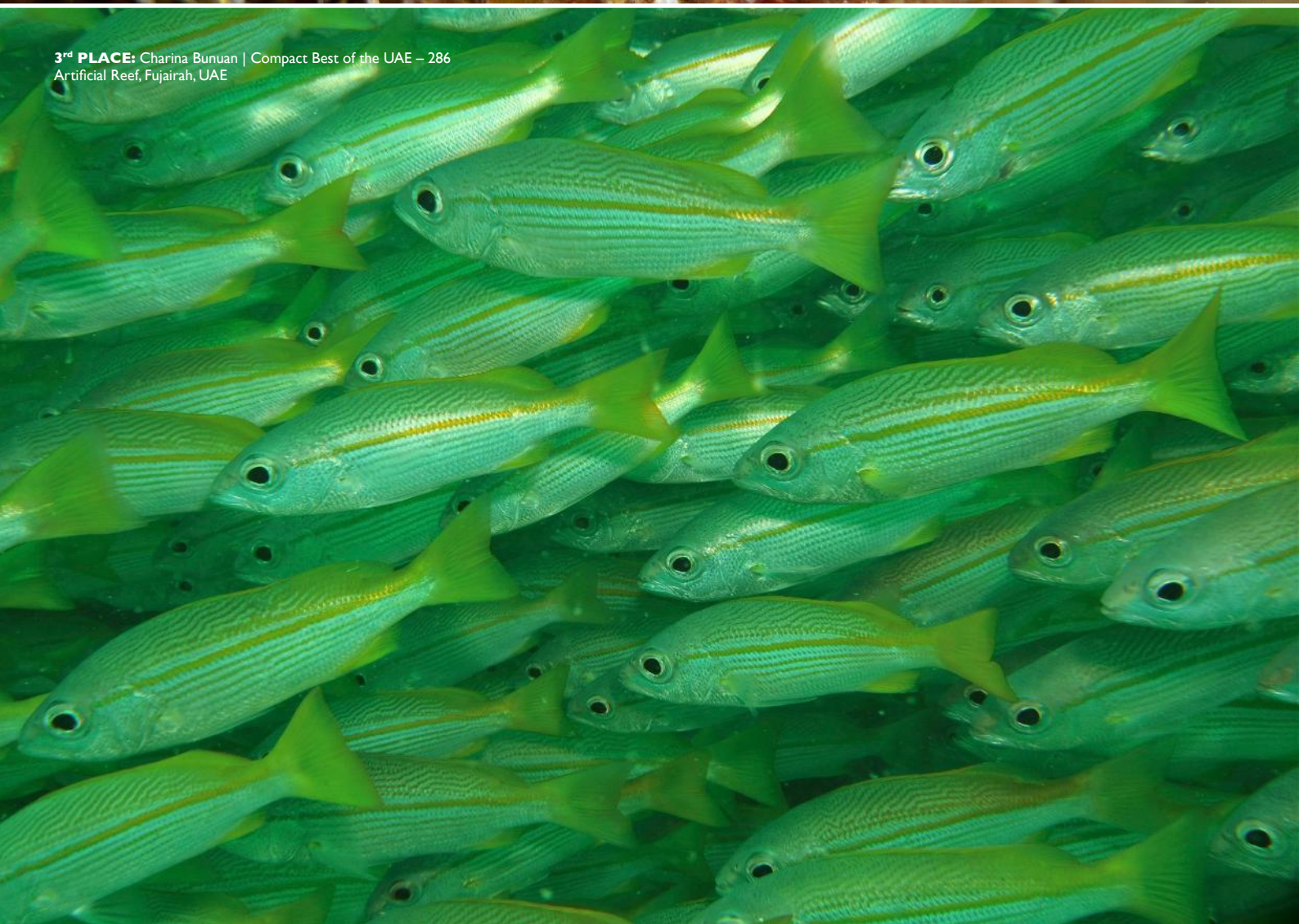
**3rd PLACE:** Yousef Alshekaili | DSLR/MILC Wide Angle – 466
Bali, Indonesia

**3rd PLACE:** Iyad Suleyman | DSLR/MILC Macro – 478
Romblon, Philippines

**3rd PLACE:** Steven Board | DSLR/MILC Black & White – 433
Martini Rock, UAE

**3rd PLACE:** Khaled Alhosani | DSLR/MILC Best of the UAE – 426
Dibba, UAE

**3rd PLACE:** Michael Rall | Compact – 428
Musandam, Oman



**3rd PLACE:** Charina Bunuan | Compact Best of the UAE – 286
Artificial Reef, Fujairah, UAE

**3rd PLACE:** Lynette Ferreira | Compact Black & White – 341
Shark Island, Al Aqah, UAE

**3rd PLACE:** Ahmed Ramadan | Compact Wide Angle – 283
Egypt

Philippe Lecomte | DSLR/MILC Black & White – 448
Florida, USA

Ola Khalaf | DSLR/MILC Black & White – 436
Musandam, Oman

Yousef Alshekaili | DSLR/MILC Black & White – 423
Dumaguete, Philippines

Chris Combes | DSLR/MILC Black & White – 416
Khasab, Musandam Peninsula, Oman

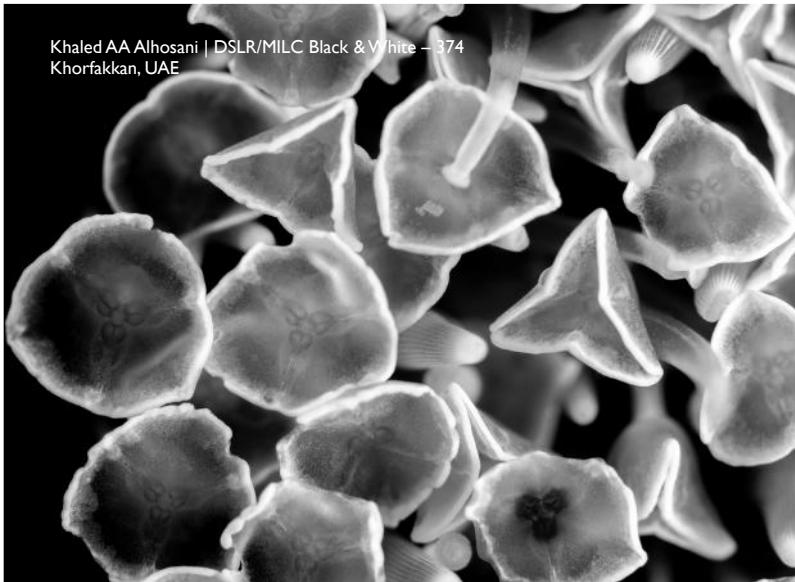
Hani Omar | DSLR/MILC Black & White – 429
Bonaire, Dutch Antilles, The Caribbean

Michael Rall | DSLR/MILC Black & White – 422
Outer Anchorage, Fujairah, UAE

Ahmed Abdullah Al-Ali | DSLR/MILC Black & White – 408
Anilao, Philippines

Mohamed Abdulla | DSLR/MILC Black & White – 404
Zanzibar

Levente Rozsahegyi | DSLR/MILC Black & White – 390
Maldives



Khaled AA Alhosani | DSLR/MILC Black & White – 374
Khorfakkan, UAE

Marisa Engelbrecht | DSLR/MILC Black & White – 351
Isla Guadalupe, Mexico

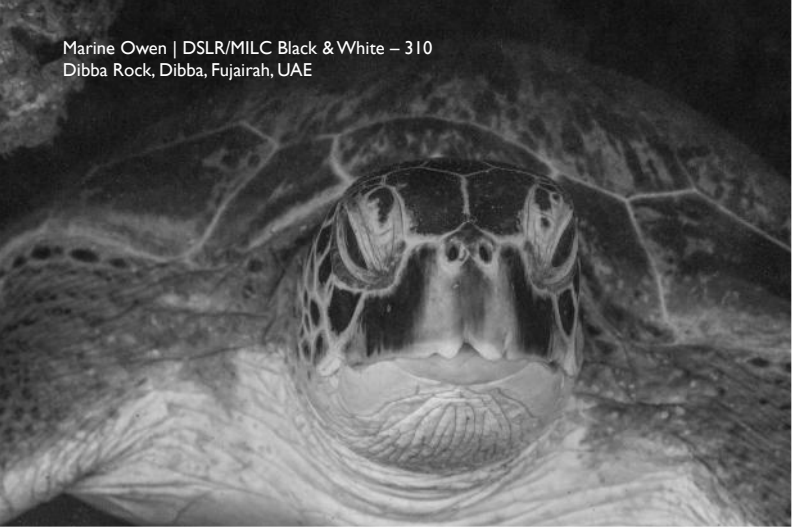
Iyad Suleyman | DSLR/MILC Black & White – 325
Romblon, Philippines

Sibylle Blumenthal | DSLR/MILC Black & White – 350
Three Rocks, Fujairah, UAE

Ahmed Alkaabi | DSLR/MILC Black & White – 328
Tulamben, Bali, Indonesia

Nassim Mirj | DSLR/MILC Black & White – 321
Musandam, Oman

Alexandra Huth | DSLR/MILC Black & White – 320
Ines Wreck, Fujairah, UAE

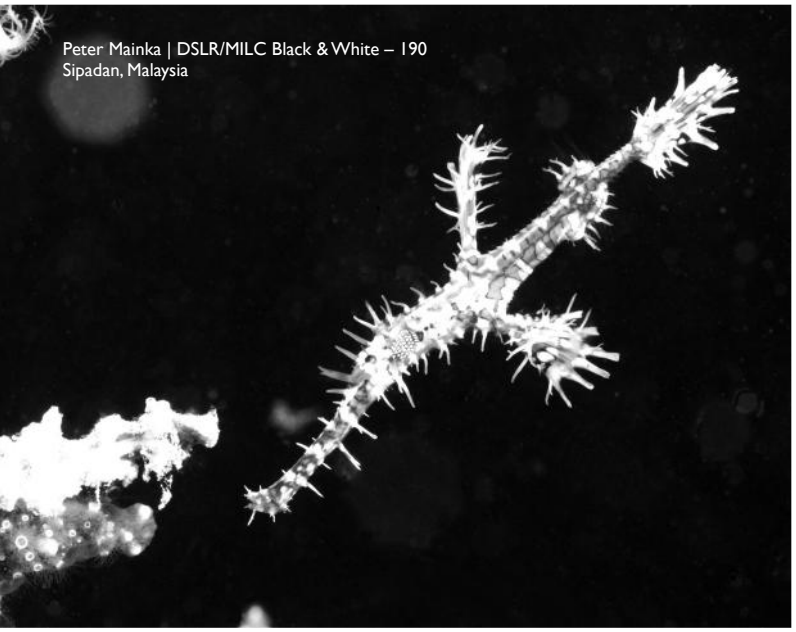


Marine Owen | DSLR/MILC Black & White – 310
Dibba Rock, Dibba, Fujairah, UAE

Rudolpho McEniry | DSLR/MILC Black & White – 299
Djibouti

Sunjay Keshup | DSLR/MILC Black & White – 276
Bimini, Bahamas

Nicola Bettio | DSLR/MILC Black & White – 219
Seven Sisters, Yanbu, Saudi Arabia



Peter Mainka | DSLR/MILC Black & White – 190
Sipadan, Malaysia

Khaled AA Alhosani | DSLR/MILC Macro – 466
Seychelles

Stewart Clarke | DSLR/MILC Macro – 451
Bali, Indonesia

Sibylle Blumenthal | DSLR/MILC Macro – 450
Guinjata Bay, Mozambique

Philippe Lecomte | DSLR/MILC Macro – 443
Poindimié, New Caledonia

Hani Omar | DSLR/MILC Macro – 403
Tulamben, Bali

Ahmed Alkaabi | DSLR/MILC Macro – 432
Tulamben, Bali, Indonesia

Sultan Althahab | DSLR/MILC Macro – 428
Fujairah, UAE

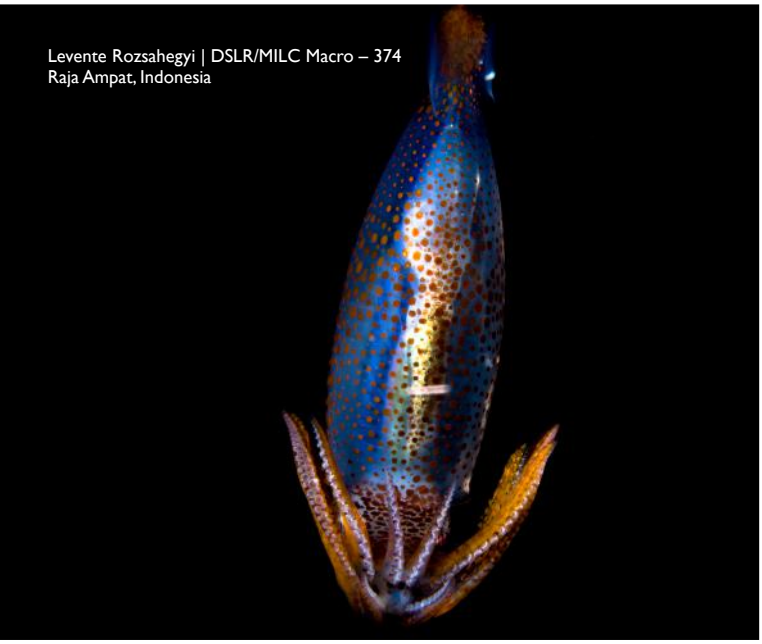
Yousef Alshekaili | DSLR/MILC Macro – 409
Dumaguete, Philippines

Michael Rall | DSLR/MILC Macro – 405
Abu Dhabi, UAE

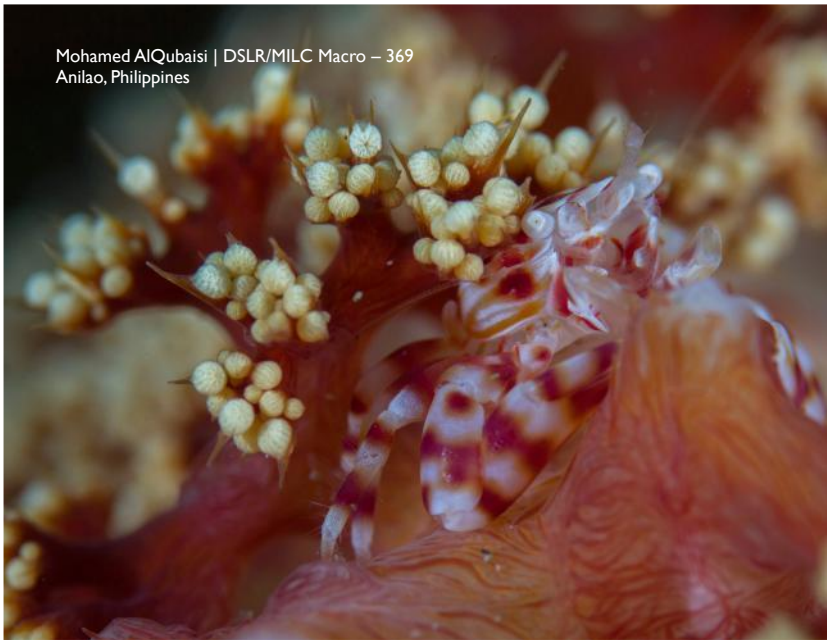
Ahmed Abdallah Al-Ali | DSLR/MILC Macro – 367
Anilao, Philippines

Marisa Engelbrecht | DSLR/MILC Macro – 367
Dibba Rock, Dibba, Fujairah, UAE

Steven Board | DSLR/MILC Macro – 363
Martini Rock, UAE



Levente Rozsahegyi | DSLR/MILC Macro – 374
Raja Ampat, Indonesia



Mohamed AlQubaisi | DSLR/MILC Macro – 369
Anilao, Philippines

Nassim Miri | DSLR/MILC Macro – 349
Sudan

Ahmed Ramadan | DSLR/MILC Macro – 347
Egypt

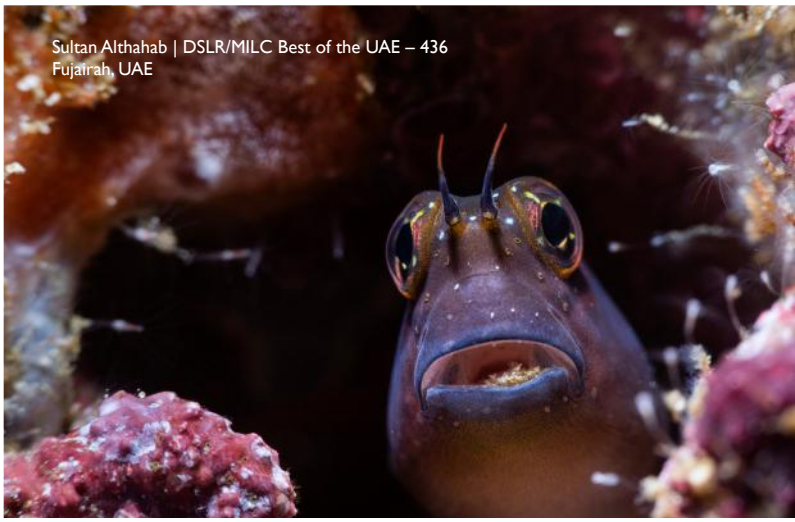
Chris Combes | DSLR/MILC Macro – 344
Car Cemetery, Bidya, UAE

Peter Mainka | DSLR/MILC Macro – 322
Musandam, Oman

Nicola Bettio | DSLR/MILC Macro – 294
Seven Sisters, Yanbu, Saudi Arabia

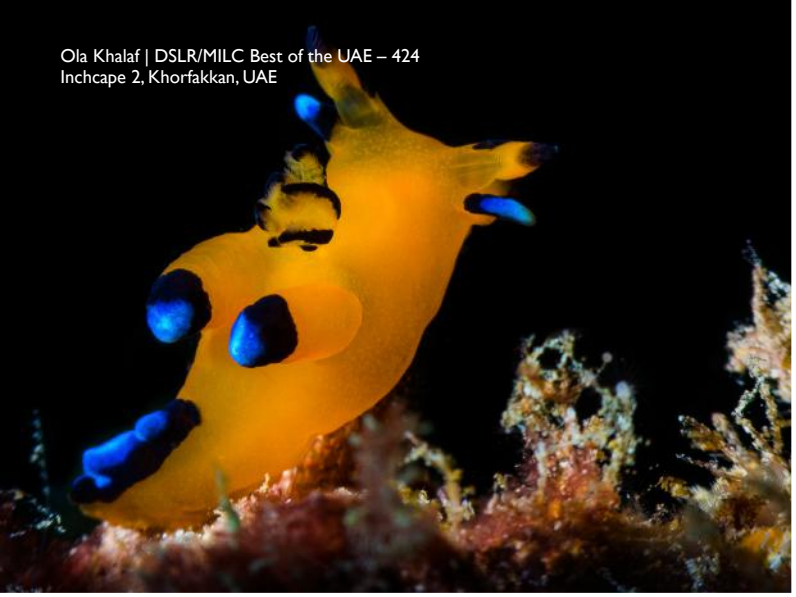
Marine Owen | DSLR/MILC Macro – 290
Dibba Rock, Dibba, Fujairah, UAE

Stewart Clarke | DSLR/MILC Best of the UAE – 455
Yas Marina, Abu Dhabi, UAE



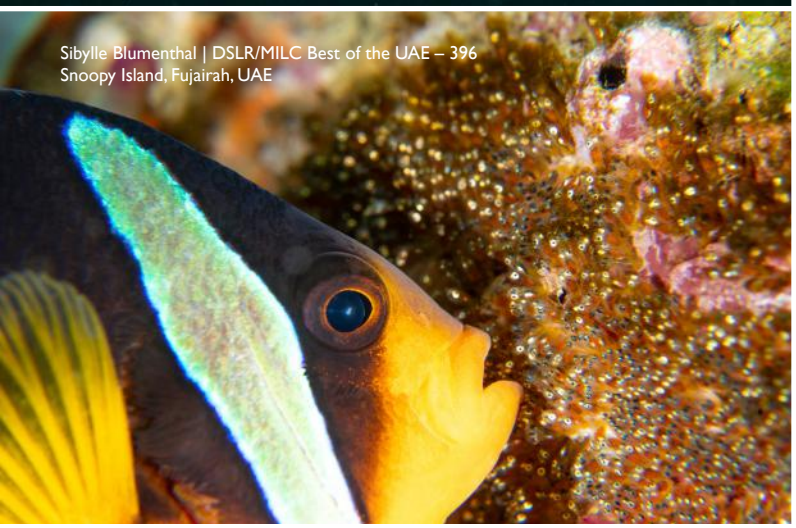
Sultan Althahab | DSLR/MILC Best of the UAE – 436
Fujairah, UAE

Ahmed Abdallah Al-Ali | DSLR/MILC Best of the UAE – 425
Sharq Island, Khorfakkan, UAE

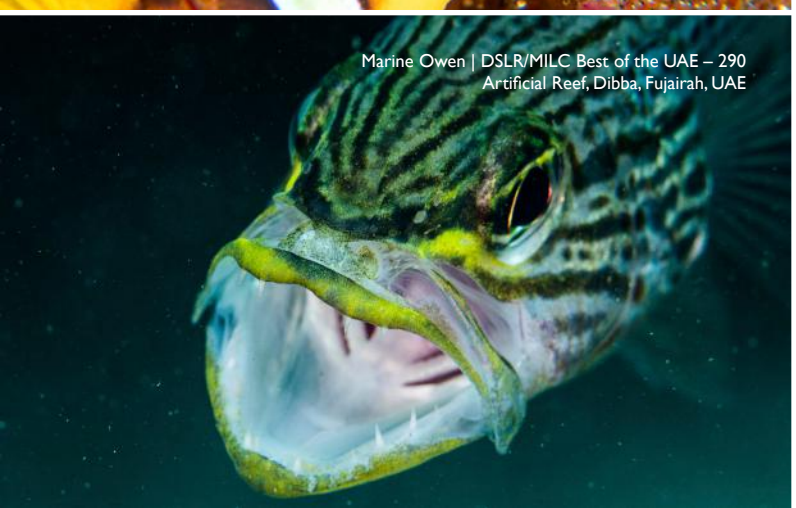


Ola Khalaf | DSLR/MILC Best of the UAE – 424
Inchcape 2, Khorfakkan, UAE

Michael Rall | DSLR/MILC Best of the UAE – 407
Jumeirah, Dubai, UAE



Sibylle Blumenthal | DSLR/MILC Best of the UAE – 396
Snoopy Island, Fujairah, UAE



Marine Owen | DSLR/MILC Best of the UAE – 290
Artificial Reef, Dibba, Fujairah, UAE

Yousef Alshekaili | DSLR/MILC Best of the UAE – 418
Fujairah, UAE

Steven Board | DSLR/MILC Best of the UAE – 389
Khorfakkan, UAE

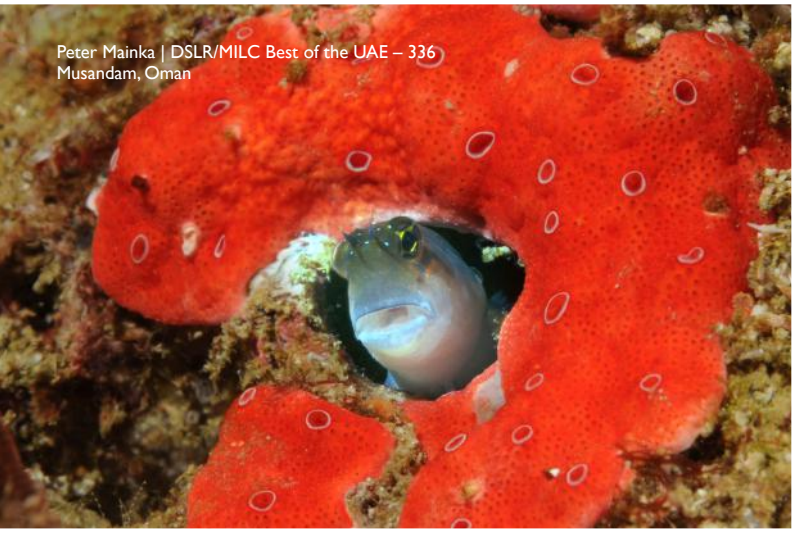
Iyad Suleyman | DSLR/MILC Best of the UAE – 375
Jumeirah Beach, Dubai, UAE

Mohamed Abdulla | DSLR/MILC Best of the UAE – 375
Dibba, UAE

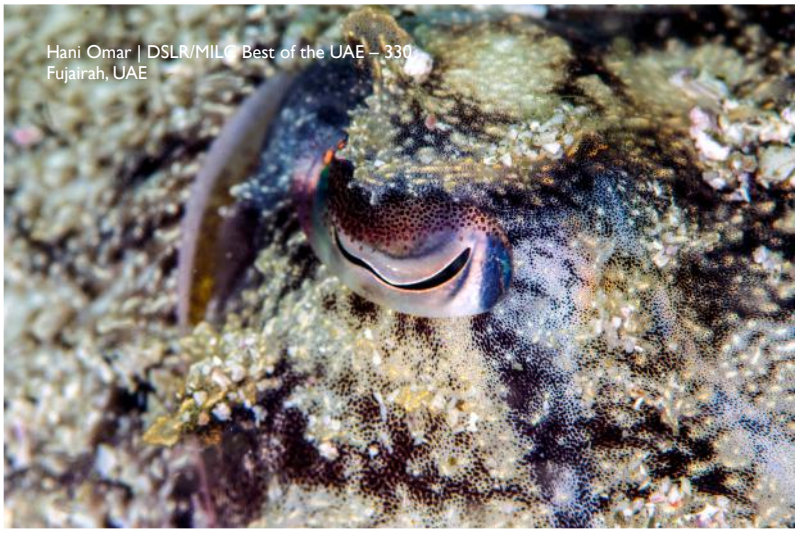
Levente Rozsahegyi | DSLR/MILC Best of the UAE – 367
Octopus Rock, Musandam, Oman

Marisa Engelbrecht | DSLR/MILC Best of the UAE – 363
Dibba Rock, Dibba, Fujairah, UAE

Chris Combes | DSLR/MILC Best of the UAE – 343
Inchape II, Fujairah, UAE



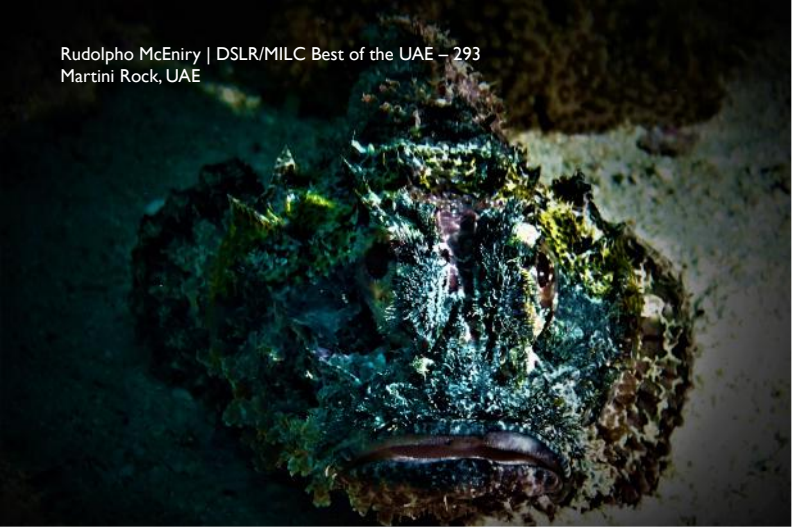
Peter Mainka | DSLR/MILC Best of the UAE – 336
Musandam, Oman



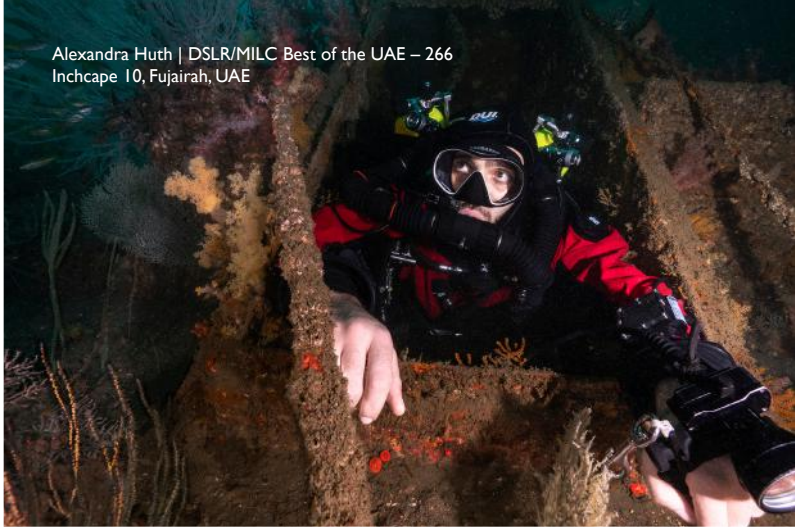
Hani Omar | DSLR/MILC Best of the UAE – 330
Fujairah, UAE

Nassim Miri | DSLR/MILC Best of the UAE – 317
Musandam, Oman

Mohamed AlQubaisi | DSLR/MILC Best of the UAE – 295
Shuweihat Island, Abu Dhabi, UAE



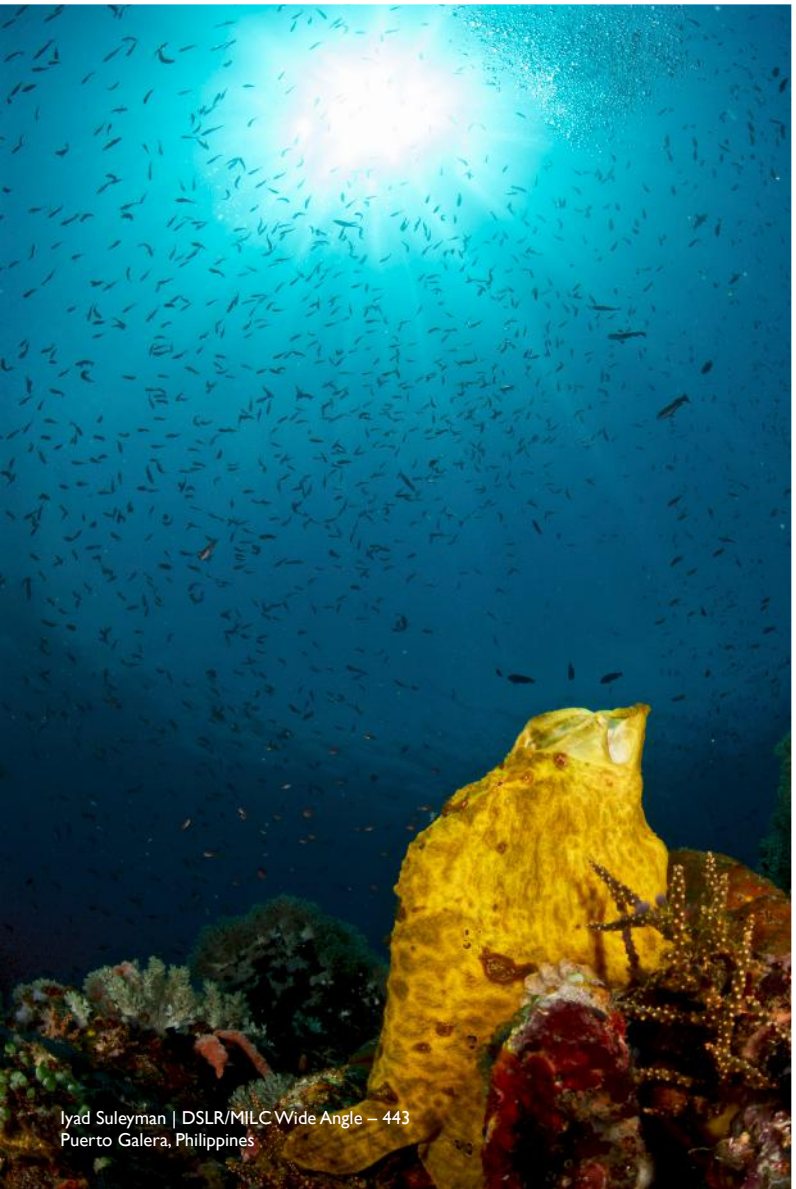
Rudolpho McEniry | DSLR/MILC Best of the UAE – 293
Martini Rock, UAE



Alexandra Huth | DSLR/MILC Best of the UAE – 266
Inchcape 10, Fujairah, UAE

Philippe Lecomte | DSLR/MILC Wide Angle – 435
Toulon, France

Khaled AA Alhosani | DSLR/MILC Wide Angle – 421
Dibba, UAE



Iyad Suleyman | DSLR/MILC Wide Angle – 443
Puerto Galera, Philippines

Mohamed Abdulla | DSLR/MILC Wide Angle – 429
Zanzibar

Ola Khalaf | DSLR/MILC Wide Angle – 424
Car Cemetry, Khorfakkan, UAE

Mohamed AlQubaisi | DSLR/MILC Wide Angle – 365
Palau

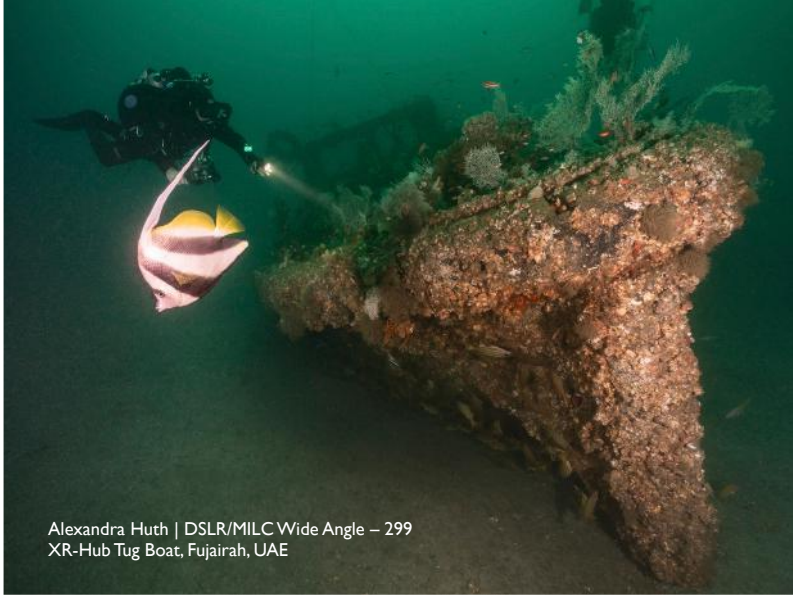
Sultan Althahab | DSLR/MILC Wide Angle – 382
Fujairah, UAE

Chris Combes | DSLR/MILC Wide Angle – 370
Gozo, Malta

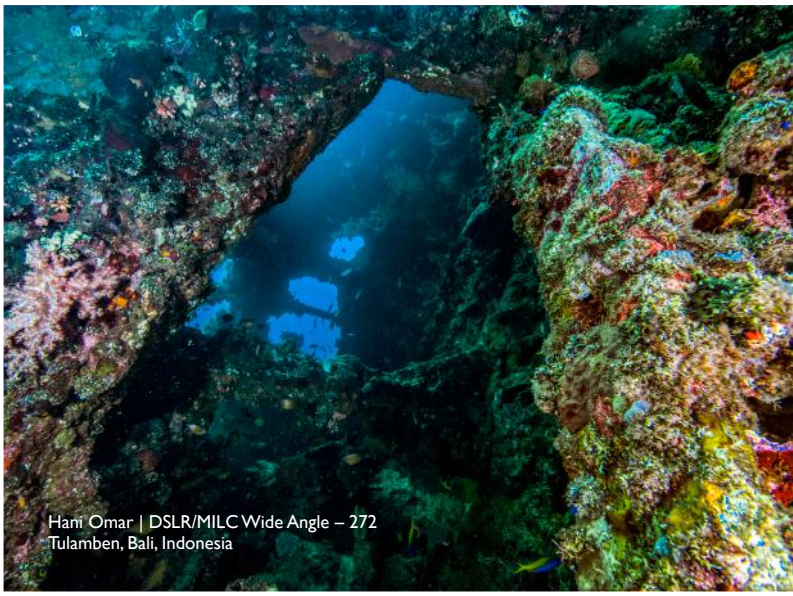
Sunjay Keshup | DSLR/MILC Wide Angle – 357
Bimini, Bahamas

Steven Board | DSLR/MILC Wide Angle – 354
Daymaniyat Islands, Oman

Stewart Clarke | DSLR/MILC Wide Angle – 351
Maldives



Alexandra Huth | DSLR/MILC Wide Angle – 299
XR-Hub Tug Boat, Fujairah, UAE



Hani Omar | DSLR/MILC Wide Angle – 272
Tulamben, Bali, Indonesia

Rudolpho McEniry | DSLR/MILC Wide Angle – 264
Sharm El Sheikh, Egypt

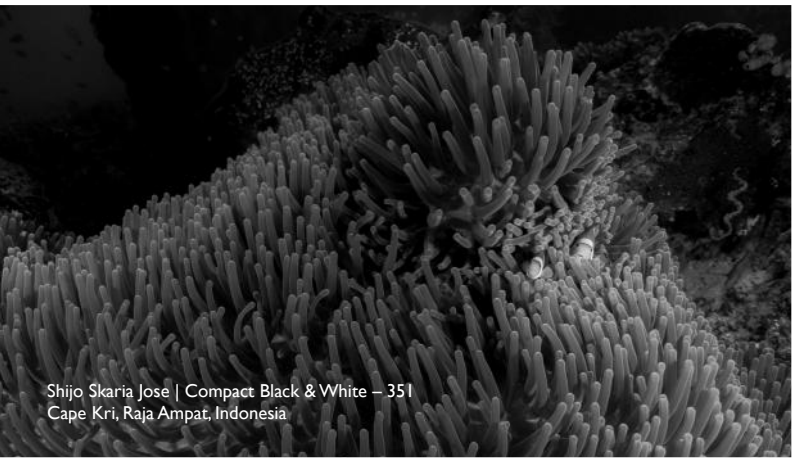
Marisa Engelbrecht | DSLR/MILC Wide Angle – 228
Sodwana Bay, South Africa

Nassim Miri | DSLR/MILC Wide Angle – 226
Sudan

Peter Mainka | DSLR/MILC Wide Angle – 191
Maldives

Ola Khalaf | Compact Black & White – 434
Dibba, UAE

João Menezes | Compact Black & White – 385
Coron, Philippines



Shijo Skaria Jose | Compact Black & White – 351
Cape Kri, Raja Ampat, Indonesia

Donavan Hastings | Compact Black & White – 290
Car Cemetery, Fujairah

Emil Duffey | Compact Black & White – 282
S.S. Thistlegorm, Red Sea, Egypt

Rudolpho McEniry | Compact – 278
Djibouti

Ahmed Ramadan | Compact Black & White – 195
Egypt

Ola Khalaf | Compact – 457
Dubai, UAE

João Menezes | Compact – 407
Anilao, Philippines

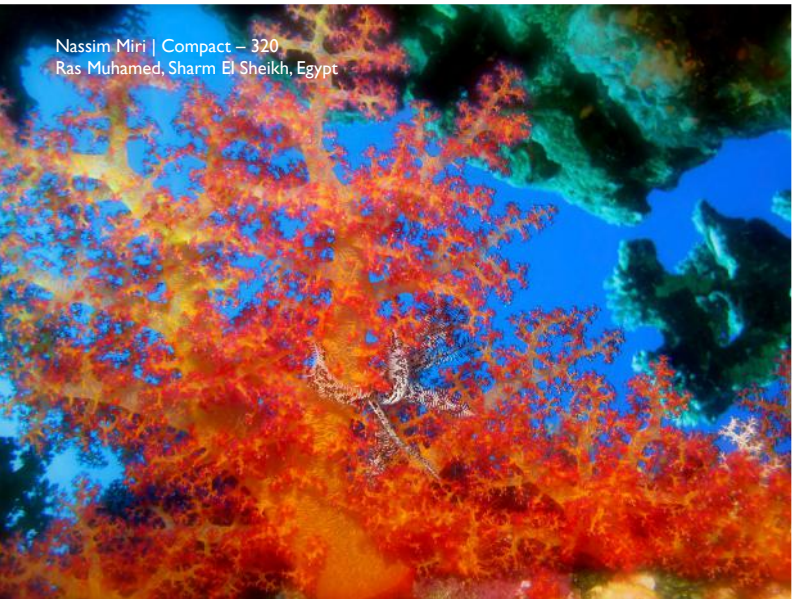
Michelle San Buenaventura | Compact – 383
North Point, Malapascua, Cebu, Philippines

Shijo Skaria Jose | Compact – 310
Deep Rock, Raja Ampat, Indonesia

Charina Bunuan | Compact – 314
Dibba, Fujairah, UAE

Mohamed Hayek | Compact – 370
Al Fahl Island, Muscat, Oman

Rudolpho McEniry | Compact – 354
Djibouti



Nassim Miri | Compact – 320
Ras Muhamed, Sharm El Sheikh, Egypt

Peter Mainka | Compact – 277
Maldives

Leah Valderama | Compact – 264
Ruby Reef, Fujairah, UAE

Emil Duffey | Compact – 257
S.S. Thistlegorm, Red Sea, Egypt

Lynette Ferreira | Compact – 222
Inchape 1, Al Aqah, UAE

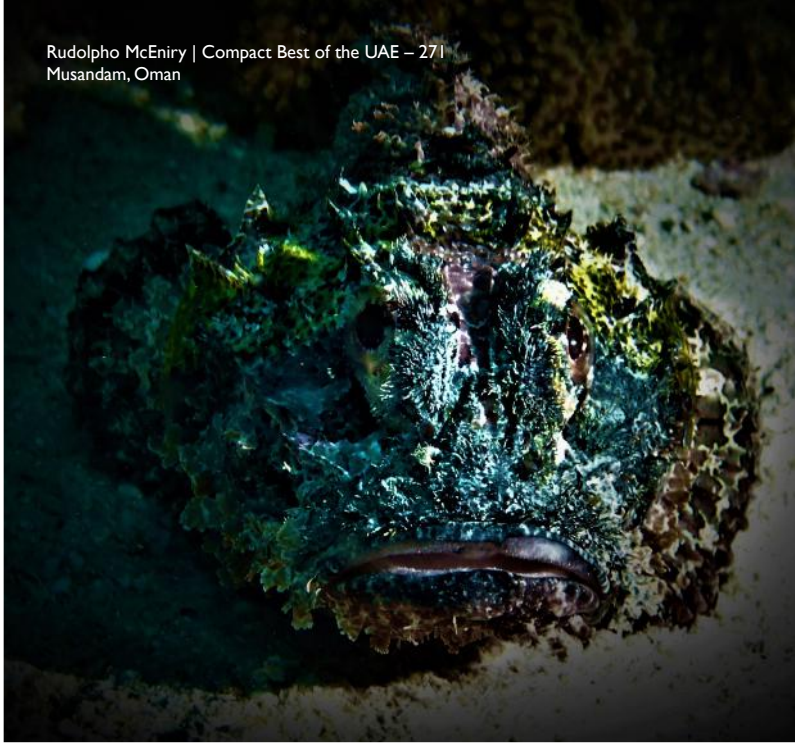
Chris Combes | Compact – 190
Ras Muhammad National Park, Sinai Peninsula, Egypt

Penka | Compact Best of the UAE – 277
Maldives

Sunjay Keshup | Compact Best of the UAE – 394
Musandam, Oman

Donavan Hastings | Compact Best of the UAE – 350
Inchcape 2, Fujairah, UAE

Ahmed Ramadan | Compact Best of the UAE – 276
Snoopy Island, Al Aqah, UAE



Rudolpho McEniry | Compact Best of the UAE – 271
Musandam, Oman

Shijo Skaria Jose | Compact Best of the UAE – 271
Dibba Rock, Fujairah, UAE

Lynette Ferreira | Compact Best of the UAE – 249
Inchape 1, Al Aqah, UAE

Ibrahim Al-Zu'bi, EDA's Executive Director opening the 10th Digital Online Awards Night at the American University in Dubai, Rotunda Gallery.

3rd Place Video | Mathieu Noe – 278 Collected by Marine Owen, Freestyle Divers
Sponsor: MTM Marine LLC

3rd Place Compact Wide Angle | Ahmed Ramadan – 283
Sponsor: Le Meridien Al Aqah Resort

3rd Place Compact Best of the UAE | Charina Bunuan – 286
Sponsor: MTM Marine LLC

3rd Place Compact Black & White | Lynette Ferreira – 341
Sponsor: Emirates Diving Association

3rd Place Compact | Michael Rall – 428
Sponsor: Emirates Diving Association

3rd Place DSLR/MILC Best of the UAE | Khaled Alhosani – 426
Sponsor: Al Mahara Diving Center

3rd Place DSLR/MILC Black & White | Yousef Alshekaili – 466
Sponsor: Le Meridien Al Aqah Beach Resort

2nd Place Compact Wide Angle | Mohamed Hayek – 294
Sponsor: MTM Mares LLC


2nd Place Compact Black & White | Dario Trombetta – 257
Sponsor: Sandy Beach Dive Centre


2nd Place Compact Best of the UAE | João Menezes – 395
Sponsor: Sandy Beach Dive Centre


2nd Place Compact | Sunjay Keshup – 439
Sponsor: Freestyle Divers, Marine Owen

2nd Place Video | Khaled Alhosani – 300
Sponsor: Al Mahara Diving Center


2nd Place DSLR/MILC Black & White | Sultan Althahab – 452
Sponsor: Grand Stores with Representative Mr. Shaji Shanmughan


2nd Place DSLR/MILC Best of the UAE | Ahmed Alkaabi – 461
Sponsor: Grand Stores with Representative Mr. Shaji Shanmughan

2nd Place DSLR/MILC Wide Angle | Michael Rall – 470
Sponsor: Al Boom Diving


2nd Place DSLR/MILC Macro | Mohamed Abdulla – 485
Sponsor: Le Meridien Al Aqah Beach Resort

1st Place Compact Black & White | Mohamed Hayek – 432
Sponsor: Sundive Byron Bay


1st Place Compact Wide Angle | Shijo Skaria Jose – 432
Sponsor: Divers Down


1st Place Compact Best of the UAE | Ola Khalaf – 447
Sponsor: MTM Marine LLC


1st Place Compact | Donavan Hastings – 458
Sponsor: The Palms Dive Centre


1st Place DSLR/MILC Black & White | Stewart Clarke – 464
Sponsor: Al Marsa Musandam


1st Place DSLR/MILC Best of the UAE | Philippe Lecomte – 470
Sponsor: MTM Marine LLC


1st Place DSLR/MILC Wide Angle | Levente Rozsahegyi – 471
Sponsor: BFC Travel Management

1st Place DSLR/MILC Macro | Ola Khalaf – 506
Sponsor: Scandi Divers

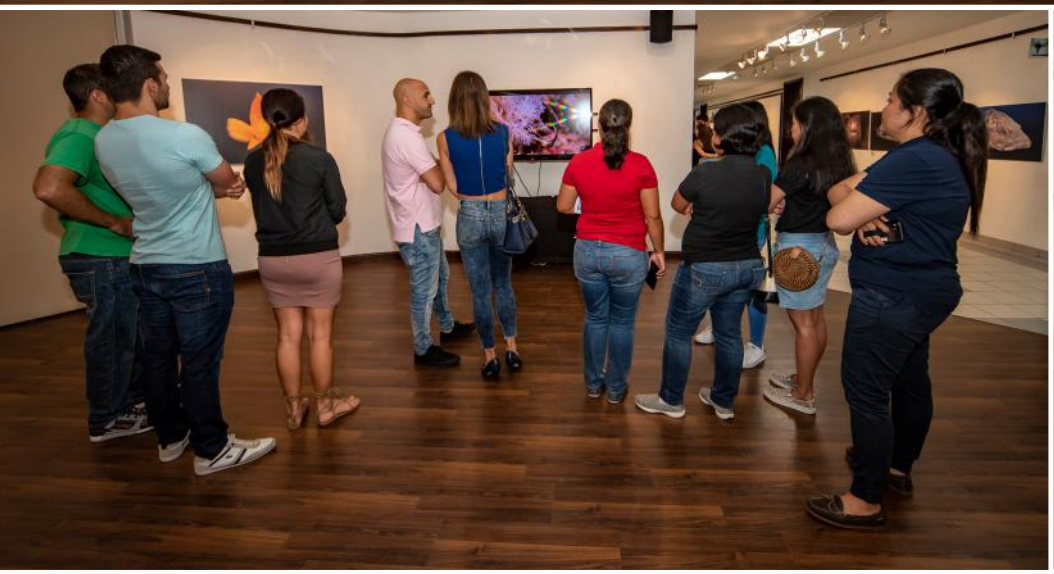
1st Place Video | Khaled Sultani – 502
Sponsor: Fun & Sun Dive & Travel


Overall Winner Video | Khaled Sultani – 502


Overall Winner DSLR/MILC | Philippe Lecomte – 1796


Overall Winner Compact | Shijo Skaria Jose – 1364


Overall Winner UAE National | Yousef Alshekaili – 1716




DIGITAL ONLI
EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMP
WHAT CAPTURES YOUR IMAGINATI
PRINT WORKS
EDA
AUD
MERIDIEN


DIGITAL ONLINE


AUD
EDA


AUD
AMERICAN UNIVERSITY IN DUBAI

Leopard Shark (*Stegostoma fasciatum*). Photo by Christophe Chellapermal – www.scuba-people.com

# DIVING KHASAB

## EXPLORING THE OTHER SIDE OF THE STRAIT OF HORMUZ

FEATURE AND PHOTOGRAPHY **ALLY LANDES** PHOTOGRAPHY **MARINE OWEN**

The diving did not disappoint. Musandam has some beautiful seascapes for the wide-angle photographers and visibility does play a vital role, but there is a lot of close-up stuff there too.

Spread photos by Marine Owen from Freestyle Divers taken with her Nikon D500 and a 60 mm f/2.8 macro lens. **ABOVE:** Yellowmouth moray (*Gymnothorax nudivomer*). **BOTTOM LEFT:** One of the larger nudibranch species out slugging. *Ceratosoma sp.* **BOTTOM RIGHT:** A tiny species of sponge delicately "sponging" a spot to get noticed.

Musandam Dibba is well known for its diving getaways, but the Khasab side is still relatively unexplored. Armed with a small team of photographers and videographers, Freestyle Divers invited us to set out in search of what lies beneath the surface of this part of the Strait of Hormuz to each tell our stories. It so happens, there is much to see and endless discoveries to be made.

Freestyle Divers have opened their new dive centre in the Atana Musandam and also caters to its less pricey sister hotel, the Atana Khasab, on the cliffs just across the bay. Situated 160 km from Dubai, Khasab also offers some cheaper accommodation options if you search the internet – but ask Freestyle Divers if there are any available promotional rates through the hotel for the dates you are planning to go.

## THE DIVE CENTRE

The stylish dive centre is designed with a photographer's needs in mind, and their upstairs camera room has all your storage and charging requirements in place. There are still plans in the works to further the divers' experience which will only increase the quality of this already great establishment. The changing rooms have secure lockers for all your valuables whilst you're out on your dives, and there is a comfortable lounge area where you can help yourselves to tea and coffee and chill out before setting off once you're kitted out.

**ABOVE:** Bright pink soft corals adorn much of the dive sites in Khasab and make great subjects for macro photography. *Dendronephthya sp.* **BOTTOM LEFT:** The yellow variety of soft corals are just as beautiful and plentiful. *Dendronephthya sp.* **BOTTOM RIGHT:** A colourful starfish.

## THE IN-BETWEENS

Lunch is provided on the dives and served onboard during your surface interval in a tiffin-style lunch box with a salad, sandwich, fruit and cake, and a big pot of sweet milky tea is ready whenever you are.

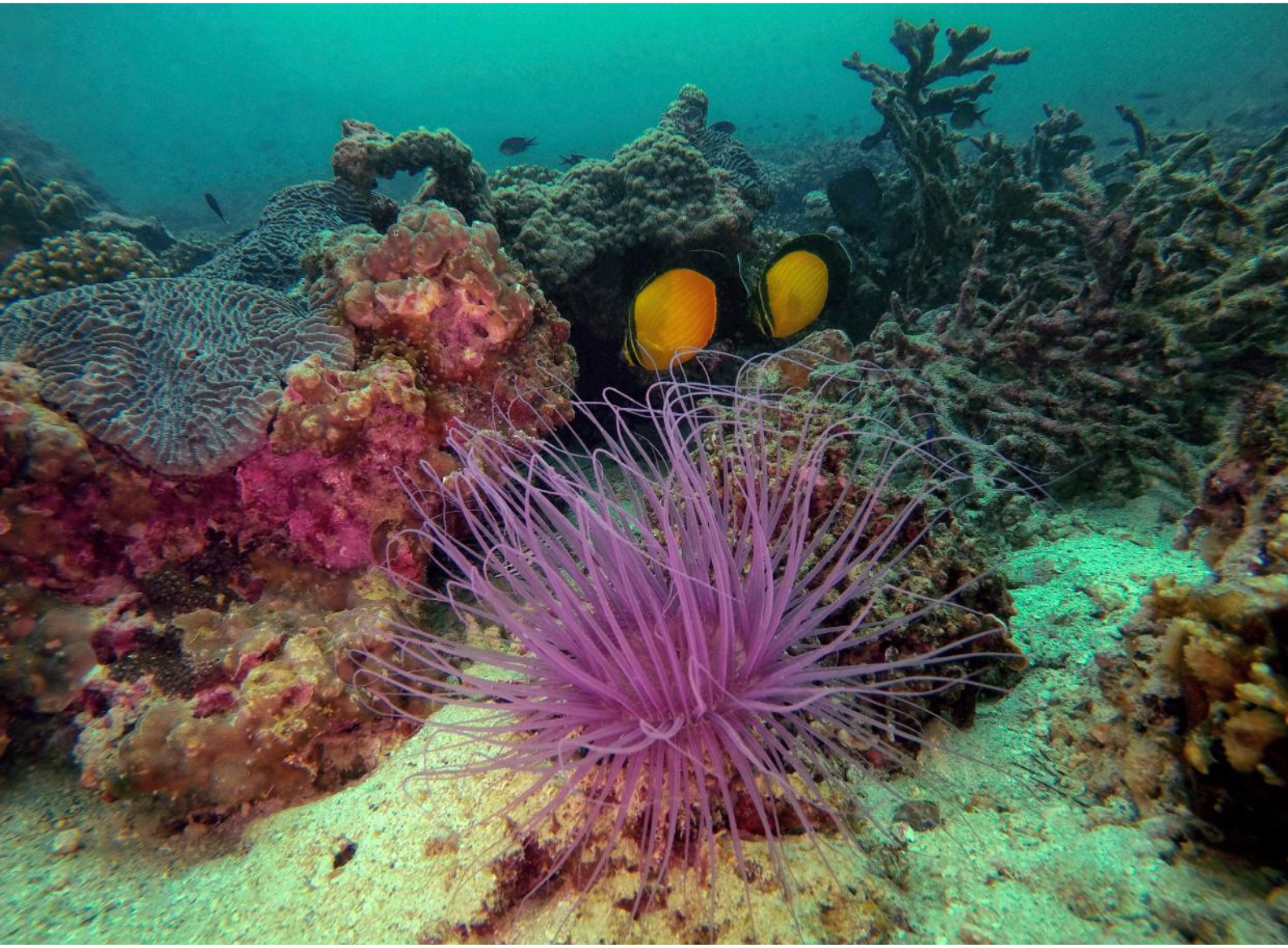
The landscapes of Musandam are just as stunning from either the Dibba or Khasab side, making the boat journey over to the dive sites a joy, especially when the seas are calm. During this particular trip, we were unfortunately touched by some unusually bad weather for this time of year and it produced some poor visibility, and in the end, some choppy seas, cutting our dives short.

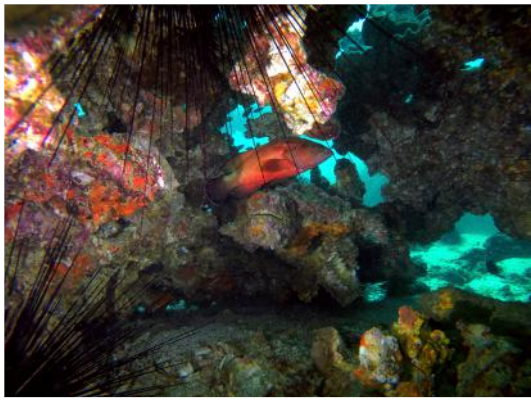
With that in mind, the diving did not disappoint. Musandam has some beautiful seascapes for the wide-angle photographers and visibility does play a vital role, but there is a lot of close-up stuff there too.

## THE DIVE SITES

We managed to dive 3 areas of Khasab, starting in Jazirat Abu Rashid (3 dive sites) where we saw a beautiful Leopard shark (*Stegostoma fasciatum*). Jazirat Musandam has several dive sites (8) to choose from depending on the sea conditions and we saw both Yellowmouth morays (*Gymnothorax nudivomer*) and Honeycomb morays (*Gymnothorax favagineus*). Jazirat Abu Sarr (3 dive sites) gave us a Jenkins' whipray (*Himantura jenkinsii*) and the critically-





**OPPOSITE PAGE:** Photos taken with my GoPro5 in wide angle. **ABOVE:** The Freestyle Divers Khasab dive centre.

endangered Hawksbill turtle (*Eretmochelys imbricata*) – you had to be quick to spot it though! Some of the group were lucky to see other turtles during the first 2 dives.

Amongst the bigger fish which Musandam is known for due to its reputed strong currents, there are plenty of smaller species to spot and find in all the nooks and crannies. Striped eel catfish (*Plotosus lineatus*), nudibranchs of various sizes, from minute to downright huge, all sorts of crustaceans, and the pink and yellow soft corals (*Alcyonacea*) including Teddy bear corals (*Dendronephthya klunzingeri*), and the orange common sponge (*Crambe crambe*) create some pretty stunning scenarios in camera. I especially love the Arabian butterflyfish (*Chaetodon melapterus*) which I have not seen on the Dibba side.

These are just a few of the things amongst everything else we saw during the 3 dives we did with the weather's permission in March.

## RECOMMENDATIONS IN KHASAB

If you're staying in Khasab for an extended stay or some of your party are not diving, then there are several other unique experiences to be had. One of the highlights is to visit Khasab Castle which was built by the Portuguese in the 17th Century and then taken over by the Omanis in 1624. It's a small museum but worth the visit – or book a traditional half day dhow cruise and visit Telegraph Island and see the dolphins of Musandam.

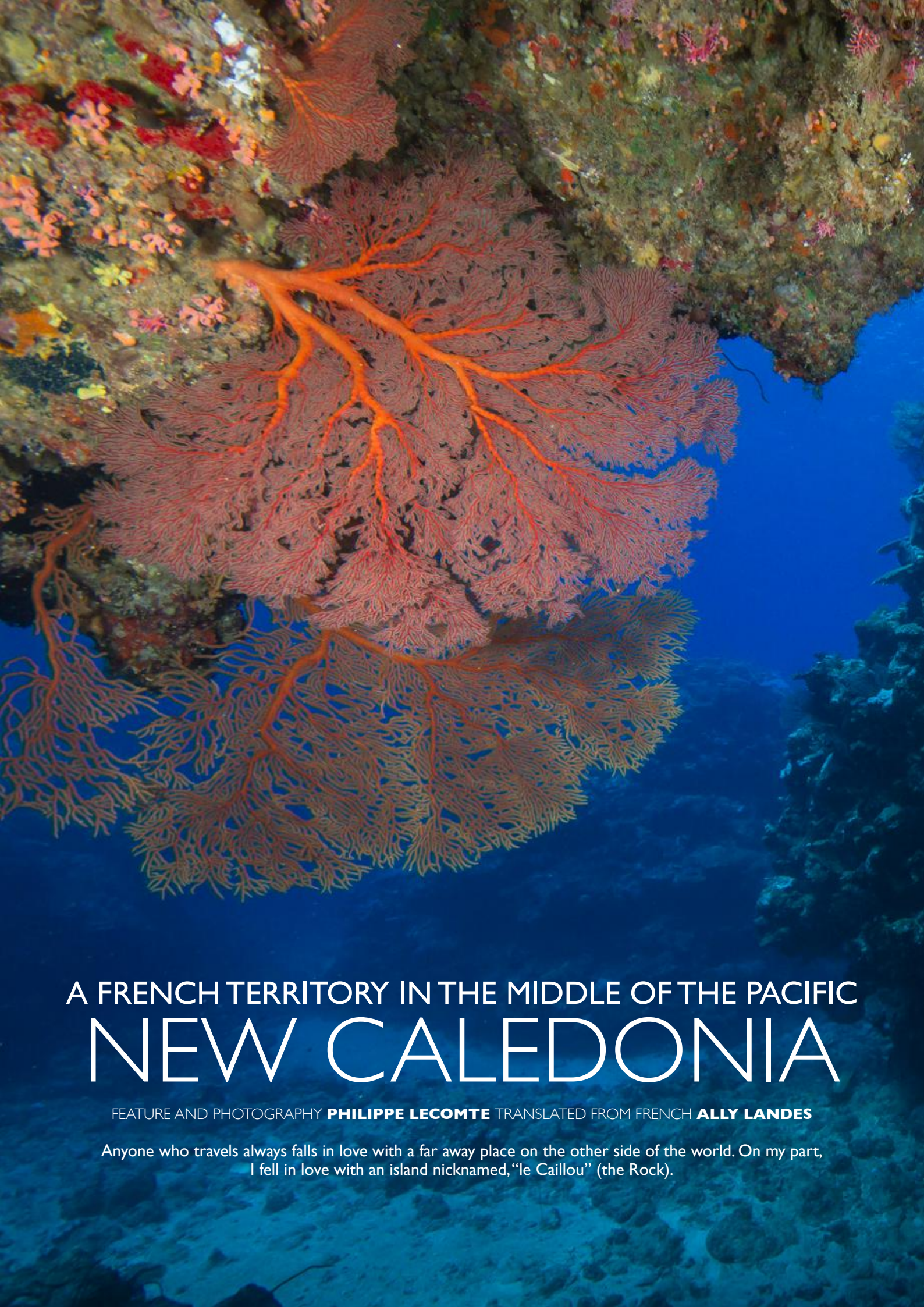
FREESTYLE DIVERS

**FREESTYLE DIVERS**
Atana Musandam, Khasab
**Email:** darren@freestyledivers.me
**Tel:** +968 7221 0385
**www.dive-khasab.com**

**ATANA HOTELS**
**www.atanahotels.com**

**REQUIREMENT**
**Visa Requirement:** e-Visa
The Royal Oman Police has launched the new system to apply for your visa online.
**Visit this site:** www.evisa.rop.gov.om

1. Register as a user.
2. Login with a username (registered email and password).
3. Click on "Apply for Visa" & pay the fee.



## A FRENCH TERRITORY IN THE MIDDLE OF THE PACIFIC

# NEW CALEDONIA

FEATURE AND PHOTOGRAPHY **PHILIPPE LECOMTE** TRANSLATED FROM FRENCH **ALLY LANDES**

Anyone who travels always falls in love with a far away place on the other side of the world. On my part, I fell in love with an island nicknamed, "le Caillou" (the Rock).

Anyone who travels always falls in love with a far away place on the other side of the world. On my part, I fell in love with an island nicknamed, "le Caillou" (the Rock). New Caledonia is a French territory located in the Pacific Ocean. With only a 2h30 flight from Sydney, this island of 400 km long by 70 km wide, is still relatively unknown by French people and tourists in general.

The island is surrounded by a great barrier reef which is claimed to be the second largest in the world. In the lagoon, there are dozens of virgin islands with different accommodations to cater for divers and backpackers who want to stay on these little islands of paradise. Isolated coral reefs, shipwrecks, mangrove swamps or sandbanks are part of the diversity that can be found around the island.

For this trip, I had planned to stay around the capital, Nouméa and to then spend a week in Poindimiè. This small village is 4 hours by road from Nouméa and is located on the east coast of the island. In addition, it would have also been an opportunity to see and stay with my brother and his family, except that they had gone to get some sun at the other end of the world.

Nouméa, is a city of 100 thousand inhabitants, located on the west coast. It was built on a peninsula dotted with beaches and other small rocky coves. South of the city, there is a large mangrove swamp that is home to many bird species and provides a nursery site for lagoon fish.

On the outskirts of the city many of the islands are accessible by boat taxis. This shuttle system is incredibly useful for the locals without boats, as well as for the tourists. It's easy access and most of all, it's an incredibly cheap system.

The great barrier reef is only 20 minutes away by boat. Diving along the outer walls of the lagoon, there is so much variety on offer, you will never get bored of this place.

Dives within the great barrier are very rich in life. But be aware of the currents as they can get very strong. It is advisable to stay alongside the wall so you don't end up in the middle of the ocean, and then finish your dive hanging onto your SMB while waiting for the boat to come by and pick you up. In these passages, manta rays, dogtooth tunas, trevally and other grey sharks are always present. Along the outer walls, it's between whitetip sharks, napoleon wrasses, giant groupers and big sea turtles. Do not hesitate to spend some time over the corals or in the faults. There are so many other beautiful fish and nudibranchs around that are so well camouflaged – if you blink you would miss them.

My brother and I had the chance to cross paths with a great hammerhead shark in 10-12 metres on one of my earlier trips. The

hammerhead is a permanent resident of this area, as well as many other species of rays and sharks which make up part of its main diet, so it is not uncommon to cross this beautiful fish. Diving on the barrier is always such a pleasure as the visibility is always turquoise and clear.

The island, Lighthouse Amédée, situated very close by to the barrier, hosts an endemic species of sea snake, the banded sea krait. It is not uncommon to cross its path on a dive. The black and white stripes are quite relaxing to look at in motion. Some of them have purple-blue hues. It is not uncommon to see other species of sea snake. Among all my travels around the world, New Caledonia is the one place where I have seen the most variety of sea snake species.

For those who like to dive from shore, many spots are accessible directly from the city of Nouméa. Beach, coral reefs or even muck dives are possible by scuba diving or snorkelling. Anse Ouemo, Bay of Lemons, Kuendu Beach or Rocher à la Voile offers a lot of choices of marine habitats to choose from.

The shore dives on sandy bottoms have always given me some nice surprises. This time we came across several species of frogfish. It is always fun to watch these extraterrestrial-looking fish. In addition, they are quite easy to photograph because they are not big on movement. It is also interesting to find them because in general, they stick around for several days or weeks, making it possible to watch over them for longer periods. On these fairly barren bottoms, the odd rock or patch of algae houses a variety of creatures. Anemones often host shrimps. Algae or an isolated coral, attracts seahorses, juvenile fish or other shells. As you can see, even the poorest dive sites are full of life not always visible at first sight.

In the middle of my trip, I had planned to return to the east coast and spend a few days in the small town of Poindimié. This place is completely different from Nouméa. There is a quiet, country feel, and relaxing atmosphere in contrast to the big city. On the roadsides you will see small wooden stands where all sorts of fruits, plants and other local handicrafts are sold. The price is marked on each item and a box to put your money in is left on the stand. No one will come to greet you or exchange the purchase. In these remote corners of the world, trust is an essential part of life.

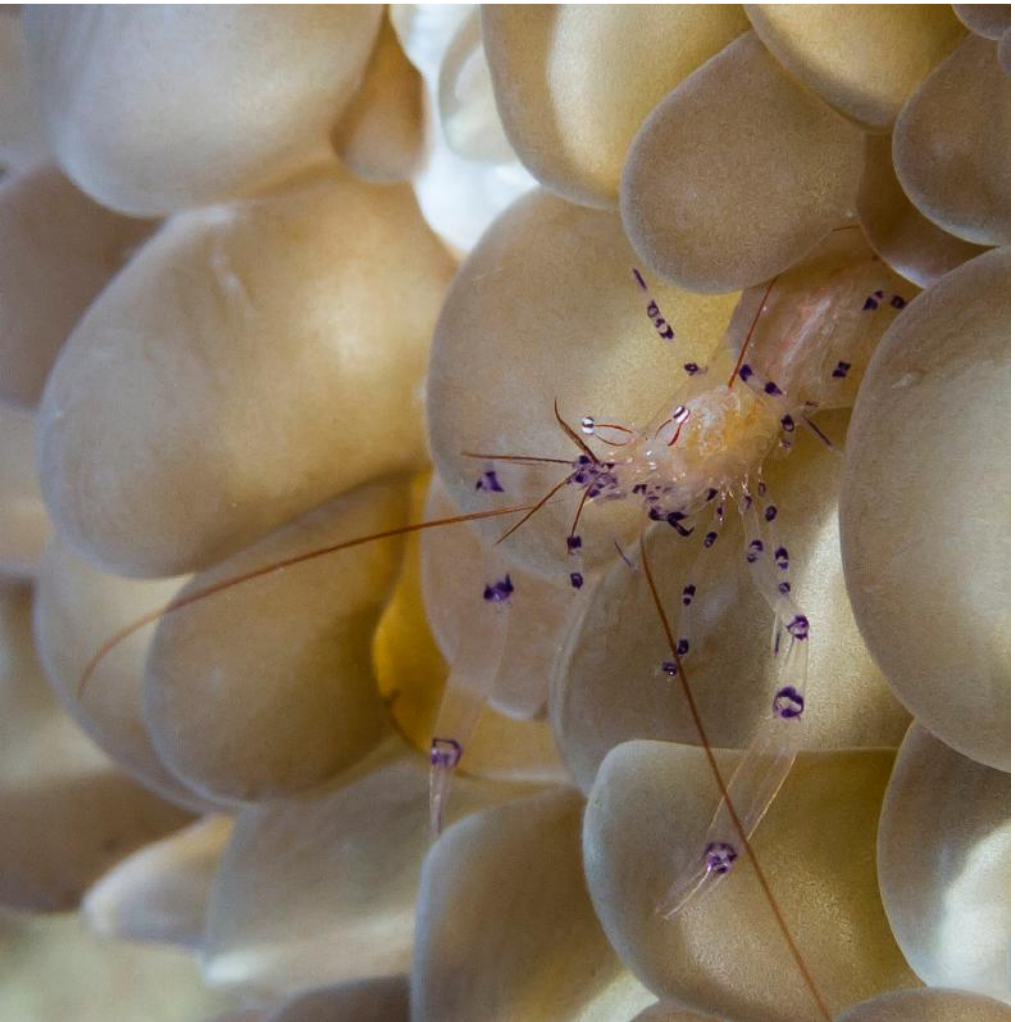
After a 4 hour drive along the west coast and crossing the Col des Roussettes with its magnificent waterfalls and lush forests of tropical trees and giant ferns, you will arrive on the coast of long sandy beaches interspersed with rocky peaks. In the distance, only 10 km away, a white line stands out. This is the coral reef that protects this huge lagoon thanks to its structure made of millennial coral.

The Tiéti Hotel is located right at the entrance of the village, next to the sports complex of the Poindimié School. It has a large swimming pool and a long beach that is never crowded by tourists. Rest and relaxation will always be available in the wooden bungalows overlooking the garden or beach front. Each day is so calm, and it is one of the reasons I keep coming back. Mass tourism has fortunately not yet touched this island and its lagoon.

The Tiéti Diving Centre run by Laurent and Martine is the only dive centre around, and it is attached to the hotel. Laurent is a former cave diver and holds a record of several thousand cave dives and technical dives, which have led him to opening several successful operations.

His companion, Martine will delight you with her great sense of humour and her comprehensive knowledge of the dive sites.

Their shaded semi-rigid inflatable boat of 9 m, will take 15-20 minutes to reach most of the dive sites. The diving prospects are almost infinite. When you arrive in the zone, it may appear that all the underwater dive sites, are all alike – but this is not so. The diversity of the



habitats in the same area is surprising. This is a strong characteristic of the barrier reef here.

Phuket or Vertigo are wall dive sites covered with giant sea fans of red, purple, yellow or even dark blue. These natural structures will amaze you. Their shapes and the life attracted to this aquatic fauna is wonderful.

Bargibanti and Chemin des Ecoliers are dive sites with rocky bottoms and small cavities. On these sites you will have the opportunity to navigate between coral pinnacles covered with black coral and other sponges or anemones. In addition, at Bargibanti, you will find the gorgonians on which the pygmy seahorse, *Hippocampus bargibanti* lives.

Mirlo and Sarcophyton are sites that take 10 minutes longer to reach by boat in the north. These 2 sites are on the inner side of the barrier. It has a rocky wall which reaches down onto a white sandy bottom. In the shelter from the swell of the open sea, this site is distinguished by the large areas of *Sarcophyton* coral species. Large pink and green anemones will catch your attention by their sheer size and resident clownfish and damselfish. Make sure to look for shrimps and porcelain crabs that are not noticed at first glimpse.

The Ark and Canyon sites require some navigation. You will arrive between large pinnacles of coral or pass tunnels or vaults which host some large gorgonians. It is not uncommon to come across some of the great travellers in these labyrinths such as the wahoo, napoleon wrasse, whitetip sharks or grey sharks. It is especially advisable to pay attention to and follow the dive guide as it is quite easy to get very lost in this underwater maze.

With each visit I make to this unique destination, each dive site becomes more attractive from one to the next. I have always come across fascinating creatures and fish of all kinds. The lagoons, coral reefs, beaches and islands will give you so much to be thankful for. As a photographer or if you are simply passionate about diving, this underwater world is a unique and special place. Visit this spectacular island whilst it is still free from mass tourism. You won't regret it.

**TIÉTI HOTEL**
Poindimié, New Caledonia
**Email:** rez@ghnc.nc
**www.grands-hotels.nc/hotels/hotel-tieti/**

**TIÉTI DIVING POINDIMIÉ**
**Email:** tieti.diving@lagoon.nc
**www.tieti-diving.com**

**LATOK DIVING CLUB NOUMÉA**
**Email:** iatokdiving@gmail.com
**www.iatok-diving-noumea.com**

# RECOGNITION IS ESSENTIAL

FEATURE **MARTY McCAFFERTY**


## THE DIVER

The diver was an experienced 48-year-old female with more than 300 lifetime dives. Her medical history included hypertension that was well controlled with a single medication. She also took a prescription drug to manage her cholesterol. Her general health and fitness were otherwise good.

## THE DIVES

The diver was on a trip at a popular Caribbean island. The first four days of diving consisted of two morning dives each day. None of these dives was deeper than 24 m, and all bottom times were within her computer's no-decompression limits. Her second dive each day was to 18 m or shallower, and she breathed air on all the dives. On the fifth day, her first dive was a multilevel one to a maximum depth of 26 m for a total time of 40 minutes. The dive was uneventful, and she exited the water at approximately 11:30 am.

Within five minutes of surfacing, the diver began to feel slightly short of breath while she was removing her equipment. This was followed by soreness in her middle and upper back. As she was moving her equipment, she noticed reduced strength in her right arm. Almost simultaneously both of her feet began to tingle, and the sensation progressed up both legs to her waist. Fatigue accompanied all these symptoms.

She reported the situation to the dive boat crew. They did not act alarmed and suggested that oxygen was not necessary because the reported weakness in her right arm resolved on its own within 15 minutes. The diver chose not to participate in a second dive. The other divers were in the water for an hour. During that time her symptoms seemed to resolve, except for the tingling in her feet.

Back at the resort the symptoms did not return, but the tingling in her feet remained unchanged. She did not engage in any vigorous physical activity that afternoon and, after dinner, retired for the evening at approximately 9:45 pm.

## THE COMPLICATIONS

At 11:30 pm, the diver awoke due to acute discomfort in her bladder. She discovered that she was unable to urinate and upon reflection realised she had not urinated since the dive that morning. She took a warm shower, during which she became aware of unusual sensations in her feet and patchy sensitive areas on her legs. She reported that her legs also felt rubbery. As her concern grew she contacted DAN and spoke with the medic on call. Based on the evolution of signs and symptoms she reported, the medic recommended that she be evaluated at a nearby medical facility immediately. She spoke with the resort manager, who transported her to the local clinic.

As the clinic staff began their evaluation, the first priority was to empty the diver's bladder, and they promptly did so using a urinary catheter. The staff recognised the possibility of a decompression injury and began making arrangements with the local hyperbaric facility. They also placed the diver on high-flow oxygen (15 litres per minute via a non-rebreather mask). Due to staffing issues, the diver was not transferred to the hyperbaric facility for another two hours, but she did continue breathing high-flow oxygen during her time at the clinic and during transport, which was uneventful.

## THE EVALUATION

Upon arrival at the chamber facility the diver was fully alert and oriented and able to provide the treating doctor with a detailed account of the events and the evolution of her symptoms. The physician conducted a neurological exam and discovered no problems with the diver's right arm. Strength in her arms was equal, and reflexes were normal. The soreness in her middle and upper back had not returned.

Neurological evaluation of the lower extremities revealed reduced strength in the right hip-flexor muscles compared with the same muscles on the left side. There was also reduced sensation in the left leg and patchy areas of altered sensation in the right leg. Perception of hot and cold stimuli was altered in both feet. The diver was unsteady while attempting to walk heel to toe, she found it difficult to stand on one leg, and she reported that her legs still felt rubbery. The treating physician diagnosed her with decompression sickness (DCS) Type II with spinal cord involvement.

The staff initiated a US Navy Treatment Table 6 (TT6). About halfway through the treatment the diver reported improvement. Following the treatment, a repeat neurological evaluation revealed marginally improved strength in the right leg. The diver also reported improved sensation in her feet. She was helped back to the resort, where she slept for a few hours before returning for an additional treatment. During a shower she noticed improvement in her ability to distinguish hot and cold sensations. The diver's ability to walk heel to toe was also improved, and she had less trouble standing on one leg. The doctor decided to administer a second TT6, after which an evaluation showed further improvement.

The next day the diver was evaluated again and treated with a US Navy TT5 (a shorter chamber treatment), again with incremental improvement. Three additional shorter US Navy TT9 treatments were provided. The diver had reached a clinical plateau, showing no further improvement after the second and third TT9, so no further treatments were administered. Some slight sensory decrements were still present, but the physician's opinion was that the diver would continue to improve. After waiting the recommended 72 hours, the diver flew home and experienced no worsening of her symptoms during the flights. Two weeks later she reported continued daily improvement with only mild sensory alteration remaining in her feet.

## THE DISCUSSION

It would be easy to criticise the boat crew for their failure to act; they had probably seen people dive those profiles without incident many times and were thus lulled into complacency. Further confounding this case was the spontaneous resolution of most of the diver's symptoms. Such resolution of symptoms is typically a response to breathing oxygen, but in rare cases it may even occur in the absence of oxygen first aid. Although not all of this diver's symptoms resolved, the improvement of most of her symptoms made this situation appear much less severe than it actually was.

It is important to remember that the signs and symptoms this diver exhibited can be considered profound, but even subtle signs or symptoms warrant at least an informal conversation to determine the extent of problems. Any loss of muscular strength should prompt immediate evaluation and intervention. The On-Site Neurological Assessment for Divers course provides knowledge and skills for recognising and assessing potentially injured divers; no matter what training you have, don't hesitate to recommend that a diver seek professional medical evaluation. Regardless of whether symptoms that appear after a dive are subtle or obvious, if they resolve with oxygen first aid – or even without it – don't discount the possibility that they will return.

## ON-SITE NEUROLOGICAL ASSESSMENT FOR DIVERS COURSE

This course is an advanced-level programme that provides additional training for those individuals who have successfully completed the DAN Oxygen First Aid for Scuba Diving Injuries course within the past two years (24 months).

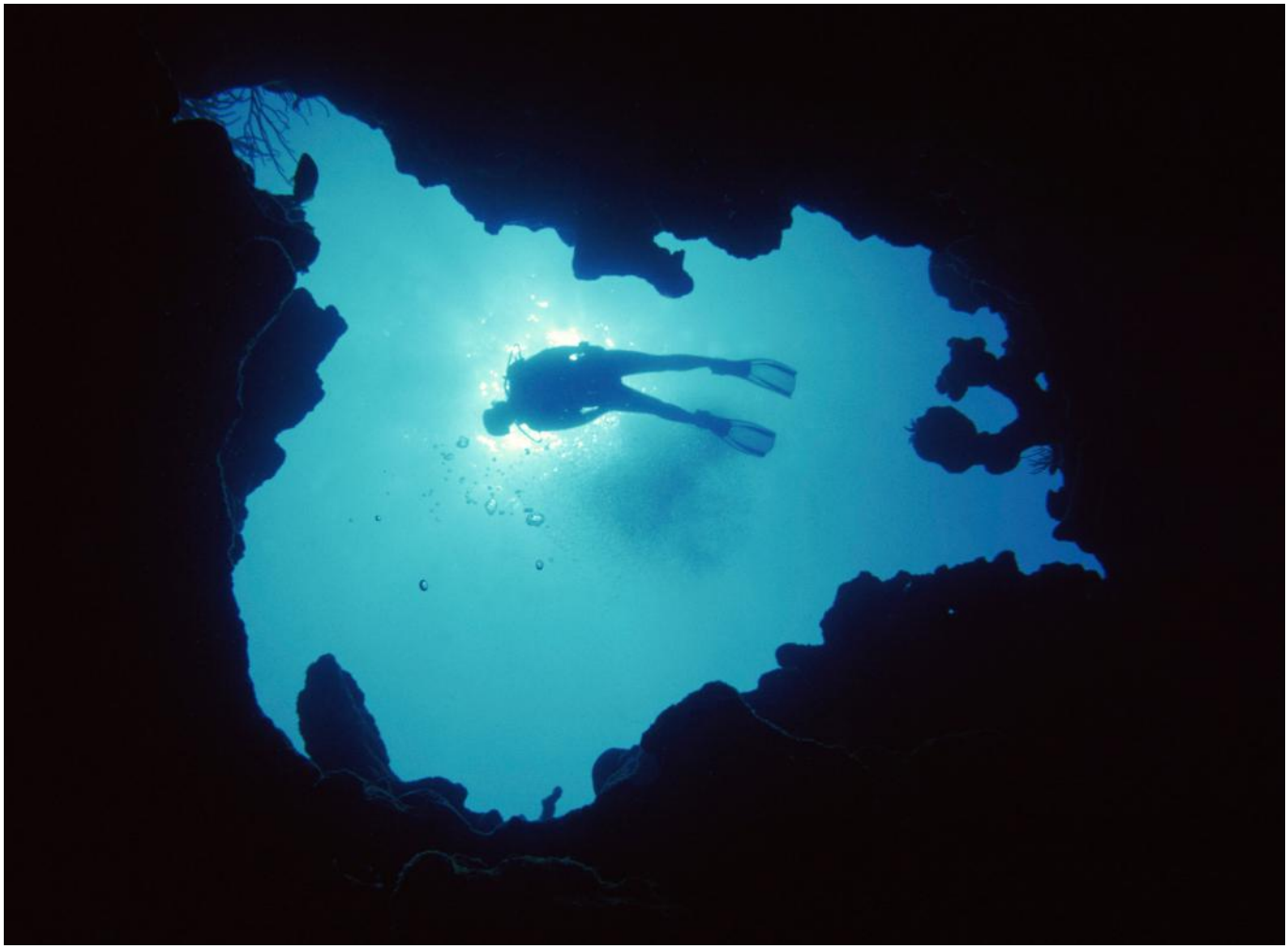
## COURSE OBJECTIVE

The DAN On-Site Neurological Assessment for Divers Provider ("DAN On-Site Neuro Provider") programme is designed to:

- Refresh the knowledge of the warning signs of a dive emergency
- Identify when it is appropriate to conduct an on-site neurological assessment
- Conduct an on-site neurological assessment

# OVERCOMING CHALLENGES WHILE DIVING

FEATURE **DAN STAFF**



Well, I nearly lost my life twice. One was a near drowning experience when three friends and I went diving in rough seas at Dwejra in Gozo, and the other was during a night-dive in the Galapagos.

Both were due to me being silly or not taking the necessary precautions. Back then I was certainly younger and more naive – you always think it won't happen to you or if it does, that you can get away with it. Luckily, I didn't pay the ultimate price.

## HYPERVENTILATING WATER: ALMOST DROWNING IN ROUGH SEAS

Two of my friends and I decided to go for a dive at the inland sea in Dwejra, Gozo. It was the craziest thing we could do. The waves were breaking through that narrow passage, hitting the ceiling, but we had dived there the week before and we thought we'll be fine.

When we eventually came to the rocks it was already way beyond what we imagined. The water was coming into the narrow passage through which we had to pass, and then coming out at such an intense speed, it was basically sucking us in.

It all happened very fast. I remember I couldn't see beyond my hand. I was being pushed from one side to the other. About 10 minutes later, we managed to make it through the tunnel and into the blue and when we got there, we realised what a terrible idea it all was.

"The more you know before your dive, the easier it is to factor in the possibility of what could go wrong."

I was leading the other two guys and we immediately decided we needed to head back. I stopped to wait for them so we would surface together but unlucky for me, a wave broke, literally, all over me, yanking me into the other side of the inland sea, ripping off my mask and regulator. My tank was wedged into a crack and I was hyperventilating water. Thankfully I didn't hit my head, but I saw my whole childhood flash before me and it was then I realised: "I'm drowning, I'm dying".

Instinctively, I reached for my regulator which was dangling at the side of my suit and started trying to breathe again. I then managed to get out from where I got stuck and started to surface. I then made it to hospital where I was treated. Looking back I was really lucky I had the necessary experience and reacted the way I did.

It's easier to know what one can expect when diving in familiar territory. If I'm diving in a completely new environment, then I will take other precautions. I will ask basic questions to ensure I'm completely aware of the sea and weather conditions.

## ADVICE TO DIVERS

The more you know before your dive, the easier it is to factor in the possibility of what could go wrong.

## MY ADVICE TO DIVERS IS:

1. Know yourself.
2. Know your equipment.
3. Know your territory.

Take all the necessary precautions and never, ever think you are about to ask a stupid question. When in doubt, speak. It's better to go in for a dive feeling assured than feeling helpless in a crisis situation. Don't take anything for granted.

DAN | AlertDiver

# UPCOMING EVENTS

## EDA MOVIE NIGHT WITH VOX CINEMAS

**REVOLUTION** | VOX Cinemas, Mercato Mall
Wednesday 7th August 2019 | 18:30 Registration, 19:00 Movie Starts


In this highly anticipated follow up to the hit Sharkwater, film-maker Rob Stewart brings us on an adventure 3.5 billion years in the making – from the evolution of life to the revolution underway to save us. Filmed over four years in 15 countries, Revolution captures some of the most remarkable wildlife spectacles ever recorded, and gives audiences a firsthand look into the biggest battle ever fought.

Discovering that it's not just sharks that are in jeopardy – but us – Stewart looks to the evolution of life and past revolutions in order to uncover the secrets necessary to save our world. Joining the activists and youth fighting to save their future, Stewart's journey of hope is startling, beautiful and provocative, revealing this crisis as an opportunity for everyone to become a hero.

VOX CINEMAS سينما

## DID YOU KNOW?

### THE SUSTAINABLE DEVELOPMENT AGENDA

On 1 January 2016, the **17 Sustainable Development Goals (SDGs)** of the 2030 Agenda for Sustainable Development – adopted by world leaders in September 2015 at an historic UN Summit – officially came into force. The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. The Goals interconnect and in order to leave no one behind, it is important that we achieve each Goal and target by 2030. Click on the link to learn more about each issue: **www.un.org/sustainabledevelopment/sustainable-development-goals/**


**GOAL 14** | Conserve and Sustainably use the Oceans, Seas and Marine Resources

The world's oceans – their temperature, chemistry, currents and life – drive global systems that make the Earth habitable for humankind. Our rainwater, drinking water, weather, climate, coastlines, much of our food, and even the oxygen in the air we breathe, are all ultimately provided and regulated by the sea. Throughout history, oceans and seas have been vital conduits for trade and transportation.

Careful management of this essential global resource is a key feature of a sustainable future. However, at the current time, there is a continuous deterioration of coastal waters owing to pollution and ocean acidification is having an adversarial effect on the functioning of ecosystems and biodiversity. This is also negatively impacting small scale fisheries.

Marine protected areas need to be effectively managed and well-resourced and regulations need to be put in place to reduce overfishing, marine pollution and ocean acidification.

FACTS AND FIGURES

- Oceans cover three quarters of the Earth's surface, contain 97% of the Earth's water, and represent 99% of the living space on the planet by volume.
- Over three billion people depend on marine and coastal biodiversity for their livelihoods.
- Globally, the market value of marine and coastal resources and industries is estimated at $3 trillion per year or about 5% of global GDP.
- Oceans contain nearly 200,000 identified species, but actual numbers may lie in the millions.
- Oceans absorb about 30% of carbon dioxide produced by humans, buffering the impacts of global warming.
- Oceans serve as the world's largest source of protein, with more than 3 billion people depending on the oceans as their primary source of protein.
- Marine fisheries directly or indirectly employ over 200 million people.
- Subsidies for fishing are contributing to the rapid depletion of many fish species and are preventing efforts to save and restore global fisheries and related jobs, causing ocean fisheries to generate US$50 billion less per year than they could.
- Open Ocean sites show current levels of acidity have increased by 26% since the start of the Industrial Revolution.
- Coastal waters are deteriorating due to pollution and eutrophication. Without concerted efforts, coastal eutrophication is expected to increase in 20% of large marine ecosystems by 2050.

SUSTAINABLE DEVELOPMENT GOALS

EDA
جمعية الإمارات للغوص
Emirates Diving Association



**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.

**PUBLISHED BY**

Emirates Diving Association
P.O. Box 33220
Dubai, UAE

**Office Location:** Jumeirah 1, Al Hudaiba Awards Buildings, Block B, 2nd Floor, Office #214

**Tel:** +971 4 393 9390
**Fax:** +971 4 393 9391
**Email:** projects@emiratesdiving.com
**Website:** www.emiratesdiving.com

**Facebook:** Facebook.com/EmiratesDivingAssociation
**Instagram:** eda_uae (Digital Online Gallery)
**Instagram:** emiratesdivingassociation (EDA News)
**Twitter:** @EDA_UAE
**YouTube:** EDAUAE
**Issuu:** www.issuu.com/allylandes



**PRINTED BY**

Al Ghurair Printing & Publishing LLC

# DIGITAL ONLINE

## EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMPETITION

**COMPETITION OPENED:**
Sunday, 6th January 2019

**SUBMISSION ENTRIES CLOSED:**
Sunday, 28th April 2019 at 11:59 PM (GST)

**AWARDS NIGHT & EXHIBITION OPENING:**
22nd May 2019 at The American University in Dubai (AUD)

# WHAT CAPTURES YOUR IMAGINATION?

THE EVENT

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

EVENT BY

EDA
جمعية الإمارات للغوص
Emirates Diving Association

EXHIBITION HOST

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

PRINTING SPONSOR

PRINT WORKS

PRIZE SPONSORS

SCANDI DIVERS

FUNSUN Dive & Travel
www.funsundivetravel.com

BFC TRAVEL MANAGEMENT

Sundive
www.sundive.com.au

AL MARSA Musandam

MTM MARINE

GrandStores DIGITAL

FREESTYLE DIVERS

DiversDown UAE

AL MAHARA DIVING CENTER L.L.C.

SANDY BEACH DIVE CENTRE

DIVE CENTER THE PALMS

Al Boom Diving

Le MERIDIEN AL AQAH BEACH RESORT FUJAIRAH

EDA
جمعية الإمارات للغوص
Emirates Diving Association

**WWW.EMIRATESDIVING.COM** | EDA is a non-profit voluntary federal organisation and is accredited by UNEP as an International Environmental Organisation.