

Inspiring People to Care About our Oceans Since 1995

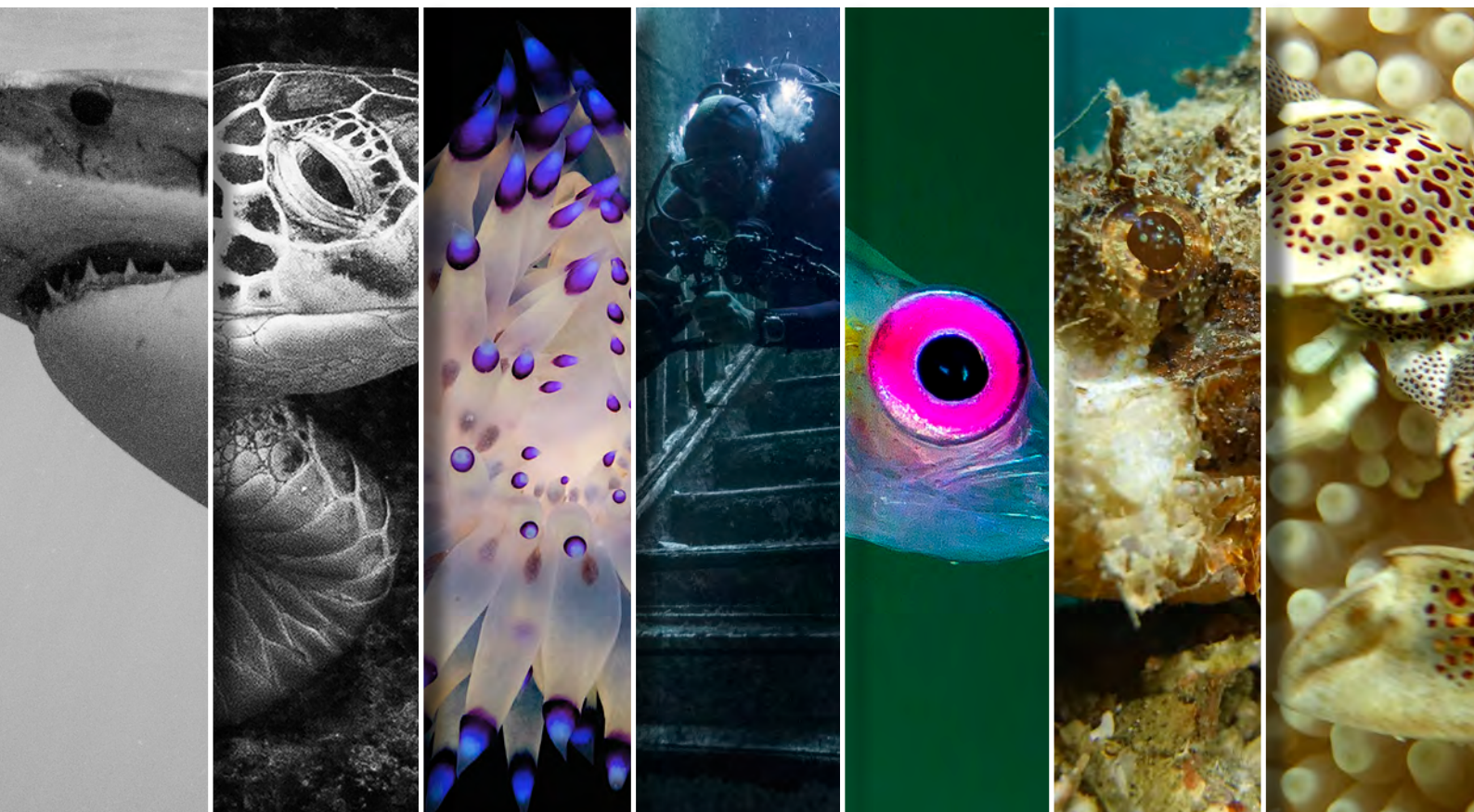
DIVERS FOR THE ENVIRONMENT

WWW.EMIRATESDIVING.COM | MAGAZINE | DECEMBER 2017 | VOLUME 13 | ISSUE 4



THE MADAGASCAR ADVENTURE

MOVIE NIGHTS WITH VOX • KIDS CORNER • REEF CHECK • CLEAN UP ARABIA • DIVING
WITH GLOBETROTTERS • DEEPBLU COSMIQ+ REVIEW • DIGITAL ONLINE IS BACK FOR 2018



DIGITAL ONLINE

EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMPETITION
OUR FAVOURITE EVENT IS BACK ON!

COMPETITION OPENS:

Sunday, 7th January 2018

SUBMISSION ENTRIES CLOSE:

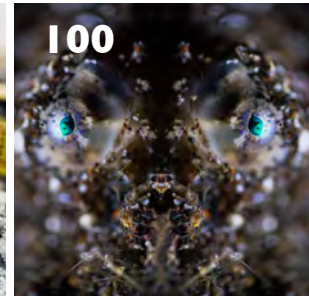
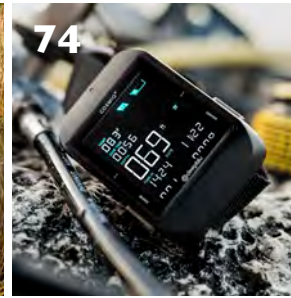
Sunday, 29th April 2018 @ 11:59 PM (GST)

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May 2018 | Date and Venue TBA

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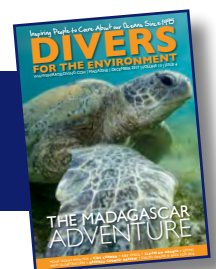
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Our Favourite Event is Back on

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 March 2018. Send all articles, feedback or comments to: magazine@emiratesdiving.com

COVER

PHOTO BY SIMONE CAPRODOSSI
Underwater Treasures of Nosy Be, Madagascar



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KIDS CORNER – FONT USED: DYSLEXIE FONT

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

EDITOR & DESIGNER

ALLY LANDES

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



THE QUARTERLY CONTRIBUTORS

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

Email: magazine@emiratesdiving.com

JESPER KJØLLER

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



SIMONE CAPRODOSSI

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

www.simonecaprodossi.com



NATALIE BANKS

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



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



PATRICK VAN HOESERLANDE

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



NICO DE CORATO

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



SPIRIT OF THE UNION 2017



IBRAHIM AL-ZU'BI
EDA Executive Director

As we celebrate the 46th UAE National Day, we reflect on the spirit that ties us all together; the Spirit of the Union that enables millions of people to coexist and build lives together. The Spirit of the Union is derived from the vision and leadership of the late Sheikh Zayed Bin Sultan Al Nahyan, EDA's Founder; and now lives on through His Highness Sheikh Khalifa Bin Zayed Al Nahyan, President of the UAE and his fellow leaders of the nation's Emirates who are shaping the UAE's future.

It is the spirit that binds the cosmopolitan community of the UAE, connecting us under one banner, one flag. It is the spirit of the union that celebrates our culture and heritage, and yet also shapes our future. The Spirit needs to be celebrated and shared by all citizens and residents of the UAE.

I look back at all our events this year, from the rise in EDA's volunteers, to all my discussions with the members and divers that I sometimes meet randomly while diving in and outside the UAE, and while reading the articles in this issue, the first thing that comes to my mind is that divers are making a difference all over the world. We have some very interesting articles in this last issue of 2017 of Divers for the Environment. You can read our Reef Check updates where divers make use of their underwater adventures and help protect the underwater world. You will also read about lots of initiatives from the diving community and results of our main clean up campaign – Clean Up Arabia.

Clean up Arabia 2017 was another great success this year; we had a fantastic turnout on members helping to clean our beaches and our dive sites. I would like to thank our Clean Up Arabia sponsors for their generous support, our partners in UNEP, the UAE Ministry of Climate Change and Environment and Dibba Municipality for their support and

most importantly, our EDA members for their dedication and passion to conserve our environment. I have no doubt that all divers want to protect and conserve the marine life. In simple words, we want to enjoy our dives and be responsible at the same time; without healthy corals or fish, dives would be boring!

Making a difference goes beyond protecting the environment, although as you will read in this issue, our divers have been so busy organising clean ups and awareness campaigns, I am very happy to see more activities for different stakeholders of the community, such as social movie nights at VOX Cinemas in the UAE and school awareness sessions.

We are officially launching the Digital Online Underwater Photography and Film Competition 2018 Rules and Guidelines in this issue. I want to wish everyone the best of luck in the competition, a big thanks to the judges and looking forward to seeing the amazing photos and films.

I would like to wish everyone a Happy 46th UAE National Day. I also want to wish you all a Merry Christmas and a Happy New Year. I am looking forward to 2018, which I am sure will be as exciting, fun and rewarding as this year.

"On land and in the sea, our fore-fathers lived and survived in this environment. They were able to do so because they recognised the need to conserve it, to take from it only what they needed to live, and to preserve it for succeeding generations." The late Sheikh Zayed Bin Sultan Al Nahyan

Happy reading and safe Diving!

Ibrahim Al-Zu'bi

Ibrahim N. Al-Zu'bi

46 روح الاتحاد
SPIRIT OF THE UNION
اليوم الوطني
UNITED ARAB EMIRATES الإمارات العربية المتحدة



AN EDA MOVIE NIGHT WITH VOX CINEMAS LAGOON OF LOST SHIPS



In our partnership with VOX Cinemas – Mercato Mall, we are able to host our members through a state of the art environment to show four screenings a year (some with special features, such as these informative Q&A's).

On Wednesday the 15th of November, Jesper Kjølter took us through his own exploratory journey to the Lagoon of Lost Ships and was able to personally answer members' questions

following his detailed article published in the September's magazine issue.

FILM SYNOPSIS

LAGOON OF LOST SHIPS | MAY 14, 1971

The Undersea World of Jacques Cousteau is a nonfiction documentary television series focusing on marine biodiversity, directed by Alan Landsburg and hosted by French filmmaker, researcher and marine explorer

Jacques Cousteau. The first episodes of the series aired from 1968 until 1975.

Truk lagoon in the South Pacific, the site of a fierce battle during WWII, is now home to around 50 sunken Japanese vessels. The crew explores the Pacific lagoon to learn how marine life adapts to foreign matter. The divers discover an uncharted sunken freighter, complete with the skeletons of its long-dead crew.





CLEAN UP ARABIA EVENT

THE BOSTON CONSULTING GROUP

On the 5th of October, the Boston Consulting Group manned a team of 37 employees to tackle a section of public beach for a clean up in Umm Al Quwain. The beach was strewn with plastics, cigarette butts and other non-biodegradable items. From the most unusual things collected that day, there were 3 carpets, a cooking pot and a statue which were all disposed of with everything else through the Umm Al Quwain Municipality.

Plastic and metal bottle caps, plastic lids, beverage vessels of every kind, plastic plates, cups, cutlery and cigarette butts are the biggest of culprits on the list of things collected and an eye sore. This beach is used as a camping and

picnic ground and as was evident, every single camper using it, leaves their rubbish behind for it to become someone else's problem. The very large bin provided on location was left empty.

Emirates Diving Association organises these private clean up events for companies looking to hold staff team building activities or for schools looking to educate young minds about the plight on plastics in an era where we need to put a stop to the harm it is causing our planet, marine life, wildlife and to ourselves. Our Clean Up locations are prioritised on the areas with the most clean up needs. Together, we make a difference and make the change needed.



For enquiries on how you can make a difference with your team, contact EDA by calling our office on +971 4 393 9390 or email projects@emiratesdiving.com and we'll send you all the package details.





UMM AL QUWAIN BEACH CLEAN UP

TRASH TYPE	TOTAL
MOST FOUND ITEMS	
Cigarette Butts	930
Food Wrappers	68
Plastic Take Out Containers	23
Foam Take Out Containers	28
Plastic Bottle Caps	294
Metal Bottle Caps	177
Plastic Lids	243
Straws/Stirrers	28
Forks/Knives/Spoons	99
Plastic Beverage Bottles	380
Glass Beverage Bottles	267
Beverage Cans	181
Plastic Grocery Bags	104
Other Plastic Bags	156
Paper Bags	96
Paper Cups & Plates	62
Plastic Cups & Plates	69
Foam Cups & Plates	13
FISHING GEAR	
Buoys/Pots/Traps	3
Net and Pieces	5
Fishing Line	17
Rope	51
OTHER TRASH	
Appliances	8
Cigar Tips	22
Cigarette Lighters	20
Construction Materials	102
Tyres	3
PACKAGING MATERIALS	
6-Pack Holders	3
Other Plastic/Foam Packaging	158
Other Plastic Bottles	8
Strapping Bands	2
Tobacco Packaging	13
PERSONAL HYGIENE	
Condoms	3
Diapers	2
TINY TRASH (<2.5cm)	
Foam Pieces	3
Glass Pieces	1
Plastic Pieces	7
EXTRAS	
Table	1
Cooking Pot	1
Aluminium Pieces	4
Carboard Pieces	3
Clothing Items	4
Coconut	1
Carpets	3
Religious Statue	1
Wood Pieces	2
GRAND TOTAL:	3669
TOTAL NUMBER OF TRASH BAGS:	52
TOTAL WEIGHT COLLECTED (KGS):	546

SUSTAINABILITY WEEK 2017



As part of their commitment towards sustainability, Abu Dhabi Ports launched the Abu Dhabi Ports HSE Week on the 16-18 October, 2017 under the theme, Sustainable Businesses for a Sustainable Community. The event was organised by Abu Dhabi Ports and considered as a collaborative initiative for both Government and Business Stakeholders with the objective to raise awareness, share knowledge and instil the culture of sustainability among all port users.

During the 3 day event, activities and learning tools focused on Sustainability, Health, Safety and Environment (HSE), Green Belt, Power and Water Conservation, Waste Disposal, Protection of the Marine Environment, and also highlighted the benefits of research and technology in promoting sustainable developments.

Activities and learning tools on display during the sustainability week:

- Photography Gallery
- Sustainable Recycling and Waste Water Treatment with presentation, film screening, exhibition and model display
- Sustainable Power and Water Conservation
- Games and competitions
- Ergonomic presentation and film screening
- National Security Institute demonstration
- Health screenings done by hospitals and medical centres
- HazMat presentation
- Introduction to the NEESHAN programme
- SENYAR Road Show
- Display of Abu Dhabi Ports publications
- Sustainability, HSE & Business Continuity tips
- Turtle rescue demonstration through audio visual materials
- Debris boat activities showing the impact it

has on the community

- Emergency Management Awareness
- Business Continuity Awareness by NCEMA and delegates
- Distribution of messages and gifts

Emirates Diving Association received an invitation to take part in the Sustainability Week where we were able to openly speak with university and school students about the importance of marine life protection, and increasing awareness about the value of environmental diving.

In addition, EDA's Heritage Department shared a pearl display of the UAE's history of pearl diving and the tools once used, along with a documentary film on display to show the techniques that were used to collect the salt water pearls of the region.



LEFT: Captain Maktoum Al Houqani, Chief Marine Services Officer at SAFEEN – Abu Dhabi Marine Services (second from right), receiving an EDA Membership Certificate from EDA's Project Coordinator, Maisa Abuzatoun. **RIGHT:** EDA's Heritage Department pearl diving display.

“THE OCEANS NEED PROTECTION – OUR LIVES DEPEND ON THEM”

One of the world's most innovative researchers into the future of the oceans and marine life, Professor Rashid Sumaila, receives the Volvo Environment Prize for 2017. He is an economist who has challenged traditional ways of marine governance and has introduced new ways of thinking, such as protecting the high seas as a “fish bank” for the world.

Scientists at the University of British Columbia, Canada have been compiling statistics clearly demonstrating that the global fish catch has stalled and is now falling, despite increased efforts from fishing fleets all over the world.

“There is clear scientific evidence, supported by reports from fishermen all over the world, that we are currently taking out too much fish, depleting our resources,” says Professor Rashid Sumaila, Director of the Fisheries Economics Unit, Institute for the Oceans and Fisheries at the University of British Columbia.

Global fisheries catch is about 130 million tonnes of fish a year, caught both legally and illegally. It is a huge business, with an economic impact of about USD 500 billion a year, providing much-needed protein for billions of people and jobs for tens of millions. With global fish catch now in decline, both the business and food security are threatened.

Rashid Sumaila's research covers all aspects of the future health of the oceans, but he also provides solutions for managing the marine



biosphere. One of his suggestions is to close the high seas to commercial fishing. His idea initially was seen as totally unrealistic but the first high seas marine protected area, the Ross Sea in Antarctica, will come into force by the 1st of December 2017.

“If we were to protect the high seas, we would create areas where the fish can hide and grow. Fish can later seed the economic zones of countries. This will improve not only the marine biodiversity but also economics,” says Rashid Sumaila.

Another of Rashid Sumaila's research areas is subsidies to fishing fleets. He finds them mainly harmful and a factor behind overfishing. Through calculations, it has been estimated that it would be necessary to substantially cut down the current fishing fleets in order for the fish stocks to re-grow.

“To say that the oceans are our lives, is not an understatement: They need protection and how we treat them will have a profound impact on current and future generations,” says Rashid Sumaila.

The motivation of the jury of the Volvo Environment Prize Foundation:

“Professor Sumaila is one of the world's most innovative researchers on the future of the oceans, integrating the social and economic dimensions with ecology, law, fisheries science and traditional knowledge to build new pathways towards sustainable fisheries. He is a highly effective, strongly interdisciplinary researcher tackling one of the most complex global sustainability challenges of the 21st Century.”

The Volvo Environment Prize was founded in 1988 and has become one of the world's most prestigious environmental prizes. It is awarded annually to people who have made outstanding scientific discoveries within the area of the environment and sustainable development. The prize consists of a diploma, a glass sculpture and a cash sum of SEK 1.5 million and will be presented at a ceremony in Stockholm on the 29th of November 2017.

For more information about the 2017 laureate and the Volvo Environment Prize: www.environment-prize.com

WHAT INSPIRES YOU TO DIVE?

BY **HASSAN NK KHAYAL** | AN EDA MEMBER

One of the most amazing things about scuba diving, is what it means to an individual diver:

In the goal of satisfying my own personal curiosity, I took up asking a boat full of divers, exactly that. Why is it, that they dive? The fascinating thing about it is, no two answers are ever the same and the beauty of that is, there is no wrong answer.

The call to the underwater world is a personal one, and the reason divers from all walks of life are attracted to the exploration of the underwater world, is the diversity aquatic life brings to them.

As expected, the answers I received were each unique, so I wanted to share them in the hopes of perhaps inspiring a few more people to discover why it is that they dive.

THE WEIRD AND WONDERFUL BEHAVIOUR OF FISH

Fish act in unique and different ways, whether it be clown fish being overly protective of their home, or watching a goby and a shrimp living together in a hole, it helps bring joy to my day and my dive.

BEING IMMersed IN A DIFFERENT WORLD

It makes us feel appreciative of the grandeur of our planet and nature, and helps remind us of the importance of preserving it.

FEELING THE EXCITEMENT WHEN ENCOUNTERING THE BIG THINGS

Who doesn't enjoy running into a Blacktip Reef Shark, or a large Sting Ray on Dikka Rock and capturing them on a GoPro? If we are extremely lucky, once in a blue moon, we'll even spot a Whale Shark!

FLOATING WITH THE CURRENT AND ENJOYING THE BEAUTIFUL REEFS

There is a lot in life that we cannot control, and sea currents are one of those things, but it is quite enjoyable to simply let the current carry us on the course of our favourite dive sites.

TURTLES

Turtles are everyone's favourite dive buddies. Entire dives were had enjoying the company of these sweethearts.

REDISCOVERING THE DIFFERENT VARIETY OF FISH THAT LIVE ON THE LOCAL REEFS

Diving almost every weekend for the past ten years on the same dive sites, I still encounter creatures that leave me curious to what they are.

DE-STRESSING FOR THE DAY

I stress a lot at work, and for me, a day of diving means a day where the only thing I need to stress about, is the quality of my pictures, and the quality of my dive snacks.

SEEING THE WONDER IN MY STUDENTS' EYES WHEN THEY SEE SOMETHING NEW

This is my personal reason to dive as an instructor; it actually brings me more pleasure when I see my students find the things that they really enjoy, even if it is the regular clown fish or eel that I see on almost all my dives. My favourite dive? Definitely the first pool dive when my students' eyes open up wide with wonder as soon as they hit the water. Every time, without fail.

So here you have it, some of the most popular reasons for diving are listed here. Give it some thought, what is your reason for diving? Once you think about it, you will find you enjoy your hobby that much more.

SHARK DIVING WORKSHOPS

WORKSHOPS BY **SHARKS EDUCATIONAL INSTITUTE (SEI)**

INTRODUCTION

Blacktip Reef Sharks (*Carcharhinus melanopterus*) are one of the most important large reef predators which some divers rarely get the opportunity to see.

The Arabian Bamboo Sharks (*Chiloscyllium arabicum*) are very small and shy coral reef sharks classified under the IUCN Red List as Near-Threatened.

Each Diving Workshop is comprised of a brief theoretical introduction to each specific shark species, their biology, ecology, and their behaviours, followed by a set of four dives with the species. The participants will be able to identify different shark behaviours and make use of the shark diving techniques taught.

These types of Diving Workshops are specially designed and oriented to increase the knowledge and environmental awareness of all divers interested in the conservation of our natural oceanic world.

WORKSHOP OVERVIEW

The workshop activities are based on a variety of techniques and experiences, developed in the field of marine education and conservation, targeting the importance of sharks within the marine ecosystems.



PROGRAMMES

1. Introduction to the sharks' biology, ecology and general behaviour.
2. Shark species ecology and conservation status (according to each local species selected for the workshop study).
3. Shark data collection techniques (citizen-science cooperation).
 - Workshop Dives 1 and 2 (Briefings and Debriefings)
4. Shark-human interaction recommendations.
5. Shark incident standard procedures.
 - Workshop Dives 3 and 4 (Briefings and Debriefings)
6. Final evaluations, certificates and farewell.

WORKSHOP GOALS

The purpose of each workshop is to introduce participants to sustainable shark diving techniques, as well as see the different ways each studied shark species allows us to interact with them.

DIVERS WILL THEN BE ABLE TO:

- Recognise Blacktip Reef Shark/Arabian Bamboo Shark species;
- Make a quick assessment of each shark's behaviour;
- Behave in a sustainable way underwater in balance with the studied shark species and its environment;
- Be aware of important shark traits;
- Know how to record vital shark information.

ENROLMENT REQUIREMENTS

If you have an environmental based interest in sharks, you will discover the value of these workshops in your future diving experiences.

The Sharks Educational Institute team are run by two highly experienced shark diving experts, Fernando Reis and Manuela Domingues. Both are qualified to deal with any shark interactions, and to teach all ages how one should behave when dealing with sharks in their natural environment, following sustainable and respectful techniques.

In order to participate, you must be a Certified Diver and sign the Shark Diving Liability Release form. At the end of these Shark Diving Workshops, all participants will be asked to answer a short knowledge questionnaire after which they will receive their SEI Shark Diving Certificate.

BLACKTIP REEF SHARKS DIVING WORKSHOP

DATE: 12-13 January 2018
FROM: FREESTYLE DIVERS
Dibba, Fujairah

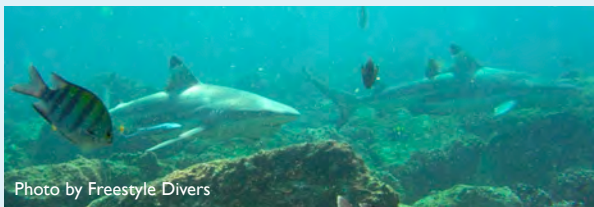


Photo by Freestyle Divers

WORKSHOP PRICE: AED 1,800 per participant.

EDA MEMBERS' PRICE: AED 1,500

EDA Members get AED 200 off our workshops and AED 100 discount from Freestyle Divers.

In order to receive your AED 300 discount, please send us a copy of your EDA Membership card/number when you register. Note that due to the scheduled dates, there are limited places available. Based on a first come, first served basis.

Please Register by Email to: sharks@freestyledivers.me
If you have any questions beforehand, send a message to: info@sharksinstitute.org

ARABIAN BAMBOO SHARKS DIVING WORKSHOP

DATE: 26-27 January 2018
FROM: AL MAHARA DIVING CENTER
Beach Rotana Hotel and Spa, Abu Dhabi



Photo by Peter Mainka

WORKSHOP PRICE: AED 1,625 per participant.

EDA MEMBERS' PRICE: AED 1,325

EDA Members get AED 200 off our workshops and AED 100 discount from Al Mahara Diving Center.

In order to receive your AED 300 discount, please send us a copy of your EDA Membership card/number when you register. Note that due to the scheduled dates, there are limited places available. Based on a first come, first served basis.

Please Register by Email to: kathleen@divemahara.com
If you have any questions beforehand, send a message to: info@sharksinstitute.org

WANT TO WIN A MEGA PRIZE?

WANT TO WIN AN AMAZING PRIZE?

To celebrate the addition of the RAID curriculum to the Freestyle Divers training catalogue, we have created a unique opportunity for three people to win an amazing prize.

Freestyle Divers is the only dive centre in the UAE with the coveted "RAID Dive Centre IT" rating and can offer recreational training up to instructor, as well as technical diving training.

WHAT IS RAID?

For those of you who don't know RAID, it is the world's fastest growing diver training agency with both full service and satellite regional offices, dive stores and instructors waiting to provide diver services to you across the globe. RAID is also the first diver training agency to offer a complete range of online diver academic programmes from beginner to instructor/examiner levels in snorkelling, scuba and freediving.

RAID places a very high focus on training quality. For example, the minimum requirements and prerequisites to enter instructor training necessitates almost twice that compared to current industry standards. The most popular entry level program: Open Water 20, requires more in-water hours to develop skills than is generally required by industry standards. To be a RAID instructor, or even a RAID entry level diver, your buoyancy control needs to be at the top of the skills list and all training with RAID, is conducted in neutral buoyancy from the very beginning.

SO WHAT IS THIS AMAZING PRIZE?

Freestyle Divers has decided to provide the opportunity for three people to go all the way from beginner to RAID instructor. For free. Yes, you understood correctly. For free.

This represents a massive investment of time, effort and money and we will be running a "real-time" blog as well as quarterly articles in the EDA magazine describing the group's progress. RAID International will be participating in the programme, so you will have the attention of the top management from the agency.

The training path will include RAID Open Circuit Open Water 20, RAID Advanced 35, RAID Master Rescue, RAID Divemaster, Rescue Breathing/CPR/BLS Training and Oxygen Provider Instructor, and RAID Open Water Instructor qualifications. We do not guarantee a pass on these courses, that is up to you!

A UNIQUE OPPORTUNITY TO LIVE THE DREAM!



WHAT YOU NEED TO QUALIFY

- To qualify, you must be a minimum of 18 years old.
- First you will need to send your application to RAID@freestyledivers.me
- We'll need a letter of motivation and a recent photo.
- Every potential candidate will be sent a quiz and those who attain a passing score will be short listed for interviews.

THE FINAL SELECTION

We will select the final three based on the following criteria as well as a good fit with our teaching team:

- You must be a confident swimmer;
- You must speak and write English fluently;
- You must not be afraid of hard work;
- You must have the time available to dedicate to the programme, it will be intensive;
- You must be comfortable that we will publish your progress;
- Most of all, you must have a love of the ocean and the drive to succeed!

If you feel that you can tick all these boxes, what are you waiting for? Send your application now and get ready to join us for a unique opportunity to become a highly accomplished and well known diving professional.

We look forward to hearing from you, applications close at the end of December 2017.

Your Freestyle Divers Team
#diveYOURstyle



AL MAHARA DIVING CENTER HAS SOME BIG NEWS



Al Mahara Diving Center is a PADI 5 Star Diving Centre offering our customers a wide range of services while providing a stress-free, fun environment for learning with plenty of time for practical application.

We invite you to join us for diving trips throughout the United Arab Emirates to discover the beauty of the underwater life in the UAE throughout our diverse dive sites which include fascinating wrecks and stunning coral reefs.

As well as diving, here at Al Mahara we offer a whole host of watersports including mangrove kayaking, sunset boat cruising, deep sea fishing, snorkelling trips, jet ski tours and rentals,

flyboarding, wakeboarding, towables as well as a whole host of other activities.

We are proud to announce that our activities will be available at three fantastic, 5 star locations in Abu Dhabi which include: InterContinental Hotel, Al Raha Beach Hotel as well as the Beach Rotana Hotel and Spa.

Al Mahara has a team of devoted, passionate instructors and team members with an adept knowledge of watersports and diving who are ready to train and teach you in all marine endeavours. Whether it's above or below water, we at Al Mahara are there to guide you through your nautical journey and provide you with an unforgettable experience!

Al Mahara Diving Center can now be found in these locations:

INTERCONTINENTAL
(Bayshore Reception)

Email: recreation.icabudhabi@ihg.com
Tel: 02 666 6888 (Ext. 5296)

AL RAHA BEACH HOTEL

Email: alraharecreation.alraha@danathotels.com
Tel: 02 508 0555

BEACH ROTANA HOTEL AND SPA

Email: beach.hotel@rotana.com
Tel: 02 697 9000

AL MARSA TRAVEL

FEATURE **AL MARSA TRAVEL** UNDERWATER PHOTOGRAPHY **NIKLAS NILSSON**



Al Marsa Travel opened in 1999 and is a PADI 5 Star Dive Centre located on Dibba Oman Port's waterfront. Named by PADI as one of their Top 10 PADI Dive Centres across the Musandam Peninsula, Al Marsa Travel has built up their own reputation within the diving community for their team spirit and level of professionalism. They are also listed on www.tripadvisor.com as one of Dibba Musandam's top dive centres.

Dive with us and relax knowing you are in the company of the Musandam's most respected dive operation, with some of the region's most experienced professional dive team.

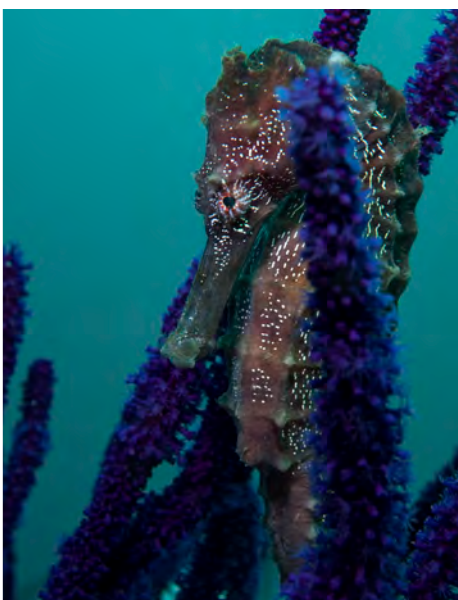
We are the main recommended dive centre for

many national and international travel agents and tour operators offering tours in Oman. We have worked with most of these companies for many years and continue to provide services to their guests such as Schoener Tauchen, Beluga Reisen, Dive Worldwide, Orca Reisen, SUBOCEA, Dive & Travel and Fun & Fly. We are also recommended by many of our returning customers and have built up a strong reputation by word of mouth, of which we are very proud.

At Al Marsa, we have a dedicated, permanent team who are all passionate about diving! Our Instructors, Divemasters and maintenance crew are all highly skilled and qualified, and have an excellent command of English. The team have worked with Al Marsa for many

years and bring a wealth of diving knowledge and experience which covers all the dive sites in the Musandam area. There are a number of very unique and breathtakingly beautiful dive sites to explore, and our dive team have a sound knowledge of them all to guide divers around the best and most famous ones.

The dive centre is fully equipped with the latest scuba gear on the market. All our kits, from the regulators, fins, BCDs, down to the masks, are all well known quality brands. We have our own compressors onboard each of our dhows maintained by our highly skilled crew, and our own classroom facilities with open air learning/briefing/discussion areas, as well as an air conditioned classroom.



DEMA SHOW ORLANDO 2017

FEATURE AND PHOTOGRAPHY **JESPER KJØLLER**



Dive pros waiting for the show to open on the first day.

The Diving Equipment and Marketing Association (DEMA) is the international trade organisation for the global scuba industry. Every year, DEMA hosts the world's largest trade show in the diving industry. We were there to report on the event.

I always try to attend the DEMA show when Orlando, Florida are hosting the event every other year. Why do I prefer Orlando, I hear you ask? When it comes to diving, Florida is by far the most interesting state in the USA. Not only are many American scuba manufacturers based in the Sunshine State, but also a handful of international dive training organisations have their headquarters there. When you think about it, it is not that strange. The variation of diving in the south-eastern corner of the North American continent is exceptional. North Florida is well-known for some of the largest submerged cave systems in the world and for the very excellent cave diving in the area. The tropical coral reefs along the Atlantic offers easy and accessible Caribbean style diving. And dotted around the coastline, you will find a handful of scuttled shipwrecks and even a 727 aircraft. In the Mexican Gulf, you can visit the largest artificial reef in the world, the Mighty O (the scuttled aircraft carrier USS Oriskany). So, no matter if you prefer caves, wrecks or corals, or a little bit of everything, Florida will keep you entertained. Consequently, many dive professionals try to

sneak in a couple of diving days in conjunction with the four DEMA Show days. The show is alternating between Orlando and Las Vegas every other year, but Nevada is not really known for having great diving opportunities...

Well, no matter if you fancy gambling or diving, the DEMA Show beckons dive professionals and industry people from the entire globe to travel to the USA every November.

TRANSFORMATION

The first DEMA Show dates back to 1977 and the early exhibitions were very important platforms for launching new products. It was usually during the DEMA Show that all the major equipment manufacturers launched the new catalogues for the following year and the dive journalists were standing in line to get a firsthand glimpse of next year's products and to report back to the various scuba diving magazines. But, gradually over the years, the internet has completely changed the publication landscape and nowadays new products are launched on digital platforms when they are ready for the public and not just once a year.

Consequently, the DEMA Show has transformed from mainly being an event based around new hardware and equipment, to also include exhibitors within training organisations, dive travel and destinations and everything in between. Some of the destinations are organised

in larger colonies like the always popular Caribbean Village or the Indonesian Pavilion. Other destinations are dispersed around the show floor. It is always a colourful and sensory pleasing experience to visit the many destination booths as they try to bring a little bit of their paradise to the show.

FROM COMPACT TO FULL FRAME

The Image Resource Centre is another busy area at every DEMA Show and this is a good place to hang around if you want to spot a couple of the major trends in underwater imaging or to have a chat with the many well-known and reputable underwater photographers that attend the show each year.

I remember back to an earlier DEMA Show at a year when one of the earliest GoPro versions was first introduced. That event heralded an entirely new product category – the compact action camera. That particular year, the new GoPro was the talk of the show. This year the Danish start-up Paralenz seemed to dominate the action camera category with a couple of interesting features and novel ideas. The built-in depth sensor makes it possible for the software to automatically colour-correct the images or videos. No external light filters are necessary. The accompanying App will log the data from the dive, including temperature and depth, and place your photos or videos on a timeline related to your dive profile.



L-R: Members of the Hamilton Expedition in Iceland meeting with one of the sponsors, Ocean Reef. The famous wildlife photographer and expedition leader, Amos Nachoum at the Image Resource Centre stage. The British dive wear specialist, Fourth Element displayed their new products in the Ocean Positive line. Sea&Sea were among the housing manufacturers with solutions ready for the new Nikon flagship D850.

At the other end of the spectrum, all the main housing manufactures were ready with solutions for the new Nikon D850, a camera body so full of features that it will make many photographers stick with big full frame DSLR-systems instead of moving towards the smaller and more compact mirrorless platforms that otherwise seem to be a trend.

The Image Resource Centre also sported a small stage for presentations and that was a good venue for getting tips on editing, lighting or other useful techniques.

OCEAN POSITIVE

The British dive wear specialist, Fourth Element is always interesting to follow. Their DEMA booth featured their biometric body scanner for taking drysuit measurements. The technology is simple to use in the shops and it eliminates confusions about how to accurately size up a customer for a new made-to-measure drysuit.

The FE booth was busy during the four show days, but I managed to get a word with Fourth Element's Director, Jim Standing about their new Ocean Positive initiative.

"We are taking small steps every day to improve our products but also to consider the environmental impact. Our swimwear continues to be made from 78% recycled materials. Each piece of swimwear will come packaged in our

new non-plastic bags. Made from cassava starch and other renewable resources, it biodegrades in months and can be recycled with paper or on your compost heap", said Jim.

"All new products will be housed in plastic-free packing which can be reused or recycled. We intend this to be just the beginning of ensuring every product is made with the well-being of our oceans at the forefront."

The Technical Diving Resource Centre at the DEMA Show is another area that encapsulates all exhibitors within the tech community. Rebreathers, cave dive destinations, specialised equipment and technical oriented training organisations are occupying this area and another presentation stage is used for talks and presentations about cave diving techniques, rebreather technology and decompression strategies.

HARD CHOICES

Outside the main hall, numerous break-out sessions takes place. Some are open to everyone, others are by invitation only. The training organisations such as PADI and SSI, usually conduct instructor updates and they use the show to launch new programmes or bring important information to the world-wide instructor core.

Service seminars, marketing sessions, destination presentations, instructor training

and crossovers are among the various subjects, and the abundance of these sessions can almost be a little stressful, as you will have to make some choices when several interesting events take place simultaneously. If you want to make sure not to miss anything, you will have to plan your days meticulously, but the DEMA Show App makes it very easy to find your way around the enormous Orange County Convention Centre and makes sure you do not miss any events, presentations or meetings.

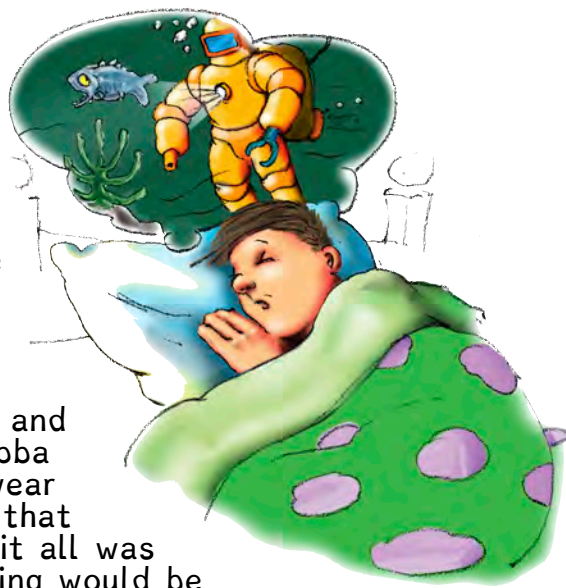
For me personally, the most compelling reason to visit the DEMA Show is the opportunity to meet and catch up with friends from the world-wide scuba diving industry, so I will make plans to visit again next year when the DEMA Show takes place in Las Vegas 14-17 November 2018. If you happen to be in the neighbourhood, it is worth a visit – even though it is a trade show, you can still attend, even if you are not professionally involved in the diving industry.



DREAMS

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

In the week up to their pool training, Skubba grew more nervous by the day. He could hardly contain the increasing tension. At last, he would learn to dive with real diving equipment. They no longer had to make their own dive suit, and equipment, but Skubba would now get to wear the real thing. Not that making and testing it all was no fun, but real diving would be something even greater. And he was very excited about it.



He dreamed how he, in a few years, would discover new places underwater for himself. How he, as a diving explorer, would be the first to discover the city of Atlantis. In the movie they had to drill through the earth's crust, but Fred had read in a book that the city had sunk underwater. It had to be somewhere on the seabed. And that was a challenge for real divers, there would be no drilling through dirt.

On another day, he dreamed how he would be the first to discover a new wreck. It would be the most beautiful thing he would ever see. An intact ship resting on the bottom of the sea with a lot of fish circling around it. Fish of all sizes and colours. And dolphins. And whales. And...

During the day, he was a daydreamer and his thoughts wandered off. When the instructor spoke to him, he stared blankly at the board. He was somewhere else out diving.

"Skubba. Skubba!" the instructor's voice brought him back to his desk. But only for a moment, because he would soon be back amongst the bubbles and the fish.

In his bag, he carried a stack of drawings that he had made during his free time. He had drawings of divers, sunken ships lying on



the sea bed, real and fantasy fish and lost cities.

Fred had his mind on diving too and he also started to dream of it. Would he learn to dive with his friend? He liked the idea of diving, but he was afraid of water. He could not swim and thought he would never be allowed to learn to dive. Water was not for him, that was something just for Skubba.

Skubba? What would his friend think if he did not go with him? He would understand, but could he let his friend down? Skubba would need help. Someone had to assist him. And Fred was very eager to know and learn more about diving. Suddenly it was clear to him; he would go, not to dive, but to learn and to help when he could be useful.

Fred's fear of water gave way to thoughts of all the special diving gear that would be needed to dive far and deep, of tanks with extra air, of submersibles with sensors to find wrecks, and of new fish that they would discover together. His stack of drawings in his school bag also grew as he drew what he imagined the underwater world to look like. A few days later Fred came out of the library with a pile of books on diving, fishing and the oceans. He would read and study them all!

And so this carried on until the day of their first pool training.

DIVING EQUIPMENT

STORY BY PATRICK VAN HOESERLANDE ILLUSTRATION PETER BOSTEELS

On their very first training day, Skubba and Fred were both very tense. Skubba's mother had driven them to the pool and their parents were relieved they were finally starting the course as they had both become very restless with the follow up to learning to dive. What an adventure they were going to have!

Skubba and Fred were an hour early for their appointment with Nella. They could not wait and were afraid that they would be late. Skubba's mother had told them that they would be too early, but they wouldn't listen. They wanted to go and be ready. Skubba had his swimming gear with him, but not Fred. After all, he had decided not to dive. Yet he came along to support his friend and learn all about diving. Nothing could stop them now.

Nella had also arrived early, and when she saw the boys, she decided not to let them wait any longer. She saw how excited they were and didn't want to disappoint them. She called them and asked the two friends to help her unload the diving equipment from her car. Full of enthusiasm, they carried the dive box to the pool and put it down at the entrance hall. Nella opened the box and took out some diving gear. Then she closed the lid.

"Good afternoon Skubba and Fred. Welcome to our youth diving school," she said.

The two boys replied politely, but no more than a "hello" came from their mouths. They were too busy staring at the equipment Nella held in her hands.

"Do you know anything about diving equipment?"

Fred began to tell her all about their adventures with the homemade diving helmet, the dive bag and the belt with weights. Nella was amazed by the duo's creativity. She wanted to know every

detail, but that had to wait for now as they had a lot to get through.

"You two know a lot about diving. Here, in this box is all my stuff. This is what we call ABC equipment." She showed them a mask, a snorkel, a pair of fins and a weight belt, and lay them on the lid.

With open mouths, Skubba and Fred admired all the material. Wow!

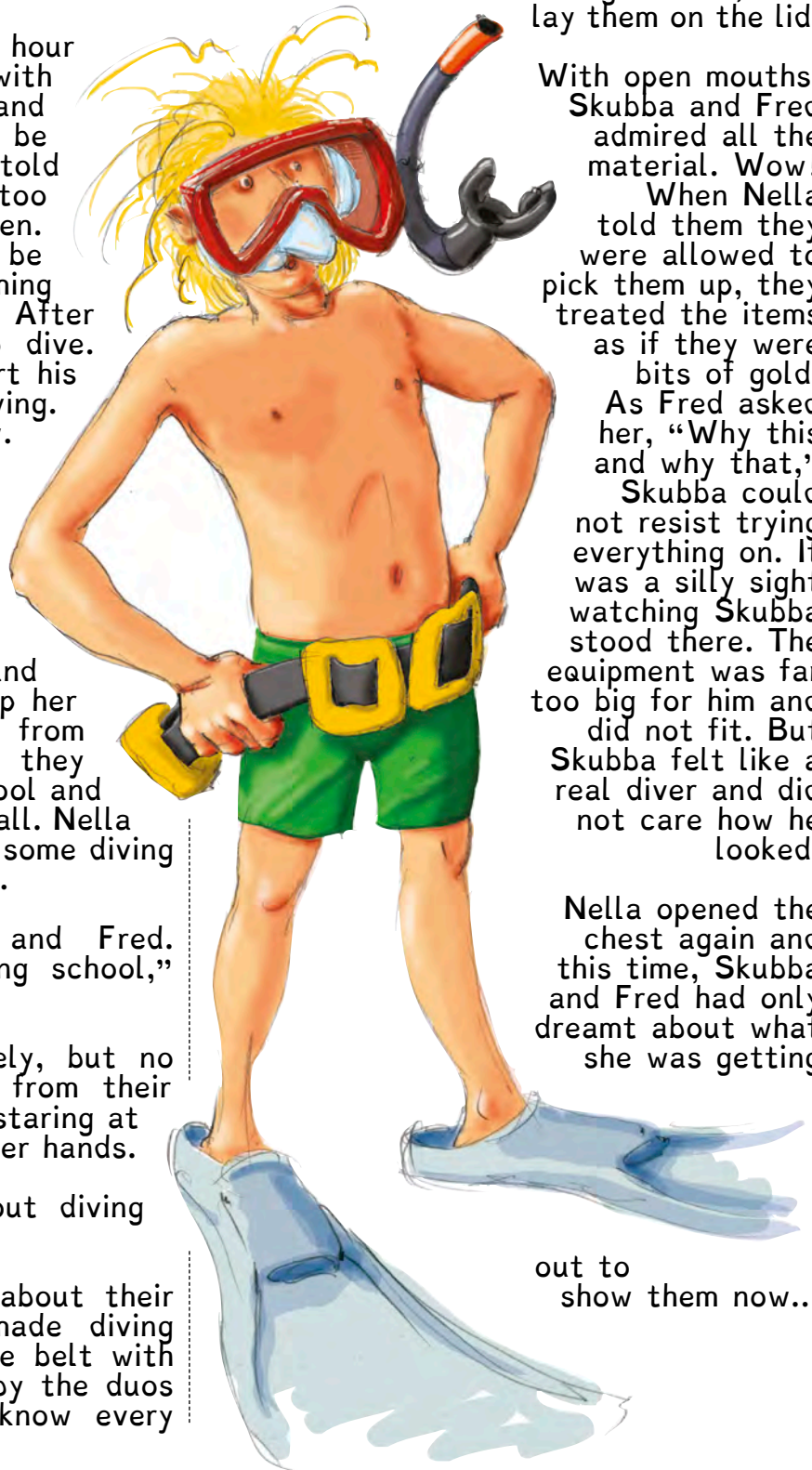
When Nella told them they were allowed to pick them up, they treated the items as if they were bits of gold.

As Fred asked her, "Why this and why that,"

Skubba could not resist trying everything on. It was a silly sight watching Skubba stand there. The equipment was far too big for him and did not fit. But Skubba felt like a real diver and did not care how he looked.

Nella opened the chest again and this time, Skubba and Fred had only dreamt about what she was getting

out to show them now...



2018 BIOSPHERE EXPEDITIONS DATES ANNOUNCED

BY **BIOSPHERE EXPEDITIONS**

2018 dates for Reef Check/Biosphere Expeditions EcoExpeditions are now available. This year, trips reserved exclusively for divers certified as Reef Check EcoDivers for the Indo-Pacific are available at all three locations. Sign up today!

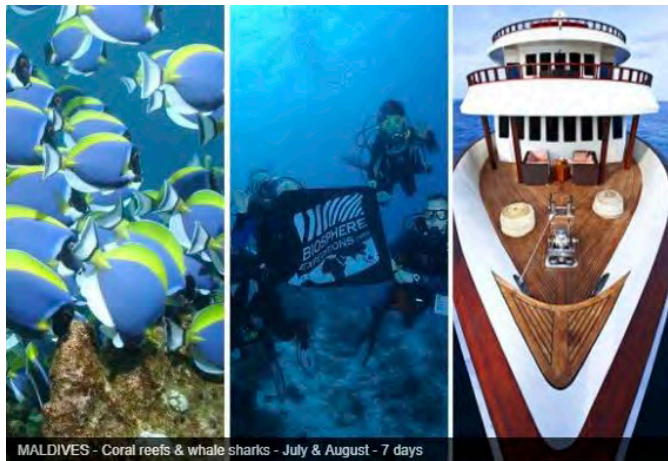
ECOEXPEDITION: MALDIVES

July 21 - 27, 2018

July 28 - August 2, 2018 (qualified Indo-Pacific Reef Checkers only)

This citizen-science expedition will take you to the beautiful 26 coral atolls that make up the Republic of Maldives. Based on a very luxurious and modern liveaboard yacht, you will help marine biologists study and protect the Maldives' spectacular coral reefs and resident whale shark population. All this is made possible because the Maldives government identified a need for further research and monitoring work as far back as 1997.

Biosphere Expeditions is addressing this need with your help and will train you as a Reef Check EcoDiver. With this qualification you will then gather important reef and whale shark data.



MALDIVES - Coral reefs & whale sharks - July & August - 7 days

For more information about the Maldives EcoExpedition and how to sign up, please visit: www.biosphere-expeditions.org/maldives

ECOEXPEDITION: MALAYSIA

August 14 - 21, 2018

August 22 - August 29, 2018 (qualified Indo-Pacific Reef Checkers only)

This scuba diving expedition will take you to Tioman, the Malaysian island named by Time Magazine as one of the world's most beautiful.

Working in a small group of fellow divers and volunteers in Malaysia, and based on a very comfortable and modern liveaboard yacht, you will assist the local researcher to study and protect the local Marine Park's beautiful but fragile coral reefs.

Diving two to four times a day, the expedition includes training as a Reef Check EcoDiver.



MALAYSIA - Coral reefs - August - 8 days

For more information about the Malaysia EcoExpedition and how to sign up, please visit: www.biosphere-expeditions.org/malaysia

ECOEXPEDITION: MUSANDAM, OMAN

November 25 - December 1, 2018

December 2 - 8, 2018 (qualified Indo-Pacific Reef Checkers only)

This scuba diving citizen science expedition will take you to the United Arab Emirates and from there to the remote and mountainous Musandam peninsula of Oman.

Based on a comfortable and modern liveboard yacht, you will study the diverse coral reefs fringing the areas where the spectacular mountains plunge into the Arabian Gulf and the Gulf of Oman. These reefs boast a rich mixture of beautiful corals and a multitude of fish and other animals.

This pioneering study to map this unique underwater environment has already led to the creation of two protected areas. But more data on the biological status of the reefs and population levels of key indicator species are needed for educational purposes and to be able to put forward further ideas for more and larger marine protected areas. Data will also be used



MUSANDAM (Oman) - Coral reefs - November-December - 7 days

to make informed management and conservation decisions within the area. The expedition includes training as a Reef Check EcoDiver.

For more information about the Oman EcoExpedition and how to sign up, please visit: www.biosphere-expeditions.org/musandam

CORAL REEF COMPETITION WINNER ANNOUNCED NEXT ONE NOW OPEN FOR ENTRIES

BY **BIOSPHERE EXPEDITIONS**

Biosphere Expeditions, the Marine Conservation Society and the Reef Check Foundation recently ran a global competition for a place on a coral reef citizen-science expedition in the Maldives, Malaysia and Musandam (Oman). Several hundred entries were received, and the winner was Kelsea Koch, from the USA, who chose the Maldives expedition as his destination.

Dr. Matthias Hammer, Executive Director of Biosphere Expeditions, said that Kelsea was selected because he was able to show most convincingly that he would be an enthusiastic and capable contributor to the expedition. "He deserves the chance to join in as he showed real commitment to ocean conservation. It will be a life-changing experience for him," according to Dr. Hammer.

Kelsea said he could not "thank you guys enough, nor fully describe how excited I am



to take part in this expedition. Thank you all so much for selecting me!"

Given the success of the competition and the number of entries received, the partners have decided to repeat the competition. For more information, please visit www.biosphere-expeditions.org/competition.

The winner will once again be able to select freely from Biosphere Expeditions' reef diving expeditions to Musandam (Oman), the Maldives or Tioman Island (Malaysia).

Applications can be made in one of two ways: submission of an essay (max. 100 words) or a video clip (max. one minute). The latter can be easily created (for example using the movie setting of your digital camera) and then uploaded to a video-sharing site such as YouTube.

Dr. Hammer says that it really is simple and not at all time-consuming to enter. "Our competition is not a talent show event where you need to sing, dance, dress up or otherwise make a fool of yourself. We would like to get to know you as much as possible, so just be yourself and show us how committed to ocean conservation you are!"

REEF CHECK'S DR. RUBEN TORRES WINS CORAL CONSERVATION AWARD

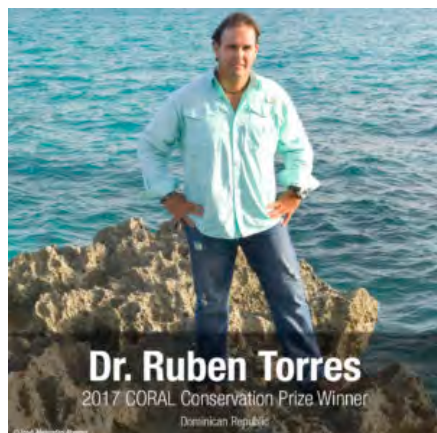
Dr. Ruben Torres, the Caribbean Regional Coordinator for Reef Check and Founder and President of Reef Check Dominican Republic, has been awarded the 2017 Conservation Prize by the Coral Reef Alliance (CORAL). "The CORAL Conservation Prize is a unique opportunity to recognise leaders in coral reef conservation who embody CORAL's mission to unite communities to save coral reefs," said Dr. Michael Webster,

Executive Director of CORAL. "This year, we celebrate Dr. Ruben Torres, for his passion, commitment to partnerships, and proven success protecting and saving coral reefs in the Dominican Republic."

Over the past 20 years Dr. Torres has elevated coral reef awareness and conservation efforts in the Dominican Republic through his partnerships with local fishermen, hotels, students, and volunteers.

He is also a member of the International Coral Reef Initiative Lionfish Committee as well as the Global Coral Reef Monitoring Network, and a mentor for the Caribbean Marine Protected Areas Managers Network of the United Nations Environment Program.

In 2017, RC DR had a major achievement when the Minister of Environment turned over management of La Caleta Marine Park to Reef Check. This success shows the level of trust the government has in Reef Check DR to be able to successfully implement all aspects of the park management.



REEF CHECK CALIFORNIA COMPLETES ANNUAL CHANNEL ISLANDS AND BIG SUR ECOEXPEDITIONS

BY REEF CHECK CALIFORNIA



Big Sur Team



Channel Islands Team

Reef Check California's annual expeditions to the remote coasts of the Northern Channel Islands and along Big Sur were a big success again this year. Combined, we surveyed 22 sites on these two trips. We were able to do this in large part because of the generous support we received during our Kickstarter campaign and through contributions of the volunteers who participated in these excursions. Thank you to all our supporters for making this possible!

This year we expanded the length of our Big Sur trip to four days and completed more sites than in previous years while also having some time for some "fun dives" to explore the coast further. The Big Sur coast was particularly inaccessible this year. Strong rains last winter created huge mudslides and a collapsing bridge closed down Highway 1. Being on a boat off its coast thus felt even more remote than in previous years when you would see a string of cars along the famous highway. In addition to surveying the 11 Big Sur sites, we also installed temperature sensors as part of our statewide effort to collect information on the physical changes we are seeing in the ocean in a warming world. Later this year, we will return to the Big Sur coast and install additional sensors to measure indicators of ocean climate change such as acidification and dissolved oxygen. Next year, when we return on our 2018 expedition, we will collect these sensors and retrieve a year-long temperature record from these sites. We hope this will contribute to a clearer understanding of the dramatic changes we have seen over the last years along the California coast. Luckily, we have not seen the massive loss of kelp forests and the expansion of urchin barrens along this remote stretch of coast that we see in other regions of the state.

The Northern Channel Islands expedition was also extremely successful. In late August, 15 volunteers participated in a three-day trip

aboard the Truth Aquatics boat and completed 11 sites on three islands. Our team collected data on invertebrates, kelp, and fish at all of the sites sampled, as well as some urchin size data where sea urchins were abundant. This year we were able to survey several sites that had not been surveyed recently, making this trip a unique experience for many on board that had come out on previous expeditions.

We observed some beautiful healthy reefs as well as a few stark urchin barrens. The differences between sites and islands were notable. We observed many large red abalone and lots of kelp rockfish at Santa Rosa Island. At Santa Cruz Island, we saw several treefish, many surfperch and some octopuses, and at Anacapa Island a friendly sheephead and several sea lions came out to visit many of our divers.

Overall, Reef Check California has experienced an incredible season this year, and we are adding more multiday excursions to survey other Islands. We hope to keep this up in the coming years as we expand into more remote regions of the state. All of the efforts by our Reef Check citizen scientists enable us to collect this valuable information and make it available for researchers, managers, and the public to answer questions about the past and predict trends in the future.



Kelp Rockfish | Photo by Chris Glaeser



Red & purple Sea Urchins | Photo by Selena McMillan



Male Sheephead | Photo by Zack Gold



Red Abalone | Photo by Selena McMillan

FLORIDA'S MARINELAB REBUILDS AFTER HURRICANE IRMA

BY **MARINELAB**



Marine Resources Development Foundation is a 501(c)(3) non-profit organisation located in Key Largo, Florida. The education programme, MarineLab, is the pride and joy of the organisation and hosts thousands of school children from across the US and beyond for hands on marine science education through discussions, labs, snorkelling, and scuba diving. MarineLab is a long-time partner, conducting Reef Check surveys in the Keys since 2004 and serving as an EcoDiver training facility since 2010. EcoDiver Trainer Jessica Dockery, Director of MarineLab, has trained and certified close to 200 Reef Check EcoDivers so far.

In September, the facility braced itself for the strongest storm to pass through the Florida Keys since the Labour Day hurricane of 1935. Staff took time to move essential equipment to the second floor and tied down their

five programme boats as best as possible. Soon after, each staff member loaded up and headed for safety to the north, going as far as Kentucky and New York. Communication was strong between the tight knit team and when it was safe to return, they made their way home. Everyone had damage and some were left with no place to call home. Regardless, they all found temporary beds and quickly got to work getting the facility cleaned and rebuilt.

The entire property had flooded in the storm leaving a few feet of mud and ocean debris in the labs, cafeteria, bathrooms (including in the toilets, yuck), and seasonal housing unit. Amazingly, while the vessels received substantial damage, they all remained afloat! The Floating Classroom was pushed up halfway on top of a dock while other houseboats behind it were all destroyed and sunk.

The marine science staff dug into their various skill sets and came blazing in as reinvented construction workers, carpenters, mould treaters, and general cleanup crew. On certain days, the team was able to focus on curriculum updates, safety training, and various research and data collection, including conducting Reef Check surveys to assess damage to local reefs.

Because of the damage, MarineLab was forced to cancel or reschedule nearly 2 months worth of incoming schools. With income cut off, they reached out to their fans and supporters for any help that could be offered and the MarineLab Nation came through in a big way. Only with this support, MarineLab has been able to rebuild and improve upon the property and are very excited to get back to teaching!

REEF CHECK'S NEW ONBOARD MARINE SCIENCE TRAINING PROGRAMME LAUNCHED!

On a sunny day in July, 30 students from Lennox Middle School boarded the Matt Walsh in Marina del Rey and set out to sea on the maiden voyage of our new Educational Marine Biology Adventures with Reef Check or "EMBARC" education program. Each trip is a 3-hour highly interactive marine conservation course, taught by trained marine scientists, that gives underserved students the chance to become marine biologists for the day. During the cruise, we motor off the coast, in hopes of seeing some large marine animals.

Funded by Los Angeles County, the on-board program provides training about the ocean, wind, waves, marine ecosystems and how to carry out scientific testing of seawater. There are several stations around the boat. At the Touch-tank Station students can touch the hard shell of a lobster; watch how a hermit crab eats, and feel the smooth skin of a sea hare. At the Plankton Station, students learn how to use a plankton net to catch microscopic plants and animals, and then use a microscope to observe their living plankton swimming across



the computer screen. At the Pollution Station, the students learn how to test the chemical properties of seawater to determine pollution levels. Finally, at the Field Observation Station, the students use binoculars to watch diving sea birds, sea lions, dolphins and whales. The curriculum for the EMBARC program was designed to match STEM Next Generation Science Standards (NGSS) for middle school and high school students.

Some 50% of LA kids have never touched

the sea, let alone been on a boat, and so know very little about the diverse marine life of California. The students have had some incredible encounters with humpback whales and even an ocean sunfish on our trips this summer. Excited screams indicate how happy these kids are when they see these amazing animals for the very first time.

Through this program, we hope to open the students' eyes to the wonders of the ocean world and raise awareness about the value of ocean resources, the threats affecting ocean health and possible solutions to these problems. Our ultimate goal is to create a new generation of young ocean ambassadors who will be willing to spread their newfound knowledge throughout their school and surrounding communities.

We are currently booking trips for our Fall 2017 schedule! If you would like further information about the EMBARC Program or would like to sign up for a trip please contact Katie Kozma at kkozma@reefcheck.org.

HAPPY 10th YEAR ANNIVERSARY TO REEF CHECK MALAYSIA

BY REEF CHECK MALAYSIA

This year marks the auspicious 10th Anniversary for Reef Check Malaysia (RCM)! The past 10 years have truly been a learning experience for us, and RCM has evolved almost beyond recognition. We are very excited to continue what we do best, conserving the coral reefs of Malaysia. Starting from a small group of dedicated people carrying out surveys around Malaysia, RCM has transformed into a well-staffed organisation with a strong track record of improving the management of Malaysia's marine resources through a co-management approach. We believe such co-management schemes provide an equitable mechanism to share both costs and benefits.

RCM has carried out many programs throughout the years, including marine education and awareness programs with urban and city schools, active RC survey programs across Malaysia, and skill-building programs with local island communities to build capacity and encourage diverse income sources. As a result of these efforts, RCM has recently been able to encourage the move from a top-down approach to a co-management approach in the daily management of marine protected areas, one of our biggest success stories to date.

This is an exciting time for all of us at RCM. We are currently focused on improving marine management in four areas – Tioman Island, Mantanani Island, Sibutu Island and Sembilan Island – either by changing the way existing marine managed areas are working or by establishing new managed areas. This year, we have raised over RM 1.5 million for long-term projects to help local stakeholders work together with government to better manage



their marine resources. One of RCM's roles is to champion the voices of local stakeholders, ensuring their views are given a fair hearing.

Some key achievements of the past 10 years are listed below:

- 2007** We began our very first survey programme and have since continued it annually. More sites have been added over the years, which have helped strengthen our annual data.
- 2008** We started our very own education programme entitled "Rainforest to Reef" (R2R). It was initially designed for students living on islands but was later modified to suit other students in urban areas.
- 2009** We carried out our first surveys in Sabah, and more survey sites have been included since.
- 2010** We launched the Sustainable Island Programme, our first foray into community engagement and consultation.
- 2011** We began rehabilitation/resilience studies to improve our understanding of reef processes and how to prioritise conservation programmes.
- 2012** We opened an office in Sabah to strengthen our presence and support more work done there.
- 2013** We started the fish bombing campaign

in response to growing concerns from stakeholders about the widespread practice.

- 2014** We established an office on Tioman Island which now has four full-time staff members running our programmes on the island, under the "Cintai Tioman" community programme.
- 2015** We moved deeper into the concept of co-management and have been advocating for this change within marine protected areas ever since.
- 2016** We established an office on Mantanani Island, Sabah. We have four full-time staff members on the island working closely with the local community.

What we have achieved since 2007 would not have been possible without the help of our friends, supporters, partners, and sponsors to whom we are indebted.



HOW TO KICKSTART MARINE CONSERVATION IN CHINA

BY GREGOR HODGSON



Discussing profits and organism sizes with vendors at a Shenzhen fish market



What do algae and sea cucumbers feel like?

China's coastal provinces make up only 14% of the nation's land area, but are home to half the country's 1 billion people, and the site of two-thirds of national economic activity. Marine and coastal areas face mounting pressures and threats from pollution, climate change, overfishing, and poorly planned development. Over 50% of China's fisheries are over harvested and depleted. While Chinese people love to eat seafood, the public is largely unaware of the many serious problems threatening coastal and marine ecosystems. In most countries, the government is assisted in its work of monitoring and managing these ecosystems by non-profit organisations such as Reef Check. Reef Check began operating in Hainan, Guangxi and Guangdong in 2001, initially by training government staff and university researchers. But there are relatively few non-profits in China focused on marine environmental issues.

A group of foundations from China and the US joined forces to try to solve this problem using a unique approach that has not been attempted elsewhere. The original idea was conceived by Shawn Zhang, Executive Director of Paradise Foundation, based in Beijing. Shawn, a long-time scuba diver had seen the decline of the marine environment in China and elsewhere. He thought it might be possible to create a pipeline of young Chinese professionals who could apply business principles to solving environmental problems threatening ocean ecosystems. These "Blue Pioneers" as he called them, could start their own companies or non-profits, or might later work in academia or

government, but they would be focused on ocean and coastal conservation, pollution prevention and sustainable fisheries and aquaculture in China.

The Blue Pioneer Program (BPP) was launched in 2016 by Paradise Foundation, in partnership with Yintai Foundation and the David and Lucille Packard Foundation. Paradise requested Reef Check's Dr. Gregor Hodgson, who had worked on and off in China since 1990, to assist as Marine Conservation Advisor. The proposed plan was to recruit students from the MBA and Masters in Social Enterprise programs at Beijing University's elite Guanghua Business School to take part in a specially designed training program that would include guest lectures, field training in marine issues and conservation, internships in China and the US, and ending in a competition for a \$50,000 prize based on the best new business solution.

Two experts in "Impact Investment," Dr. Yuwei Shi of Middlebury Institute of International Education and Dr. Monica Jain of Fish 2.0 kicked off the training last December with a crash course in "Impact Investment." This type of investment refers to business ideas where the goal is primarily social/environmental rather than solely for profit.

In May 2017, Dr. Hodgson led a 6-day field course in Marine Conservation in Nan'ao Shenzhen designed to introduce the major ocean issues affecting China and the world. It included guest lectures by academics, government and marine NGO staff in

collaboration with Shenzhen Ocean University, State Oceanic Administration and the I Love Ocean NGO, and Reef Check Shenzhen and Hong Kong. The advantage of Shenzhen is that almost every marine problem is easily observed within an area of about 5 square km – sewage, industrial, aquaculture pollution, commercial and artisanal capture fisheries, aquaculture of every type, and even a nuclear power plant. There are also Marine Protected Areas that include beaches, seagrass beds, mangrove forests and even coral reefs. The course was designed to include "immersion learning," the process of teaching non-swimming students who have had little experience in the ocean to safely plunge into the ocean and directly experience the ecosystem through all senses. Many of the students did not know how to swim, and none had been snorkelling before. They appreciated the opportunity to learn to swim, snorkel and to see marine life first hand. According to some students, this was a life-changing experience.

To build on this training in marine issues, the students were invited to attend a two-week study tour/course at Monterey Institute of International Studies where they learned more about marine management, were able to kayak with humpback whales and sea lions as well as to meet venture capitalists with an interest in social entrepreneurs and to compete in a mock prize competition. Some students are currently applying for internships in China and internationally with NGOs to gain more experience. The partners are looking forward to seeing which problems the students will choose to solve in China.

MALDIVES REEFS FOLLOW GREAT BARRIER REEF DOWN PATH OF CATASTROPHIC DECLINE

BY **BIOSPHERE EXPEDITIONS**



In 1998, the Maldives was hit by the first global coral bleaching event causing the death of most corals on many reefs down to 60 m depth. Thankfully, some reefs were not badly damaged and so served as a source of coral larvae. During subsequent years, new corals settled on the damaged reefs and recovery proceeded quite well, particularly for fast growing species such as table corals until the next bleaching event in 2010. Unfortunately, Biosphere Expeditions' studies of the Maldives reefs since 2011 show a spiral of coral death and reef decline. Coral cover has been dropping since studies began, and the 3rd Global Bleaching Event that peaked in April/ May 2016 killed off many more corals.

Each of the three Global Bleaching Events was due to increased sea temperatures that coincided with El Niño events. Changes in weather patterns due to the El Niño such as reduced wind-driven mixing and increased sunlight are added on top of the steadily increasing seawater temperatures due to global warming thus killing corals.

Dr. Jean-Luc Solandt, the expedition's coral reef scientist who also works for the UK's Marine Conservation Society commented, "Of course, there are always opportunities for some recovery, but the problem is that impacts just keep increasing – sedimentation, pollution, ocean warming, overfishing, ocean acidification, you name it, it's all here in the Maldives, which is why the reefs are in such bad shape and many are unlikely to recover. Indeed, many of the resorts in central areas

where we have surveyed are where we've recorded the most catastrophic declines, as the intensity of human impact is highest there."

Corals are algae/animal hybrids that build coral reefs. The Maldives archipelago only exists because corals built it. Coral reefs are called the "rainforests of the sea" because they are the basis of life for a multitude of fish and other species. These coral rainforests are the very bedrock for coral islands, fisheries, the country's culture, economy and well-being.

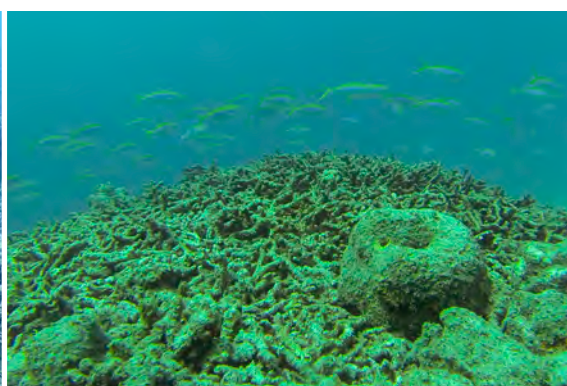
According to Dr. Matthias Hammer, founder and executive director of Biosphere Expeditions, "Without this coral foundation, you do not have an economy, a country or a basis to live on. And the Maldives are in the process of allowing the destruction of this foundation of their survival as a nation."

Catherine Edsell, this year's expedition leader, said that, "This year we saw foreign investors, in conjunction with the Maldives Ministry of Tourism, reclaim 7 km of land to build tourist islands akin to those in Dubai. The dredging and dumping of millions of tons of sand smothers the corals in silt and kills them for miles around. As if the reefs don't have to cope with enough already! The world and the Maldives really need to wake up to what is going on just below the surface."

Historic data shows that following bleaching events, coral cover can recover to pre-bleaching abundance in about 12 to 15 years, but only if there are no other impacts such

as sedimentation, pollution and other human impacts. Since impacts are common on many atolls in the Maldives, the country's heavily-modified central reefs are rapidly turning into dead coral wastelands. Fish will continue to inhabit the dead coral skeletons until they lose their structural integrity and become rubble, and then the fish populations will have no nursery grounds and no food. "The problem is that coral reefs are largely hidden from view so that their death throes are not seen by the general public until the impacts are felt above the water. By then it is usually too late. So what is concealed just below the surface in our country is a catastrophe already in progress", says Rafil Mohammed of Reef Check Maldives, a local NGO created as a result of Biosphere Expeditions' placement programme. He adds that "rampant overfishing is another serious problem. Each year there are more visitors, more demand for fish and shrinking fish populations. This too is a very serious threat to our country's future."

Dr. Hammer agrees, adding that, "The world needs to look at what is happening in the Maldives behind the glossy tropical island paradise brochures. Unless the Maldives, its people and its government wake up to the reality of what sad and terrible things are happening to their reefs, then greed, ignorance, apathy and short-sightedness will win the day and kill the reefs – and with it much of the country's economy and the well-being of its citizens. There's no nice way to put this. What we are documenting is the rapid decline of a country in more ways than one."



FEATURE CREATURE

HALAVI GUITARFISH (*GLAUCOSTEGUS HALAVI*)

FEATURE IUCN RED LIST 2017 PHOTOGRAPHY PHILIPPE LECOMTE



RED LIST CATEGORY & CRITERIA: **VULNERABLE**

Scientific Name: *Glaucostegus halavi* (Forsskål, 1775)

Common Name: Halavi Guitarfish

Synonym(s): *Raja halavi* (Forsskål 1775), *Rhinobatos halavi* (Forsskål, 1775), *Scobatus halavi* (Forsskål, 1775)

Justification: The Halavi Guitarfish (*Glaucostegus halavi*) occurs in shallow waters of the Red Sea, Gulf of Aden, Sea of Oman, the Arabian Gulf and Arabian Sea to Pakistan and northern India (Gujarat). It is likely to grow slowly and mature late, giving it a low productivity. It is taken in variable quantities in gillnet and trawl fisheries, and habitat modification is a significant threat, particularly in the Gulf. There is preliminary evidence for declines of over 50% in the southern Gulf, and it would certainly have been impacted where heavy trawling pressure occurs off Gujarat (India) and probably elsewhere. Ongoing high levels of fishing pressure and coastal development are of concern, and overall it is suspected that the population would have declined by >30% over the last three generations (33 years). A further population

reduction is suspected over the next three generation lengths (2017-2050) based on current levels of exploitation, and the species is assessed as Vulnerable A2d+3d.

Range Description: The Halavi Guitarfish is endemic to the Arabian Seas region, occurring in coastal waters of the Red Sea, Gulf of Aden, the Arabian Sea from Yemen to northern India (Gujarat) and the Gulf.

Countries Occurrence: Native: Bahrain; Djibouti; Egypt; Eritrea; India (Gujarat); Iran, Islamic Republic of; Oman; Pakistan; Qatar; Saudi Arabia; Sudan; United Arab Emirates; Yemen

FAO Marine Fishing Areas: Native: Indian Ocean – western

Additional data:

- Continuing decline in area of occupancy (AOO): Unknown
- Extreme fluctuations in area of occupancy (AOO): Unknown
- Estimated extent of occurrence (EOO) – km²
- Continuing decline in extent of occurrence (EOO): Unknown

- Extreme fluctuations in extent of occurrence (EOO): Unknown
- Continuing decline in number of locations: Unknown
- Extreme fluctuations in the number of locations: Unknown
- Lower depth limit (metres): 100

Population: Frequent misidentification in the past may have complicated inferences of relative population size of this species. A recent study has recorded landings in the UAE where it is the most commonly landed guitarfish (14.7% of rhinopristsoids) (R.W. Jabado unpub. data). It is uncommonly landed in Bahrain (Moore and Peirce 2013) and in the Saudi Red Sea (Spaet and Berumen 2015). However, landings are common in the Sudanese Red Sea (I. Elhassan pers. comm. 07/02/2017) and it has been recorded from fishery landings in Oman (Henderson et al. 2007). In Pakistan, it is frequently caught, but is not abundant (M. Khan pers. comm. 07/02/2017).

Landings surveys in the UAE in recent years have demonstrated a rapid decline despite ongoing fishing effort; 10-20 individuals were regularly observed during 2010-2012,



while landings of 1-2 individuals were more common five years later (R.W. Jabado unpub. data). In Pakistan, it has never been common and anecdotal information suggests that the population has only declined marginally (M. Khan pers. comm. 07/02/2017). Overall, this species is suspected to have declined by >30% across its range, with a further population reduction suspected over the next three generation lengths (2017-2050) based on

current levels of exploitation.

Current Population Trend: Decreasing

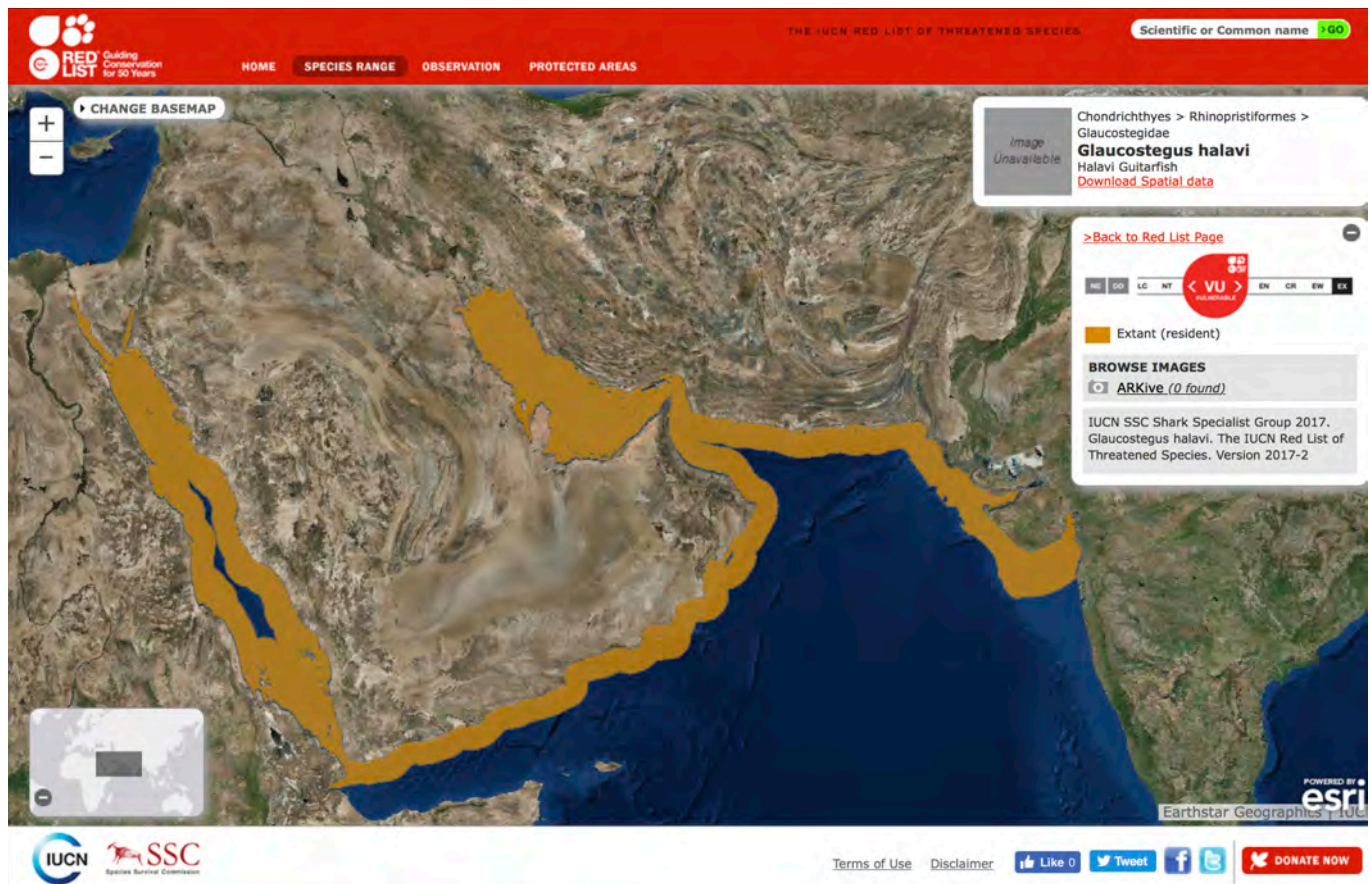
Additional Data:

- Continuing decline of mature individuals: Unknown
- Extreme fluctuations: Unknown
- Population severely fragmented: No
- Continuing decline in subpopulations:

Unknown

- Extreme fluctuations in subpopulations: Unknown
- All individuals in one subpopulation: No

Habitat and Ecology: This species inhabits shallow sandy areas often less than 5 m, but occurs down to 100 m depth. The young are born at about 29 cm total length (TL) (Gohar and Mazhar 1964), and the maximum size



reached is at least 187 cm TL (Moore and Peirce 2013). No data is available for age at maturity and size at maturity is believed to be around 83 cm TL (Last et al. 2016). Mature females produce litters of up to 10 young (Gohar and Mazhar 1964). The generation length is estimated from the Giant Guitarfish (*Glaucostegus typus*) from northern Australia (White et al. 2014) at ~11 years, but it is noted that the Halavi Guitarfish is substantially smaller than this species (which reaches 270 cm TL; Last et al. 2016).

Systems: Marine

Continuing decline in area, extent and/or quality of habitat: Unknown

Generation Length (years): 11

Movement patterns: Unknown

Use and Trade: Guitarfish are considered to have high value fins fetching among the highest prices in Southeast Asia (Chen 1996). The meat of this species is often sold fresh for human consumption at local markets across the region and also enters the international trade in dried form. In countries such as Pakistan, it is highly valued for its fins and high quality flesh. Ray meat is increasing in demand and therefore prices in India are also increasing.

Major Threat(s): The Halavi Guitarfish is taken in a variety of fisheries including demersal trawls, inshore set gillnets and set nets that are common throughout its range and through

targeted fisheries in the northern Red Sea (Bonfil and Abdallah 2004). There is little information on catches of the Halavi Guitarfish as species-specific data is not always recorded, however the high level of exploitation on its habitat is of concern. For example, in the Saudi Red Sea, the number of traditional vessels operating increased from about 3,100 to 10,000 between 1988 and 2006 (Bruckner et al. 2011). In Iran, there is increasing fishing effort with the number of fishermen going from 70,729 in 1993 to 109,601 in 2002 (Valinassab et al. 2006). There were about 6,600 trawlers operating in the Indian state of Gujarat in the early 2000s (Zynudheen et al. 2004). This number increased to 11,582 trawlers in 2010 (CMFRI 2010). In Pakistan waters, about 2,000 trawlers operate in shelf waters, targeting shrimp in shallow waters and fish in outer shelf waters (M. Khan pers. comm. 06/02/2017). The species is also taken as bycatch off Oman and the UAE (R.W. Jabado pers. obs).

Its occurrence in very shallow water also makes it susceptible to coastal development and habitat degradation. Marine habitats in the Gulf are experiencing high levels of disturbance and quickly deteriorating due to major impacts from development activities (including dredging and reclamation), desalination plants, industrial activities, habitat destruction through the removal of shallow productive areas and major shipping lanes (Sheppard et al. 2010) which is likely to impact this species. Little is known of this species' biology or habitat but, like other guitarfish this species may be susceptible to population depletion due to

similar life history characteristics that lead to low productivity.

Conservation Actions: Kuwait and Pakistan are the only countries across the range of this species with regulations specifically banning catches of rays. Kuwait bans the catches of all rays, while Pakistan protects all guitarfish, wedgefish and the Bowmouth Guitarfish and therefore has specific regulations protecting this species. The UAE, Qatar and Oman have banned trawling in their waters (since 1980, 1993 and 2011, respectively) while Iran, Kuwait and Saudi Arabia have seasonal trawl bans that might benefit the species. However, incidental catches occur in other fisheries (e.g., gillnetting). Finning has also been banned in the UAE, Oman and Iran, yet trade statistics indicate that some trade in the fins and meat of this species still occurs.

Research is needed to determine distribution, population size and trends in abundance to further assess status and any future conservation needs.

Effective monitoring of fisheries is required, as is the effective implementation and management of marine protected areas. An education program on sustainable fishing and bycatch mitigation is needed for fishers.

Citation: Simpfendorfer, C., Jabado, R., Moore, A., Al Mamari, T. & Grandcourt, E. 2017. *Glaucostegus halavi*. The IUCN Red List of Threatened Species 2017. www.iucnredlist.org

CLEAN UP ARABIA ON THE EAST COAST

PHOTOGRAPHY **ALLY LANDES**

"During Clean Up Arabia, we ask residents across the region to take action and keep beaches and dive sites clear of marine debris for the sake of our future generations. Involving local communities allows members to make positive impacts to their marine environment."

ESSA AL GHURAIR, EMIRATES DIVING ASSOCIATION'S CHAIRMAN

Emirates Diving Association (EDA) organised the 22nd annual Clean Up Arabia on Saturday the 4th of November which took place from Le Meridien Al Aqah Beach Resort Fujairah and was supported by Dibba Municipality. The event was sponsored by Majid Al Futtaim, Dubai Duty Free and Chalhoub Group.

443 EDA Members participated in the beach and dive clean ups. Registration began at 8am and members kick started their day with a breakfast selection of croissants, Danish pastries, fruits, juices, tea and coffee, gaining energy for the big 9am start.

The campaign which has been running since EDA's inception in 1995, clears beaches and key dive sites from harmful debris and raises



public awareness about the negative impacts and effects pollution has on our health and our marine life.

"The annual Clean Up Arabia is an ideal opportunity to spread awareness concerning our marine environment, we also want to highlight the UAE's efforts in doing so. It provides people with a sense of purpose and achievement that they can make a difference." said Essa Al Ghurair, EDA's Chairman.

Ecocoast Contracting LLC brought their Beach Cleaner, Model 5500 with them this year which was taken to the Family Beach for the ultimate test run. The machine is capable of filtering through very small bits of debris dispersed in the sand which are often missed by hand.

A lunch buffet was served once everyone was back at base, followed by a volley ball game, won again this year by Dubai Duty Free's team.



PLATINUM SPONSOR:



GOLD SPONSOR:



SILVER SPONSOR:



SUPPORTING PARTNERS:



IN PARTNERSHIP WITH:



**UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT**



**الهيئة العامة لرعاية الشباب والرياضة
GENERAL AUTHORITY OF YOUTH & SPORTS WELFARE**

BEACH	
TRASH TYPE	TOTAL
MOST LIKELY TO FIND ITEMS	
Cigarette Butts	743
Food Wrappers	144
Plastic Take Out Containers	90
Foam Take Out Containers	84
Plastic Bottle Caps	265
Metal Bottle Caps	90
Plastic Lids	67
Straws/Stirrers	71
Forks/Knives/Spoons	60
Plastic Beverage Bottles	284
Glass Beverage Bottles	39
Beverage Cans	93
Plastic Grocery Bags	40
Other Plastic Bags	141
Paper Bags	49
Paper Cups & Plates	113
Plastic Cups & Plates	49
Foam Cups & Plates	33
FISHING GEAR	
Buoys/Pots/Traps	7
Net & Pieces	24
Line	18
Rope	110
OTHER TRASH	
Appliances	11
Balloons	2
Cigar tips	37
Cigarette lighters	4
Construction materials	62
Fireworks	2
Tyres	3
PACKAGING MATERIALS	
6 Pack Holders	36
Other plastic/foam packaging	51
Other plastic bottles	19
Strapping Bands	30
Tobacco Packaging/Wrap	9
PERSONAL HYGIENE	

Diapers	4
Condoms	6
Syringes	1
Tampons/Tampon Applicators	5
TINY TRASH (< 2.5 cm)	
Foam Pieces	94
Glass Pieces	26
Plastic Pieces	202
EXTRA	
Hair Accessories	1
Water Hose	1
Food Items	2
Clothing Items	7
Paper Pieces	14
Plastic Toys	1
Pot	1
Shisha Pipe	1
Steel Bar	1
Paint Can	3
Wood Pieces	9
GRAND TOTAL:	10108
TOTAL NO. OF TRASH BAGS	63
TOTAL WEIGHT (KG)	304

UNDERWATER	
TRASH TYPE	TOTAL
MOST LIKELY TO FIND ITEMS	
Cigarette Butts	2
Plastic Take Out Containers	3
Forks/Knives/Spoons	2
Plastic Grocery Bags	1
FISHING GEAR	
Net & Pieces	7
Rope 23	
OTHER TRASH	
Cigarette Lighters	1
EXTRA	
Metal Rods	3
GRAND TOTAL:	328
TOTAL NO. OF TRASH BAGS	6
TOTAL WEIGHT (KG)	22













CLEAN UP ARABIA IN ABU DHABI

PHOTOGRAPHY **CLORIS & JUSTINE ZHAO** | **PANDA DIVING CLUB**



IN PARTNERSHIP WITH:



UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT



الهيئة العامة لرعاية الشباب والرياضة
GENERAL AUTHORITY OF YOUTH & SPORTS WELFARE

Clean Up Arabia was also held in Abu Dhabi on the 10th of November. 60 divers took part in the underwater clean up which took place from the Abu Dhabi International Marine Sports Club. The area was laden with vast amounts of dumped shopping trolleys, plastic and glass containers, bottles, plastic bags, coat hangers, and copious amounts of beverage cans, as well as the other items scattered amongst the debris.

This was a really tough dive clean up making collection results difficult to keep up with, resulting too inaccurate to submit to the Ocean Conservancy. The job was however, done!



PLATINUM SPONSOR:



GOLD:



SILVER:



PARTNER:



SUPPORTING PARTNERS:



HOW I BECAME A TECH DIVER

FEATURE AND PHOTOGRAPHY **SLAVA NOOR** – WWW.THEPINKFINS.COM



After years of scuba diving in the UAE and other countries, I felt I needed a new challenge. This is why I embarked on my journey of becoming a tech diver in Dahab, Egypt.

Before joining my very first tech course, I knew that tech divers were considered the elite of the diving world, both for the depth available to them and the challenges they endure. I remember seeing tech divers finish their dive at the Blue Hole and come back after hours of diving looking sharp in their black suits and covered with multiple tanks and other diving equipment. I admired them, but at the same time, I had thought tech diving was only for tough men who had a very strong military and alpha male vibe to them.

My motivation to become a tech diver was simple – I wanted to dive the Arch in the Blue Hole. Although the infamous dive site has taken lives of many divers, it is a fairly easy dive to make if the diver is properly trained and equipped. Safety measures are extremely important on deep dives like this one, and no diver should ever compromise it.

It was exciting to be learning again and the first tech course, 'Introduction To Tech', was a good start. The theory was quite easy to comprehend and revolved around concepts of contingency and redundancy. Tech divers carefully prepare their equipment and have two of almost everything – in case something fails or gets lost – from second stages, to knives, to masks. I was introduced to the twinset and had to put my gear together to fit perfectly.

From the start, the most challenging part was walking with all the equipment on as it was pretty heavy. The full kit easily weighed over 50 kg. I was worried about tripping and falling, but luckily it all went well.

The next shock awaited me underwater. Although I had more than 150 dives in my logbook and I thought of myself as a good diver, I felt quite different with the twinset on. I struggled to control my buoyancy, I could not keep myself aligned and I kept rolling onto different sides. I was kicking erratically in a failed

effort to stay horizontal and was completely exhausted. Simple skills such as removing the mask seemed difficult, and I panicked during the manifold shutdown exercises.

To say I hated my first tech dive would be a complete understatement. I was completely disappointed after it and although thoughts of quitting started crawling through my head, I decided to stick to the course.

After four more dives and shifting some weights around, I finally gained control of my wing and had a better position in water. I finally started to enjoy diving again and was happy to spot two local turtles during a fun dive.

The next course was Advanced Nitrox and it introduced new theory revolved around using Nitrox ranging from EAN21 through EAN 100 with no staged decompressions involved. I did a few dives on EAN 32 and had to do a few new skills. One was calculating the MOD or Maximum Operating Depth. It was crucial to mark it on our tanks along with the Oxygen percentage. This course was smoother than the previous one, although I was in constant pain from the heavy equipment and under mental pressure from strict instruction. One time, I broke down in the changing room after failing to perform a skill on a previous dive. Still, I stayed determined.

The last course was on Decompression Procedures and I was very excited as my instructor, Jamie had well prepared me for it, by being very strict on me, and scaring me with having to use a decompression chamber so I'd understand the importance of properly made deco stops. The theory was very in depth as I learnt about the behaviour of gas underwater and its affects on our bodies. Advanced tables and computers helped to plan out dives in the most detailed way, with a certain speed to descend and a fixed number of minutes to be spent at every depth. Should our plan go wrong, we would have our +5/+3 plan which accounted for extra bottom time or a deeper than planned depth. In case we lost our gas, we had our lost gas plan to ensure the dive would end safely. All the plans were copied

to our slates so we could refer to them at any moment. Thanks to freediving, new skills such as swimming underwater without air and without a mask to retrieve a tank, turn it on and breath from it, was pretty easy too.

To conclude my tech diving adventures, my instructor, Jamie took me to the Blue Hole where I dived to 44.9 metres. It was very exciting to go 5 metres deeper than what I could before and stay longer on the bottom. I had enough time to both, observe freedivers gliding down in their monofins, and to take my deepest selfie.

We used EAN50 as our deco gas and I had more time to enjoy the local marine life when we stopped at 6 m and 3 m. It was a lovely smooth dive and I was very excited to see how far I had come to finally become a confident tech diver.

Later, during the day, I shared my story with the famous selfie taken at 44.5 metres with the online community of female divers and everyone loved my touch of pink to the world of all black. Girls celebrated my success and shared that they too wanted to challenge themselves in what seems to be a mens only activity.



My next goal is to train and dive to 55 m so I can dive the Arch in the Blue Hole, but that is another story.

I did my course with H²O Divers in Dahab, Egypt: www.h2odiversdahab.com.



OIL COUNTRY

THE UNITED ARAB EMIRATES

PART TWO: THE GULF OF OMAN

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

It is impossible to list everything found on the East Coast. The diversity in these waters is huge and having passed hundreds of hours underwater myself, I still witness new species I had not known were here.





Dendronephthya



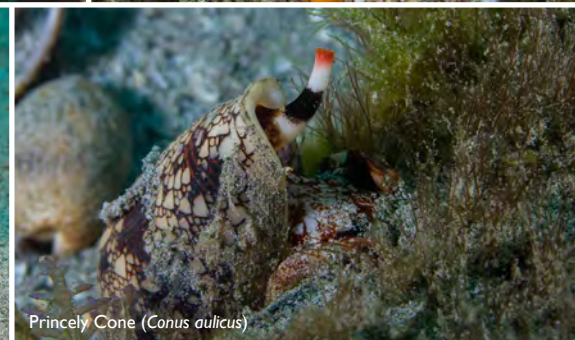
Dendrophyllia



Thick-edged Cowrie (*Cypraea caurica*)



Cone (*Conus*)



Princely Cone (*Conus aulicus*)

Part One: The Arabian Gulf, was published in Divers for the Environment's June 2017, Volume 13, Issue 2 – this second part concentrates on the UAE's East Coast. This coastline is roughly 70 km long and its sea is that of the Gulf of Oman. Part of it lies in the Indian Ocean, and the other finishes in the Strait of Hormuz which feeds into the Arabian Gulf.

The UAE's East Coast belongs to the Emirates of Fujairah and Sharjah. This coast is mostly made up of long white sandy beaches, but some of these beaches possess small rock features, as well as the small islands. These islands are well known by divers for their diversified marine life and fauna. These islands are Dibba Rock, Snoopy Island and Shark Island.

On the southern side of this coast, is the mangrove swamp of Kalba. This swamp has been declared a wildlife nature reserve. As explained in part one, mangroves are very important biotopes for land and marine wildlife. They provide young wildlife with refuge, and of course, food and shelter in general.

The Gulf of Oman is a more moderate sea than that of the Arabian Gulf due to its temperatures and rate of salinity. The temperatures are milder and range from +/- 21° in the winter months and +/- 28° during those of the summer.

Since I arrived in the UAE in 2003, the East Coast has taken on some natural disasters such as Cyclone Gonu, a tsunami, green and red algal bloom tides and of course the disasters of which are made by man, such as spills from crossing oil tankers. This coast remains rich in life besides all these disasters and its various dive sites show how resilient they are.

For a few years now, I have been a member of an amateur group of photographers whom are particularly interested in macro photography, to which numerous newly discovered species to the area have been photographed for the first time on this coast. It is of no great surprise due to the fact that we are connected by the horn of the Indian Ocean, where a lot of species are found in the Maldives, Seychelles, Mauritius, East Africa and also Indonesia, so it makes sense that some of their well known species, can also be found on our coast of Fujairah.

The visibility can be extremely poor, and tends to be quite green, but this also shows that this sea is rich in plankton and other nutrients. This could also be due to the healing stages from natural and human caused disasters. The Arabian Sea continues to remain extremely diversified and full of life.

All sorts of soft and hard corals are found on the coast. Dozens of square metres of rock can be covered with *Dendronephthya*, a genus of soft corals from the family *Nephtheidae*. These corals are my favourites due to their plump shapes and vivid colours. The soft bubbled corals such as *Euphyllia* or the *Dendrophyllia* which are small red and orange cup corals, remind me of small anemones. The latter are always so brilliant in photographs as their sensational colours stand out so well with the use of strobes.

The hard stony corals of *Madrepore* are widespread on the rocky surfaces. Found in either the shape of cranes or of trees, the latter of shapes makes a good shelter for a number of shellfish and other small fish. In this small world of inhabitants, shelters are easily found amongst these natural architectures

and some even transform their colours to go unnoticed by predators.

As for shells, you will most certainly one day see a Ramose Murex (*Chicoreus ramosus*) a species of predatory sea snail. They can reach 25-30 cm and are easily recognizable. At certain periods of the year, you will find dozens of these shells displaying their eggs under rock cavities.

If you want to catch most shells by surprise, it has to be done on a night dive. Being prey to a lot of fish, they prefer feeding or reproducing at night when darkness aids their cover. Their shells easily slide along with both their antennas out in search of a mate or a decomposing corpse. It is important not to be confused with the cone snail which possesses a deadly dart from which it injects a mortal poison that allows it to instantly paralyse and kill its prey. This poison is also lethal to us.

If during a dive, you want to spend time taking photographs along the sandy bottom away from the rocks, go ahead. Just below the sand's surface you will find a number of shells and other fish playing hide and seek.

We've recently discovered numerous species of nudibranches not known to have been in the UAE before. My friend, Stewart Clarke, who is a sea slug enthusiast, has counted more than 300 of them between the waters of the Arabian Sea and the Gulf of Oman. He has personally counted more than 200 species seen for the first time and discovered more than 20 new species. Some are no longer than half a centimetre, making them sometimes very difficult to spot. The majority of them have been found on seaweed, sponges or on corals.

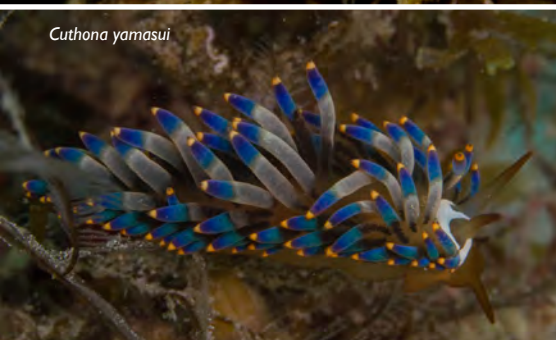
Hypselodoris dollfusi



Chromodoris annulata



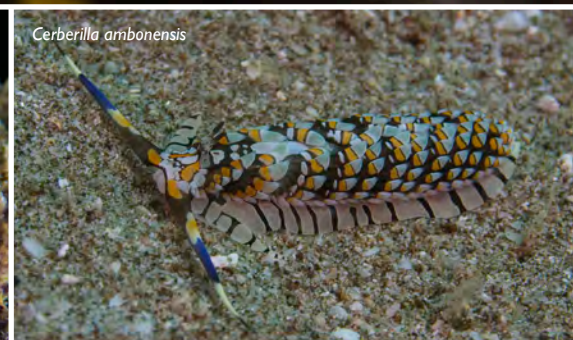
Cuthona yamasui



Hypselodoris infucata



Cerberilla ambonensis



Armina semperi





Purple Urchin Shrimp (*Stegopontonia commensalis*)

I have a big interest in crustaceans. I never hesitate to look in to cracks or through hard corals in search of these animals with their long antennae or large front pincers. Crustaceans are found everywhere, but for the most part, they like to remain invisible.

A guaranteed place to begin your search on crabs, is amongst the branches of hard corals. You'll notice that these structures shelter dozens of crustaceans. The most common is the *Trapezia*, a genus of Guard Crabs in the family *Trapeziidae*. These small white crabs with red spots snuggle up tight between the coral branches. Another crab such as the Blue-Eyed Coral Crab, is duller in shell colour but also rather common. You may also get the chance to spot a green coloured coral shrimp. They are harder to spot in comparison to their crab cousins. The Banded Coral Shrimp with its red bands or the colourful mantis shrimp are a lot harder to find, but they will stick out like a sore thumb when you do see one from their brightly coloured attire.

The Black Coral Crab which I have only just recently discovered myself, has quite an extraterrestrial air about it. It holds on tightly to its black coral counterpart as it filters the water with its mouth.

Hidden within the surfaces of the soft corals of the *Dendronephthya*, the Candy Crab (*Dendronephthya Crab*) can be found. They are incredibly well camouflaged making them very difficult to see. The best time to spot them is on a night dive.

Have you ever observed a family of clownfish dancing in and out of the tentacles of their

anemone? Well, if you approach them a little closer, you will most certainly find an Ornate Shrimp in the anemone too. They are almost completely transparent, making them invisible to most divers. Like the Squat Shrimp (*Thor amboinensis*) they shelter between the tentacles of the anemone when it is in flower. With their orange outfit and large white spots, they are more easily seen than the Ornate Shrimp.

Hung from any kind of support they find, you will witness Crinoids of all colours. These sea flowers often curl up into balls, and they too, shelter shrimps. These shrimps imitate the feather dresses of Crinoids; yellow and black, red and black, or all in white! A lot of divers hardly notice these very camouflaged lodgers.

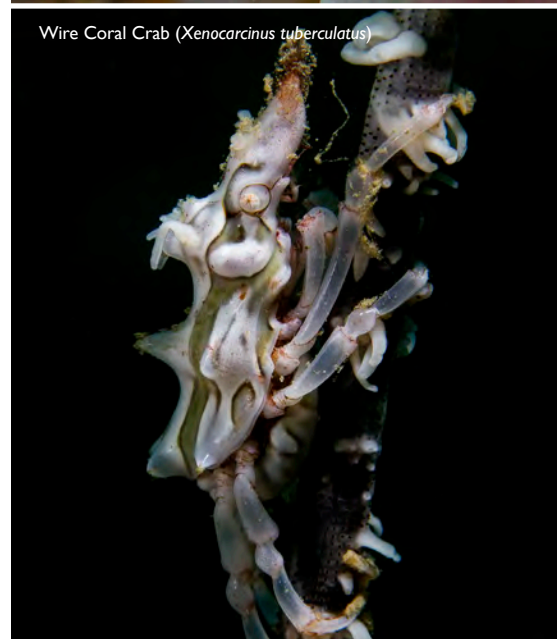
As seen on some dive sites, the Common Seahorse can reach up to more than 20 cm. This animal does not appreciate dive lights and strobes very much. If you want to photograph them, try not to blind them with your bright lights. We recently found a much smaller species of seahorse (*Hippocampus liechtensteini*) hanging out on a sandy bottom.

Described as one of the underwater world's most intelligent marine creatures, several species of octopuses can be found in the waters of Khorfakkan and Fujairah. Night dives prove to be the best time to meet these guys as their camouflage is some of the best, making them very difficult to spot during the day. With their very long tentacles and reddish complexion, the Starry Night Octopus (*Octopus luteus*) moves quietly and sneakily along surfaces to surprise their prey. On sandy bottoms, hidden in holes in vertical tubes, the Mimic Octopus (*Thaumoctopus mimicus*) has recently been

Ornate Shrimp (*Periclimens ornatus*)



Wire Coral Crab (*Xenocarcinus tuberculatus*)





Slender Crinoid Shrimp (*Araiopontonia odorhyncha*)



Slender Crinoid Shrimp (*Araiopontonia odorhyncha*)

A white Crinoid





Banded Coral Shrimp (*Stenopus hispidus*)



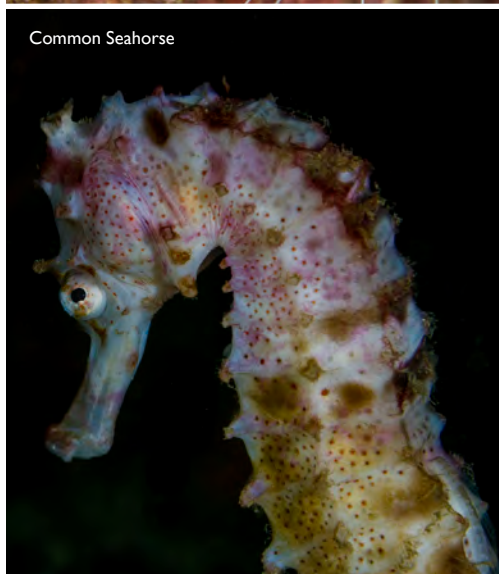
Squat Shrimp (*Thor amboinensis*)



Trapezia, a genus of Guard Crab



Blue-Eyed Coral Crab



Common Seahorse



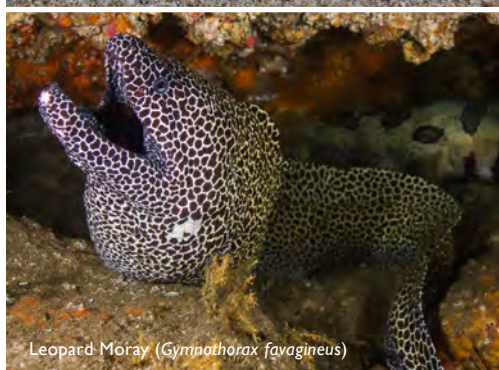
Hippocampus liechtensteinii



Marbled Octopus (*Amphioctopus aegina*)



Mimic Octopus (*Thaumoctopus mimicus*)



Leopard Moray (*Gymnothorax favagineus*)



Yellowmouth Moray (*Gymnothorax nudivomer*)



Undulated Moray (*Gymnothorax undulatus*)

Bearded Scorpionfish (*Scorpaenopsis barbata*)



Stingfish



Bearded Scorpionfish (*Scorpaenopsis barbata*)



Spotfin Lionfish (*Pterois antennata*)

Stonefish (*Synanceia*)



found here. This octopus, most often found in the Philippines or in Indonesia, proves that the marine world still remains a mystery and there is still so much to discover in this region. Quite often found in empty bottles left behind by none other than man, the Coconut Octopus (*Amphioctopus marginatus*) will observe you in a gentle way. If it decides to come out of its hiding place, it will do so in the most effective camouflage possible. This is done in the fraction of a second, magically changing, imitating its environment like a boss.

A species quite absent from the Arabian Gulf, but very common on the East Coast of the UAE, is the Moray Eel. The largest and most colourful of them is the Leopard Moray (*Gymnothorax favagineus*). They can reach lengths of up to more than 1 m 50, and are often half hidden. With its mouth wide open, it gives the impression of having difficulty in breathing – which is not the case. Of all the morays seen here, you will most certainly come across the Yellowmouth Moray (*Gymnothorax nudivomer*) or the Undulated Moray (*Gymnothorax undulatus*) during your dives.

The Scorpionfish family is very well represented in these waters, whether they are found on sandy bottoms or around rocks. The most commonly seen and the most colourful, is the Red Lionfish (*Pterois volitans*). The Spotfin Lionfish, also known as the Broadbarred Firefish (*Pterois antennata*) is the smallest of the species. They are often hidden and found hanging vertically from walls or in small caves. Care must be taken around them

as they are all venomous at their spiny dorsal fins. The Common Lionfish, also known as the Devil Firefish (*Pterois miles*) is of massive size in comparison to the rest of the family and often swims between rocks or corals in search of a meal of small fish.

The most common is undoubtedly, the Bearded Scorpionfish (*Scorpaenopsis barbata*). With an outstanding camouflage technique, this fish is found on any surface and terrain. Special care must be taken not to confuse it with a rock because it will only move at the very last moment of being seen. Its texture and colours vary greatly from fish to fish and you will not see any 2 alike.

One of the most venomous of all fish known, is the Stonefish (*Synanceia*). The Estuarine Stonefish (*Synanceia horrida*) is found here and does not get any bigger than 25 cm and sometimes lays visible on the surface of sand on the lookout for passing prey to come in close proximities of its mouth. However rare these Stonefish are, don't be surprised to one day see a walking stone! They are related to the Stingfish family who move very slowly forwards with their pectoral fins which are equipped with claw-like fingers. It allows them to move in on their prey without them realizing these stones are in fact great predators.

In the art of perfecting camouflage, Brackish-water Frogfish (*Antennarius biocellatus*) and Bandtail Frogfish (*Antennatus strigatus*) remain invisible unless a diver knows of their whereabouts and personally reveals these magnificent and motionless creatures to you.

To finish off, I'd like to talk about the sharks and rays that I have encountered on my dives in Khorfakkan. The most common of sharks, is the Blacktip Reef Shark (*Carcharhinus melanopterus*). They are found around most reefs and islands along the coast, but they are very sensitive to sound and divers' bubbles keep them distant. Leopard Sharks and Guitar Sharks are a very rare sight to see on any dive.

On the other hand, a number of different ray species can be seen. The impressive Cowtail Stingray (*Pastinachus sephen*) is the most common of all. Often of very large size, these rays are found resting on sandy bottoms. They are not easily spooked by divers, but will sometimes effortlessly move further away from you by a dozen metres.

Not far off in size compared to its cousin the Manta Ray, the Mobula Ray can be seen most of the time. They are very fast swimmers and often only caught by a few divers before their wings disappear into the blue.

It is impossible to list everything found on the East Coast. The diversity in these waters is huge and having passed hundreds of hours underwater myself, I still witness new species I had not known were here. The next time you dive in Khorfakkan and its neighbouring areas, take your time on your dives and take a good look around, because the most interesting things to see, may be observing you without you realizing it.

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- Reef Fishes, UAE and Gulf of Oman, by Richard F Field.
- Sharks and Rays, Elasmobranch Guide of the World, by Ralf M. Henneemann.



L-R: Frogfish (*Antennarius nummifer*)



DIVING IN SARDINIA

A LAND OF FRIENDLY PEOPLE, EXCELLENT FOOD, ANCIENT RUINS AND PLENTY OF BREATHTAKING DIVE SITES
FEATURE AND PHOTOGRAPHY **NICO DE CORATO – ADMINISTRATOR OF DUBAIBLOG**



I'm Italian. I'm 40 years old. Last summer I went to Sardinia for the very first time... shame on me! It would take an entire book to share just some of the feelings that arose from visiting Sardinia. It has been a fantastic trip, and of course, I could not miss the chance to have at least one dive in that beautiful sea.

Being based in Costa Rei, I decided to go to Isola di Serpentara (Serpentara Island), a small, uninhabited island of granite rock that sits 4 kilometres off the beaches of Villasimius. The name of the island probably derives from its long, sinuous, snake-like shape, but the 134-hectare area is not famous for snakes, but for its wild rabbits, herons, Corsican gulls and shags who nest there, and for its varied marine life. It is also known for the Variglion, which are large granite rocks that can be found in the northern part and offer great dive settings. It is important to mention that sailing, fishing and diving are all regulated in Serpentara which lies in the Capo Carbonara marine protected area (MPA), a site that goes from Capo Boi to Punta di Proccheddu. Serpentara is at the easternmost part of the coast. With the

great number of species that are part of the conservation efforts, it is also a designated site of interest and part of the Special Protection Areas and Special Areas for Conservation of Natura 2000 Network.

It is common to spot dolphins along its coasts, and in fact, we did see some while approaching the dive site. We went to Punta Caralis that gets its name from an event that occurred on the 14th of March 1996. On that day, the Tirrenia passenger ship, Caralis (ancient name for "Cagliari") left from Cagliari itself, headed to Civitavecchia, but violently struck against the Serpentara Island on the south-east coast of Sardinia. 371 passengers were onboard; luckily no one was killed or seriously injured. To free the ship, the bulbous bow was cut, and today, you can still see squared rocks on your dives due to the rescue operation that took place.

The diving is very enjoyable because of the many walls covered by red sea fans and the abundance of large fish. The various underwater openings are home and hiding places to scorpionfish, octopuses and crabs.

There are many larger fish as well as coral formations of various kinds.

The entire Capo Carbonara area is a great diving destination thanks to the many rocky islets and submerged reefs, and the sites of Piscadeddus, S. Stefano, S. Caterina, S. Elmo, and Berni. I cannot wait to go back there for a dive trip with all my own equipment. One of the peculiarities of the area is the fact that due to the convergence of the Sardinian Channel and the Southern Tyrrhenian Sea, the wind and waves can vary and sometimes be unpredictable. It also means that the entire coastline is extremely irregular with its system of beaches of different sizes, as well as cliffs, large granite rocks and pebbles. Just inland, a small lagoon is considered one of the most important wetland spots for migratory birds.

It is not difficult to imagine why this varied landscape is home to many marine and terrestrial species with its richness in hiding areas, niches, and areas covered with *Posidonia oceanica* meadows, which is a seagrass that is endemic to the Mediterranean Sea.



OTHER DIVE SITES TO EXPLORE IN THE AREA:

CAPO FERRATO

Distance: 5 miles (20 minutes)

1. **TRE CIME (32 m):** sea fans, parazoantus, mustella, blue groppers
2. **SECCA DELLE CICALI (35 m):** sea fans, scorpionfish, corvinas, blue groppers
3. **SECCA DEL FARO (25 m):** moray eels, groupers
4. **PUNTA ROMANA (15 m):** parazoanthus, sponges

SHOAL OF SANTA GIUSTA

Distance: 3 miles (15 minutes)

1. **EXTERNAL (38 m):** blue groppers, sea breams, moray eels
2. **INTERNAL (27 m):** blue groppers, sea breams, corvinas

REEF OF SANT'ELMO

Distance: 2 miles (10 minutes)

1. **AIR BUBBLES (15 m):** parazoanthus, small coloured sponges

ISLAND OF SERPENTARA

Marine Protected Area Capo Carbonara

Distance: 6 miles (20 minutes)

1. **PUNTA NORD (24 m):** blue groppers, sea breams, barracudas
2. **VARIGLIONI (25 m):** there is a passage beneath the rocks, 2 airplane bombs
3. **BUTTIGLIONE (30 m):** ceramic fragments from the Roman age
4. **PUNTA LA GUARDIA (22 m):** blue groppers

ISOLA DEI CAVOLI

Marine Protected Area Capo Carbonara

Distance: 12 miles (30 minutes)

1. **LA NAVE (25 m):** groupers, barracudas, sea fans
2. **CAYNON (25 m):** groupers, barracudas, sea fans

SANTA CATERINA SANDBANK

Marine Protected Area Capo Carbonara

Distance: 15 miles (35 minutes)

1. **VARIOUS ITINERARIES (25 m):** groupers, barracudas, sea breams

ALLDIVE REI DIVING SERVICE

ALLDive operates in Costa Rei. The dive centres are located in the village hotels, Free Beach Club (Muravera) and Sant'Elmo (Castiadas).

Tel: +39 346 6971455

E-mail: info@alldive.it

Website: www.reidiving.com



THIS PAGE: In the Costa Rica Fish Market. **OPPOSITE PAGE:** Hammerhead Shark fins detached at Costa Rica Market, and Sea Shepherd colleagues outside of INCOPESCA.

COSTA RICA SHOWS THE WORLD HOW TO VIOLATE SHARK PROTECTIONS

FEATURE AND PHOTOGRAPHY **NATALIE BANKS**

As a shark conservationist, I am obviously concerned about the demand for shark fins globally, which are mainly used as the core ingredient in shark fin soup. Shark fishing is generally focussed on shark meat, cartilage and shark fins, but with fins bringing in approximately 100 times per pound more than shark meat, it is easy to see how shark fins can become the main focus for the industry.

The luxury status of shark-fin soup, particularly in areas like Hong Kong and China, is one of the primary reasons why shark populations are plummeting.

Earlier this year, I was given the opportunity to travel to Costa Rica to look into the shark fin trade there. Costa Rica, which markets itself on its amazing biodiversity, has long been one of the leading shark fin exporters in the world. In 2011, according to the Costa Rican government, 350,000 to 400,000 sharks were killed for their fins in Costa Rican waters.

With Costa Rica's fishing industry facing a collapse of fish stocks after decades of overfishing, selling as many shark fins as fast as possible is one way for fishermen to keep bringing in revenue.

The trade of shark fins in Costa Rica is vigorously controlled by the Taiwanese mafia, which is helping to deliver shark fins into restaurants in the Pacific Rim countries such as Taiwan, Hong Kong and China, where shark fin soup can cost up to US \$100 a serving in top restaurants. Some 95% of shark fin trading activity in Costa Rica culminates in the docks of Puntarenas on the western coast of Costa Rica, most notably Inversiones Cruz Dock and Harezan Dock.

In response to poor incomes and pressure, local fishermen are forced into harvesting shark fins, whereby they can be paid US \$60 to US \$70 a kilogram in comparison to about US 50¢ per pound for shark meat on average. The practice involves sharks being caught by a horizontal drag line with many baited hooks, known as longline fishing.

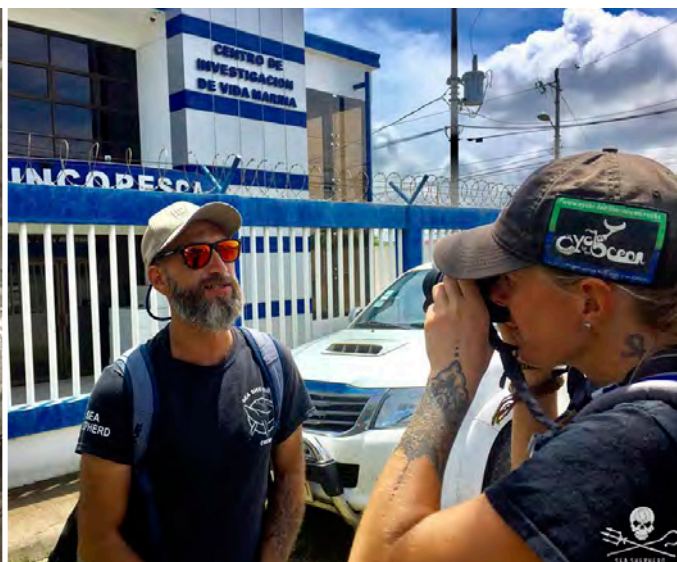
According to Costa Rican customs adviser, Omar Jimenez, at least three boats full of shark fins enter the ports in Puntarenas every week.

In 2013 shark conservationists were surprised when the Costa Rican government joined efforts with Brazil and Honduras to successfully spearhead the advocacy for the greater protections of hammerhead sharks by including them in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Hammerhead sharks are one of the most popular sharks caught, and sold at fish markets in Costa Rica. However, despite robust regulations of international trade in hammerhead sharks being introduced by CITES on 14 September 2014, Costa Rica were accused of illegally shipping hundreds of kilograms of hammerhead fins two months later and were found to have shipped 411 kilograms of dried hammerhead shark fins to Hong Kong in December 2014 and then again shipped 455 kilograms of shark fins to Hong Kong in February 2015, potentially without the required and correct Non-Detrimental Finding (NDF) report which is used to confirm that the sharks have been harvested sustainably and legally. The Costa Rican Government declared these exports as in the "public interest." Conservationists say that after factoring in the 60 percent

weight loss for fins from the moment they are landed to when they're dried, about 1,000 kg of fresh shark fins – the equivalent of 1,000 adult sharks (the number of sharks increases if juveniles are factored into the estimation) would have needed to be caught and finned each time. This is clearly not a "moderate" number and brings into question concerns regarding traceability and accountability when it comes to shark fishing and finning in Costa Rica. In fact, it has been estimated that Costa Rica exported fins from between 1,500 and 2,000 threatened hammerhead sharks after the September 2014 CITES decision.

Despite government assurances that the exported fins came from bycatch, conservationists question whether the exported fins were legally fished. On March 11 2015, the Costa Rican Federation for Environmental Conservation, or FECON, released documents indicating some of the sharks whose fins were exported "could have been illegally fished in Cocos Island National Park." One fishing boat that sold fins for export, El Marisol, was spotted by Cocos Island park rangers on Sept. 24, 2014. Records show that on Sept. 29, 2014, El Marisol unloaded at least 1.4 kg of hammerhead fins, and the ship is listed by Inversiones Cruz as one of the providers of fins for export. Twelve other boats that sold hammerhead fins for export, FECON claims, have been spotted in Cocos Island without authorization in the past, which is a crime. Those ships continue to receive fuel subsidies from the Costa Rican Fisheries and Aquaculture Institute (INCOPESCA) via Costa Rican taxpayers, FECON added.

Shark conservationists celebrated a small win in August 2015, when Costa Rica's National



CITES Scientific Authority (CRACCITES) published a negative NDF which found that no safe number of hammerhead sharks could be sustainably destined for international commerce from Costa Rica due to detrimental impacts on the environment, leading to national longline fleet operators in the country to hold major protests, which blocked five primary highways in the country. Costa Rica has around 550 registered long-lining boats. To appease the longliners, the Costa Rican Government in September 2015 agreed to no longer support further inclusions of shark species into CITES and in September 2016 abstained from voting on whether or not to include silky shark and the bigeye thresher shark on the international list of protected species.

Since August 2016, further requests have been made to export up to 1,200 kilograms of hammerhead shark fins that have either been stockpiled or caught since greater protections for hammerhead sharks were introduced. In April 2017, CRACCITES ruled that the ban on hammerhead shark fin exports must be maintained, a decision that is binding for 12 months, leading to yet another major protest by the longline fishing sector in May this year.

This time, the Costa Rican Government bent to the demands of the longline fishermen and published an executive order, modifying the procedures used to authorize shark fin exports from endangered and threatened species, designating INCOPECA as the entity responsible for indicating to the Ministry of Agriculture and Livestock (MAG) whether or not fins from shark species will be permitted to enter foreign markets. The order eliminates the participation of scientific experts from non-government organisations, academia and the Ministry of the Environment and Energy (MINAE). This order was made in addition to denying sharks the status of being wildlife under the Costa Rican Wildlife Conservation Law, which according to one of the top shark conservationists in Costa Rica,

Randall Arauz, enables sharks to be exploited by INCOPECA.

Interestingly, more than half of the INCOPECA board is made up of representatives of the fishing industry. Key parties, including its ex-Vice President Alvaro Moreno and current Executive President Luis Dobles have come under criminal investigations for matters such as fraud, drug running and failing to sanction two boats accused of shark finning in 2011.

The stockpile of hammerhead fins however believed to be located in Puntarenas, is reportedly growing. In August this year, Costa Rica is believed to have made plans for the exportation of 10 tonnes of hammerhead shark fins through a NDF with retroactive respects with the sole intent being to export the hammerhead fins stockpiled since CITES provided protections of hammerhead sharks in 2014. Randall Arauz who was once sought for input into NDF findings has stated that it is clear that INCOPECA is manipulating the science and illustrating to the world how to override CITES rulings.

With the recent grim findings from shark fin research highlighting that about one-third of the 70 species of shark fins being sold in Hong Kong are facing extinction, it is due time that countries like Costa Rica place greater emphasis on not only laws, but enforcement to preserve endangered shark species.

Mandatory labelling of shark products would assist consumers and authorities to report violations of shark protection laws which giving greater powers to consumers so as to make an informed decision. Under current regulations, dried seafood does not require labelling.

Additionally, the penalty for illegal import of shark fins from species protected under Convention on International Trade in Endangered Species should be increased to greater deter the industry profiting from illegally and unsustainably shark fishing and finning.

WHY SHARKS ARE IMPORTANT

Sharks play an important role in keeping oceans healthy. As an apex predator, they use their size to intimidate other marine animals such as dugongs and turtles which are grazers, consuming mainly sea grass, and move them on. By doing so, sharks are playing a key role in protecting sea grass beds; one of the most productive ecosystems in the world, providing shelter and food to an incredibly diverse community of marine animals. Seagrasses also support commercial fisheries and biodiversity and take carbon dioxide out of the atmosphere. Because of these benefits, seagrasses are believed to be the third most valuable ecosystem in the world (only preceded by estuaries and wetlands). One hectare of seagrass (about two football fields) is estimated to be worth over \$19,000 per year, making them one of the most valuable ecosystems on the planet.

Seagrasses have been used by humans for over 10,000 years. They have been used to fertilise fields, insulate houses, weave furniture, thatch roofs, make bandages, fill mattresses, and even car seats.

Sharks are also consumers of large fish such as groupers, which when allowed to populate freely as a result of the removal of sharks, will feed on smaller herbivorous fish such as parrotfish and gobies. Healthy reef systems rely on herbivorous fish to remove algae from coral beds. Currently, in Jamaica, more than 90 per cent of reef is covered in algae, simply because there are not enough herbivorous fish due to their not being enough sharks in the marine environment. Healthy oceans need sharks and we need healthy oceans.



DIVING WITH GLOBETROTTERS

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

With mask on face and regulator in mouth, we silently look into the blue as we slide in from the boat into the liquid world of the Blue Shark (*Prionace glauca*). Just a few metres below us, we can distinguish several sharks gliding over the suspended chum box from the stern of the boat. Blue Sharks are the most elegant oceanic travellers we have dived with to date.





With mask on face and regulator in mouth, we silently look into the blue as we slide in from the boat into the liquid world of the Blue Shark (*Prionace glauca*). Just a few metres below us, we can distinguish several sharks gliding over the suspended chum box from the stern of the boat. Blue Sharks are the most elegant oceanic travellers we have dived with to date.

Following our previous shark articles dedicated to angel sharks and whale sharks, I am going to take you on a discovery to learn more about the shark species considered the most common shark in all the oceans of the world despite the overfishing that threatens their long-term survival; the Blue Shark, gently nicknamed “globetrotter” due to their expansive migratory routes.

There are more than 530 different species of sharks scientifically identified today, living in all the oceans of our planet, keeping the marine biodiversity in balance as we know it. As I continue to talk about these beautiful sharks, the truth is that sharks are very special fish. Until recently, we used to say that the Blue Shark was one of the most common shark species in the ocean because its habitat is extended by all the tropical and temperate seas of the planet. In fact, it is possible to find them swimming in the Northern hemisphere and in the Southern hemisphere: in the

Atlantic, the Indian Ocean and the Pacific. However, due to overfishing which has increased over the past few decades, despite its large distribution and good fertility rate, this species has now entered the IUCN Red List of the International Union for the Conservation of Nature under the classification of Near Threatened (NT).

SPECIES CHARACTERISTICS

The Blue Shark is a highly migratory pelagic species, although it can be spotted near the coast, especially at night. As we all know, pelagics live in the water columns of the oceans, which by definition, very rarely approach the coast and do not depend on the seabed for survival. The Blue Shark species scientifically named, *Prionace glauca*, inhabits from the surface to a depth of 350 m. When they are caught and struggle on the decks of boats and fishermen handle them, the skin usually releases a small amount of indigo blue ink that stains the fishermen's hands, which in turn has given them the Spanish nickname of “Tintorera” (inky shark).

Morphologically, the Blue Shark is a large-eyed shark with a slender body. It presents a deep indigo-blue dorsal colouration, bright blue on its sides and white on the lower parts. It has a narrow head with an elongated conical snout and is easily recognised by its long, narrow and

pointed pectoral fins that it uses like wings, with the first dorsal fin on the back, closer to the base of the pectoral fin than the pelvic fins. According to some records, an adult Blue Shark may reach up to 3.8 m in length.

Blue Sharks are the lower classification of Requiem Sharks which belong to the family of *Carcharinidae* that comprises 12 genera and 56 species scattered throughout all the world's seas. This is one of the largest and most important families, not only because of the diversity of species in tropical, subtropical and temperate waters, but also because of its abundance and biomass along with continental and offshore platforms; including the Dogfish, the Silky Shark, the Lemon, the Bull, the Tiger Sharks, and many other well-known species. The value of this shark family in industrial fishing has serious consequences on its conservation status, making that over 28% of the species is classified as threatened with extinction in the IUCN Red List of Threatened Species.

Preferring relatively cold waters (between 7°C and 16°C) but being able to tolerate a temperature around 21°C or more, the Blue Shark is the global shark species that presents one of the largest geographic distributions of all the marine vertebrates, from high latitudes with colder waters, to the tropics. Fishing them is therefore very important, both for their





fins (which are the most commonly found in international trade) and for their meat, liver, cartilage and skin.

BLUE SHARK BIOLOGY

As far as it is known today, the Blue Shark's juvenile years last up to 5 or 6 years. Its reproduction is done by placental viviparism, as well as about 10% of all shark species. Sharing the most evolved and considered successful reproductive method of all the vertebrates in which there is a connection for blood exchange between each embryo and its mother; after a gestation period of 9 to 12 months, each female can have litters of 4 to 135 offspring, dependent on her size and age. This characteristic (very rare amongst sharks) of being able to manage the development of so many offspring per litter, has meant that among some fishermen the Blue Shark is also known as the Rabbit Shark. Even though there's a lot more to be discovered about Blue Sharks, they are recognised as fast-growing sharks compared to most other *Carcharhinidea* species and until this year, they were estimated to reach an age of about 20 years old.

Due to the development of very sharp teeth in both jaws, they feed mainly on relatively small prey that can be swallowed whole, especially some bony fish and some invertebrates such as squid, although it can also catch other small sharks and seabirds that is occasionally found on the surface. There are species of squid that form huge clusters of young, from which Blue Sharks take advantage to ingest large

quantities, almost as if they were sweeping with their heads and tails in wide arches. They tend to charge quickly through dense groups, swallowing them whole. They start feeding by the bottom of the densest fish banks, assuming then a vertical position and jumping up to take other prey. With the squid dispersed or alert, they can attack in fast turns and catch them with the corners of their mouths. These sharks have also been observed in large numbers around corpses of whales and other cetaceans, attempting to greedily tear their fat.

MIGRATORY ROUTES

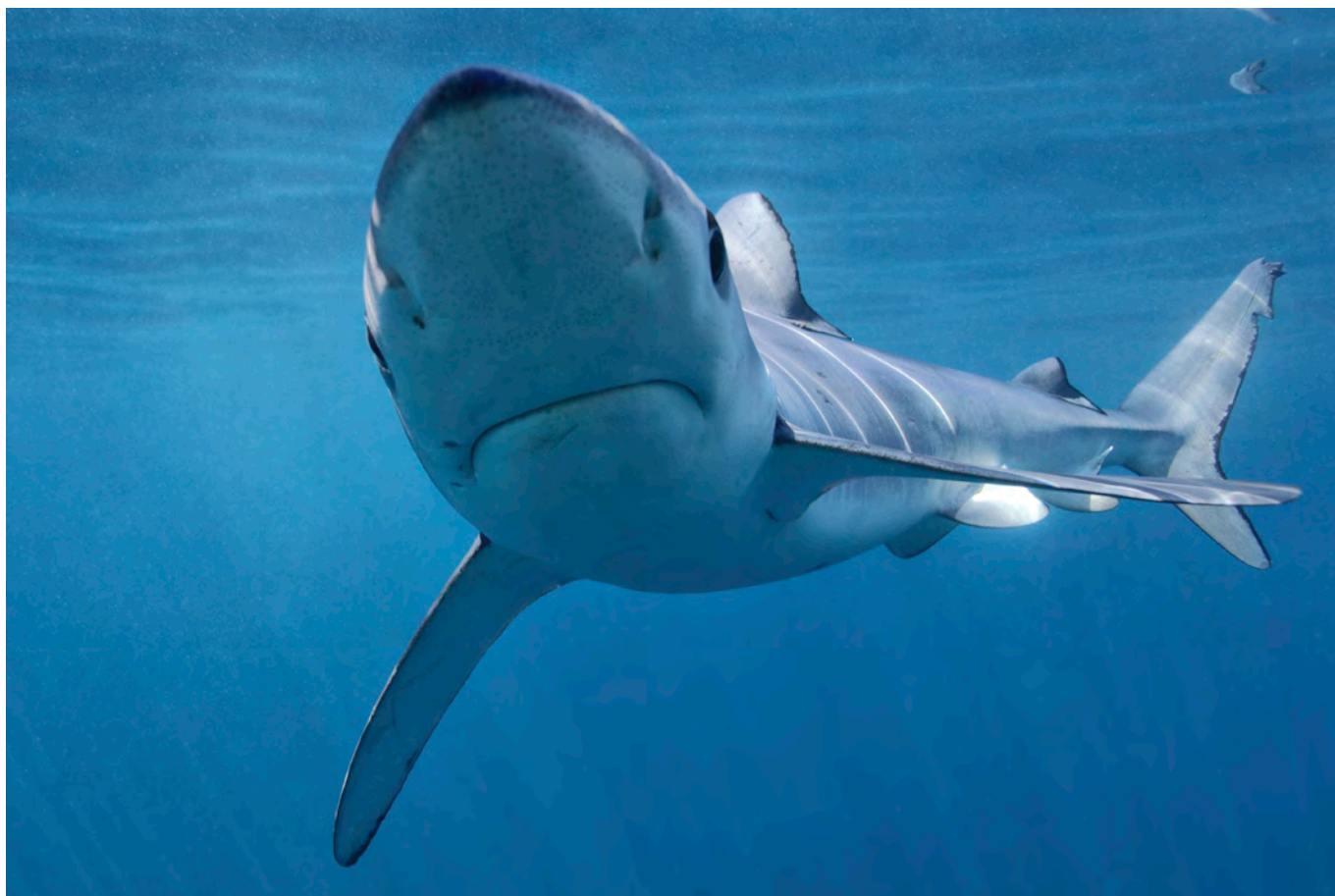
As we pointed out in the start, the Blue Shark is a highly migratory pelagic species, the reason why we like to nickname them "Globetrotters". During their entire life, they never stop swimming! And we know this through the tagging and recapture programmes of individuals in the North Atlantic as the existence of a transatlantic migration route in a clockwise direction has been proven. Specimens of Blue Sharks tagged throughout the United States have been recaptured at the west of the Iberian Peninsula and in the Strait of Gibraltar. During some shark tagging operations we participated in some years ago, more juvenile Blue Sharks were caught and marked off Portuguese waters, being recaptured a couple of years later around the Canary Islands, while Blue Sharks tagged in the Canary Islands were later caught in front of Cuba, in the Caribbean Gulf.

Apparently these Blue Sharks take advantage

of the direction of the Gulf current towards Europe, and then take other currents along the European and African coasts, to finally – thanks to the North Atlantic equatorial current – ascend through the Caribbean region.

It is a known fact today, that in the Atlantic Ocean during the spring, these sharks follow the Gulf Stream northwards along the North American continental shelf. During the summer months, a large number of them are usually found from southern New England to Nova Scotia, crossing the Atlantic through the Azores, where it is possible to have some of the best shark diving experiences with these amazing Blue Sharks.

During the winter months, the Blue Shark of the eastern central Atlantic – mostly pregnant adult females – swim in an area between 27°C and 32°C north, approximately between the Canary Islands and the north African coast. After a gestation period of 9 to 12 months, births occur in early spring in breeding areas from the Bay of Biscay, to the Iberian Peninsula and near the Azores. At the same time, juveniles and adult males occupy a place further north of the Portuguese and Spanish coasts, moving southward from the waters of northern Europe. However, for some populations that venture into the western Mediterranean, newborns do not make large migrations and remain in the nursery area until approximately 2 to 3 years of age, and with a total length close to 130 cm (Ebert and Stehmann, 2013).



BLUE SHARK THREATS

Biologically, the Blue Shark is an animal with an intrinsic rate of increase in the population with a maximum sustainable yield of 6% per year. Because of its prevalence, it is also the most captured shark species unintentionally killed. The low value of *P. glauca* meat indicates that it was often discarded before the recent finning ban in some parts of its habitats.

However, the situation of the blue shark stocks is getting worse each year. This common oceanic Blue Shark is usually caught with extremely large pelagic longlines. And, unfortunately, it is also victim to the pelagic trawls and even bottom trawls near the coasts.

Despite it being discouraged for its use as food by the WHO (World Health Organisation) due to the high levels of methylmercury its meat contains, the Blue Shark is still widely used not only for human consumption in some regions (e.g. fish and chips), but also as pet food, or even as smoked and dried salted meat. Of course, its fins are used for the Asiatic Shark Fin Soup, and other parts for fish meal and liver oil, or cartilage pills. In a recent study conducted by Luís Alves, from the Polytechnic Institute of Leiria, with the collaboration of researchers from the laboratory for the study of residues and food contaminants at the University of Nantes, the mercury levels found in the muscle of a significant sample of Blue Sharks may have neurotoxic effects capable of limiting cognitive, sensory or motor abilities in humans.

CONSERVATION CONCERNS

Although it is one of the most prolific species, the fishing pressure on Blue Sharks continues to grow. Obviously, there is high uncertainty and concern associated with its global status of being Near Threatened, and therefore a considerable growing support to include it in the List of the Most Vulnerable Species on the IUCN Red List.

Due to the overfishing that this species has been a victim to over the past few decades, first for its fins and now for its meat, the Blue Shark is nowadays considered by experts in a very vulnerable situation. The commercial interest of the large fishing industries also evolved over this animal due to the depletion of other species with higher market value, such as tuna and swordfish (Clarke et al, 2007). The fishing activity is not decreasing and trends are likely to continue. Unfortunately, over the last decade, from all the shark catches reported globally, the Blue Shark represents more than 55%.

With every year that passes, the fish discharges in the North Atlantic fish markets register catches of smaller Blue Sharks, still largely immature. Which means that the fishing industry is killing them younger each time. Who knows how many haven't been able to reproduce for the first time! For this reason, the Blue Shark currently needs legal protection to impose limits on its catches in countries with the most developed fishing fleets.

But that's not all bad news! The Convention on the Conservation of Migratory Species of

Wild Animals held in the Philippines this year in late October, agreed to add the Blue Shark to the Appendix II, which asks the 126 member countries of the Convention to collaborate on conservation efforts. They have understood Blue Sharks are among the most highly fished sharks in the world, with approximately 20 million caught around the world each year, and as a highly migratory species, they are also highly vulnerable to fisheries all around the world.

BLUE SHARK DIVING IN THE ATLANTIC

Being totally harmless towards humans, diving with these wonderful Blue Sharks is an activity now gradually extending to several areas of our oceans. Indeed, diving with Blue Sharks in the Azores and throughout the USA is already well known among divers at an international level.

As we all know, shark diving activities should always be respectful to an environmental point of view. There's usually a Code of Conduct voluntarily accepted and presented to all the stakeholders and to the divers before starting any shark diving activity.

Here are some recommendations all dive operators should follow to promote a safe and sustainable shark diving experience:

- All professional divers and operators should verify the training and certification of their guest and client divers. All divers should know the appropriate information in advance, in particular the individual and collective safety rules, the animals' behaviours to be expected and observed,

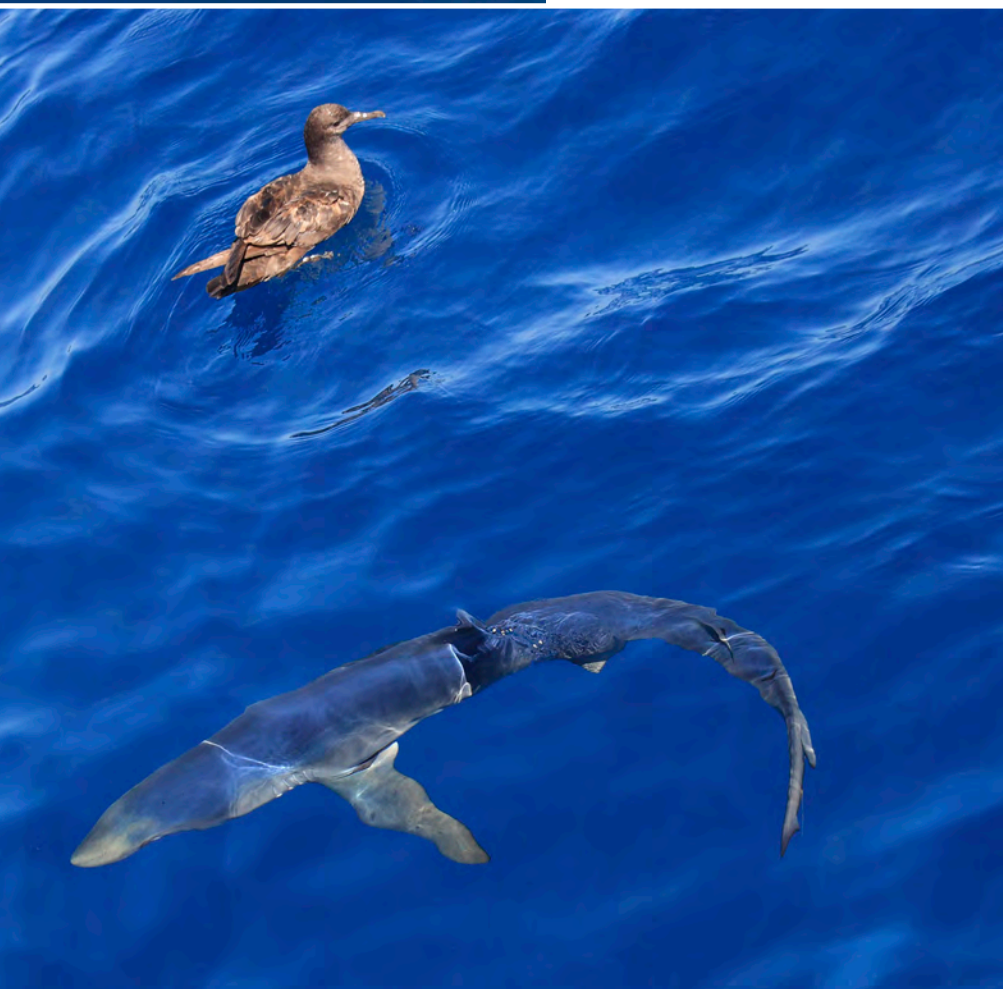




as well as a good environmental awareness level. Blue Sharks are not fed, but chumming and bait are used to attract and keep the animals in the observation zone. As it occurs for all other shark species, the Blue Shark diving activity can only be developed in presence of a dive guide with a maximum number of divers per guide.

- As underwater practical recommendations go, it is advised that all divers remain together with each corresponding buddy, and to remain in the close proximity of the vertical security lines. Any physical contact with the sharks is strictly forbidden, and all divers should be equipped with a full piece diving suit and gloves. Some sharks may interpret the white colour of our hands as a tasty piece of bait, so the use of gloves is mandatory. Dive guides are always equipped with a shark stick (without sharp ends) which is used to push an animal away if it becomes too curious. As all certified divers know, it is important to pay attention to all dive briefings and debriefings, always follow the dive leader's recommendations and be aware of any unnecessary activities and noises that may cause disturbance to the sharks.

One thing above all that we can be sure of, high sea marine pelagic ecosystems need sharks and we still have time to protect them and avoid their disappearance. But, this can only be achieved with a greater regulation of industrial fishing, and with a better awareness and a strong paradigm shift of all of us as consumers.



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This article reflects the author's point of view as a shark diver with a special dedication to the study and conservation awareness of living shark species in their natural environment. Thus, it is based on the author's studies and diving experiences with Blue Sharks (*Prionace glauca*) in the Atlantic Ocean as well as the knowledge of the importance of preserving this species worldwide, and most importantly, sharing his details under a diver's perspective.

For more information about Blue Sharks and other sustainable shark diving activities, please email:

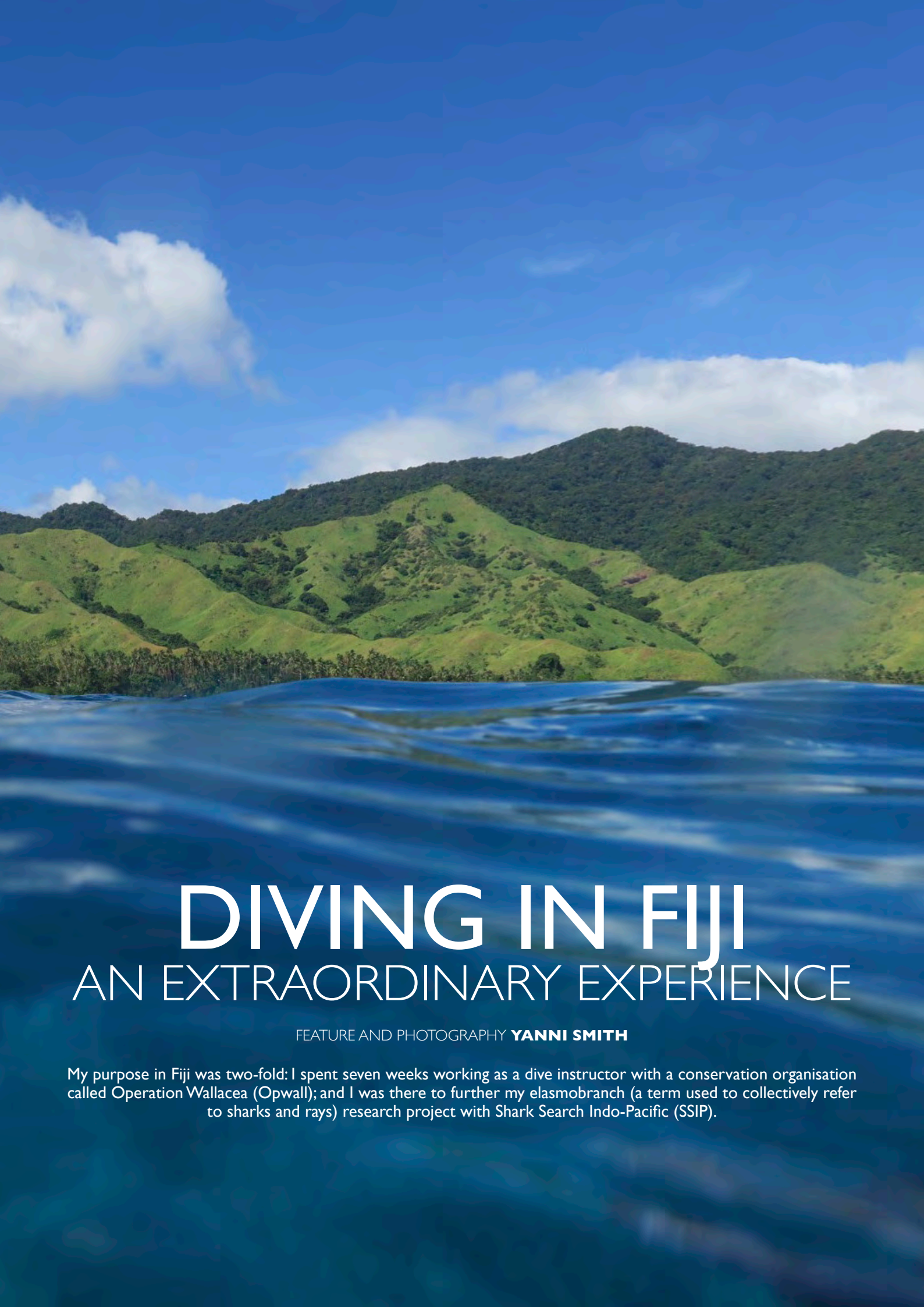
info@sharksinstitute.org

sharksinstitute@gmail.com

or visit the Sharks Educational Institute website at: www.sharksinstitute.org





A full-page background image showing a tropical landscape. In the foreground, there's a body of water with gentle ripples. In the middle ground, there are rolling green hills with some darker patches of vegetation. In the background, there are more hills under a bright blue sky with a few white clouds.

DIVING IN FIJI

AN EXTRAORDINARY EXPERIENCE

FEATURE AND PHOTOGRAPHY **YANNI SMITH**

My purpose in Fiji was two-fold: I spent seven weeks working as a dive instructor with a conservation organisation called Operation Wallacea (Opwall); and I was there to further my elasmobranch (a term used to collectively refer to sharks and rays) research project with Shark Search Indo-Pacific (SSIP).



Fiji, a South Pacific nation, is made up of over 300 islands. The two largest islands are Viti Levu and Vanua Levu. A smaller island, Taveuni, is primarily known for its indigenous flora, and is called "The Garden Island". Its luscious green hills, turquoise waters, and incredible sunsets were some of the natural beauties that I witnessed during my time there.

My purpose in Fiji was two-fold: I spent seven weeks working as a dive instructor with a conservation organisation called Operation Wallacea (Opwall); and I was there to further my elasmobranch (a term used to collectively refer to sharks and rays) research project with Shark Search Indo-Pacific (SSIP). SSIP is a long-term research and conservation program that aims to establish collaborative and transformative projects on elasmobranchs across the Indo-Pacific Region by the year 2030. The main mission of the project is to work with students and in-country partners to figure out what sharks and rays live in each country. To manage and conserve these species, we first need to know what is there and how they are faring. SSIP is about figuring this out. Once this information is collected, the program works with in-country partners to figure out what will need to be done to make sure sharks and rays are still around for future generations of Pacific people to enjoy, appreciate and sustainably use. This aims to bring communities together to

work towards the sustainable use of marine resources. SSIP is also working with divers to source photographs of sharks and rays from the Pacific to verify our checklists, so if you have dived in the Pacific and have photos to share, get in touch!

Opwall is a conservation organisation that promotes scientific research in remote locations around the world, with leading senior scientists from prominent universities. They attract Research Assistants, who tend to be university students gaining valuable field experience, as well as high school science students on two-week field trips. As this was Opwall's first year operating in Fiji, the expedition focused on high school students conducting a week of biological fieldwork in the forest before they learnt to dive and complete a coral reef ecology course. Both forest and marine sites were located on the island of Vanua Levu, Fiji's second largest island. We did all our diving in Natewa Bay, the largest bay in the South Pacific, where hardly any non-Fijian's had ever dived before.

As the Opwall staff were some of the first to dive the house reef, we took the liberty of naming reef patches and coral bommies after ourselves. Carmichael Reef stood out amongst the vast expanse of sand, swarming with schools of Fusiliers and Anthias. Gorgonians and soft

corals of all shapes, sizes, and colours covered the north side of the bommie, making the reef sway gently with the current. Giant Moray Eels sat with their mouths open, allowing White-Banded Cleaner Shrimp to busy away around it. Meanwhile, the Day Octopus sensed some divers and scurried along to its hiding den. It was the perfect bommie to bring students; we showed them everything they learnt about in coral reef ecology. It was also a small-scale example of the kind of healthy reefs I was lucky enough to dive throughout Fiji.

Diving in Fiji was always greeted with an underwater explosion of colour. I was lucky enough to dive along the Somosomo Strait, the strong current water body that separates Vanua Levu and Taveuni. It is here that Fiji earns its title as Soft Coral Capital of the World. The raging drift dives made it almost impossible to photograph anything. Instead, I opted to video the amazing experience as I drifted past shark after shark, in front of a backdrop of a thriving coral reef system. But these sharks were nothing compared to what I saw in Beqa...

The waters around Beqa Island are well known for their huge shark populations and the in-country partners of Shark Search Indo-Pacific, Beqa Adventure Divers (BAD) invited me to one of their famous Bull Shark feeding dives. BAD created the Shark Reef Marine Reserve

Bull Sharks (*Carcharhinus leucas*)



Bull Sharks (*Carcharhinus leucas*)



Whitetip Reef Sharks (*Triaenodon obesus*)Blacktip Reef Shark (*Carcharhinus melanopterus*)

in Beqa to promote tourism and provide an alternative source of income for the fishers and owners of the traditional marine area. This appears to be positively impacting the local community as well as the marine biodiversity.

Although the topic of shark feeding can be controversial, in my opinion, their benefits outweigh the perceived negatives. Bringing in tourists to the reserve raises "reef taxes" for the locals that own the traditional marine area. In return, the locals agree not to fish on the reef. This no-take zone allows the reef to flourish, bringing back fish stocks to the waters. Additionally, it allows a safe, controlled environment for divers to experience being around huge, majestic sharks. With other actions, such as shark finning being more of a threat to the shark population, shark feeding dives pose little, to no problems.

My dive experience with BAD was nothing short of spectacular. Upon first entering the water, when I saw Remoras almost a metre long, I knew the sharks would be bigger than I've ever witnessed. We dropped straight down to 30 m, quietly observing over 20 huge Bull Sharks circle in front of us and over our heads. Awe struck me; it was the most silent and focused underwater experience I've had. I took no notice of anyone else beside me; I had eyes only for these sharks. Ten minutes later, we ascended to 15 m, where we met the resident Grey Reef and Blacktip Reef Sharks. It was incredible how little attention these sharks paid us. They simply swam by as if we were part of the reef, with no reason to bother us at all. At 5 m during the safety stop, we observed Whitetip Reef and Blacktip Reef Sharks swim along the reef top, darting in and out as they grabbed some of the bait.

Since my shark dive, countless people have asked me, "Weren't you terrified of the sharks? Didn't you think they were going to eat you?"

Containing my eye-rolls, I tell them that of course I wasn't scared, I'm still alive aren't I? The only thing I was afraid of was when the Bull Sharks came so close and turned around so quickly, that their tails almost hit my camera! I definitely didn't want to lose the object that was documenting my experience.

As well as the amazing shark dive with BAD, I got to meet with some shark scientists from the University of the South Pacific and Frontier. Having the opportunity to meet these scientists and learn more about their work was key to progressing my project with Shark Search Indo-Pacific; the reason I was extremely excited to go to Fiji. Although a comprehensive guide to sharks and rays in Fiji was not published in peer-reviewed scientific literature, it is well known that Fiji hosts some of the most majestic underwater creatures.

Elasmobranchs hold social, ecological, and economical importance to marine ecosystems, and yet, overfishing, destructive fishing techniques, and habitat loss threaten their presence and abundance. Our knowledge of sharks and rays in the Indo-Pacific is limited, with many species lists incomplete. Therefore, the short-term aim of SSIP (Stage I) is to build robust and validated checklists and status overviews of the shark and ray biodiversity for each country and territory in the Indo-Pacific by 2022. Working on this, our long-term vision is to build national and regional "Communities of Practice", comprised of shark and ray scientists, fishery and marine resource managers, NGOs, community and industry leaders, and local champions. These Communities of Practice can form the multi-parameter, inter-disciplinary teams needed to plan (Stage II) and implement (Stage III) innovative shark and ray management plans tailored to the needs of each country and territory. Where effective, elasmobranch management and conservation projects are

already occurring, SSIP will recognise and support these local initiatives, and can provide a means to facilitate knowledge exchange from local programmes into Pacific-wide or global arenas.

This project functions through the partnerships between scientists, in-country experts, and citizen scientists who record and photograph sharks and rays across the Indo-Pacific. Postgraduate students at James Cook University, Australia, compile checklists and literature reviews for each country they are assigned. The projects are completed with close supervision and guidance from the research team, and are then followed by verification from in-country experts and taxonomists. So far, the checklist for the Solomon Islands is completed, with the published paper being open access and available through the Journal of Pacific Conservation Biology. Currently, checklists for Fiji, French Polynesia, Federated States of Micronesia, Niue, and Tuvalu are in progress for 2017.

Overall, my experience in Fiji was an exhilarating, eye opening, jaw dropping, and extraordinary experience. Seeing the flourishing reefs and so many amazing sharks gave me hope for the future of our oceans. Meeting with shark scientists over a nerdy lunch spurred my motivation to learn more about sharks and fisheries. Those two months underwater in Fiji were exactly what I needed.

More about Shark Search Indo-Pacific at: www.sharksearch-indopacific.org

For more information about Operation Wallacea, go to: www.opwall.com

Email: sharksearch.indopacific@gmail.com
Instagram: @shark.search





THE SEALS ARE TIGHT

FEATURE AND PHOTOGRAPHY **ALLY LANDES** PORTRAIT PHOTOGRAPHY **FREDERIC LANDES**

25 pups were born in 2001, but the numbers have since increased over the years and in 2014, Blakeney Point became the largest seal colony in England with over 2,000 pups born annually.



One thing I fondly remember from my childhood village school days, was jumping off the big beige sand dunes over on Blakeney Point after having gone to see the seals on a field day. Blakeney Point is a National Nature Reserve near the coastal villages of Blakeney, Morston and Cley next to the Sea on the north coast of Norfolk in England. Over the years, the land has seen some major natural changes. The sand on the dunes is now covered with moss and long grasses, meaning there is no more jumping off of them to land in the soft powder below as I once did in my youth. We used to run off the tops and take flight to land in big piles of it a few metres below. What surprises me the most, is how much the surface of the spit has grown. The Point is a 6.4 km spit of shingle with sand dunes, salt marshes and tidal mudflats. The spit moves towards the mainland at about one metre per year, so I've seen quite a bit of change since the 80s and 90s.

The spit is a constantly changing system that grows over time, moving towards the coast and extends towards the west. The land is lost to the sea as the spit rolls forward, which can block the River Glaven and that can cause the marshes and the Cley village to flood, so the river has to be realigned every decade or so to keep the dynamics under check.

The National Trust has managed Blakeney Point since 1912, but it has also acquired

protection and interest from several other scientific research unions and associations over the years. The Point has been studied for over a century and there is still a lot to learn from it.

Visitors come here specifically to birdwatch, sail and walk. There are seasons for everything to work in harmony with the human interaction as to not jeopardise the nesting birds, the fragile habitats and the dunes, and of course to see the Blakeney Point seals, so some areas are inaccessible depending on the season.

On a quick trip over to the UK in September, we took the opportunity to go out to the Point to go and see the Grey and Common Seals, and find out how their populations are doing. Much to my surprise, they are doing amazingly well. Blakeney Point is a perfect breeding ground with lots of open space and no natural predators, so the pup survival rates are high with only a 5% mortality.

25 pups were born in 2001, but the numbers have since increased over the years and in 2014, Blakeney Point became the largest seal colony in England with over 2,000 pups born annually. Common Seals are born between June and August and Greys between November and January. The Grey Seal pups are born on land and have incredibly cute fluffy white coats for up to 3 weeks, which they will then shed

as they triple in size with the rich mothers' milk they are fed. After the 3 weeks are up, the pups are left to fend for themselves, they take on adulthood and begin mating soon after with several females and fight with other bulls for territories, making Grey Seals quite the dramatic and dangerous wild animals that they are. They definitely dominate the seal population between the two species. They are the largest mammals on British shores and are also known as Atlantic Seals, so if you ever hear their second reference, you know they are the same.

The boat rides are a great way to get close to the seals. Grey Seals are incredibly inquisitive and will come up close to the boats and swim around them. You get a close look into their big black eyes of their long pointed heads with their long bristly whiskers. You also get a really nice view of the basking seals where you will also see some of the smaller Common Seals with their petite and very cute rounded faces.

Female Grey Seals can live up to 35 years, whereas the males only reach up to 25 years of age. They can withstand breath holds of 30 minutes and are known to dive down to a depth of 70 metres. They reach swimming speeds of 19 km an hour; and on land they can move to the pace of a casual jog, which is actually quite fast when you think they are waddlers.







ORGANISING SEAL TRIPS

There are 2 boat companies running daily trips in which I can recommend the one we used, Temples.

1. TEMPLES SEAL TRIPS

Depending on whether you want to go onto Blakeney Point, you will have to check the schedules on whether they are offering the 1 hour boat trips or the 1.5 hour boat trip with a Blakeney Point landing. I advise the landing.

The tides flood the coastal sites twice a day which also makes taking off from Morston Quay a bit of a wait for the tide to come back in and unbeach the boats. You will have to check the daily timetables when you book a trip to see what the tides are doing.

Bookings cannot be made via email, so you will have to ring to make reservations if you are in the area.

Tel: +44 1263 740 791

www.sealtrips.co.uk

2. BEANS BOAT TRIPS

www.beansboattrips.co.uk

After you've seen the seals by boat, you can opt to land on Blakeney Point (you get 30 minutes) and you can walk along the footpaths of the hills to see the gorgeous views, and visit the Lifeboat House which is a visitors centre.

The Lifeboat House is home to the rangers who live on Blakeney Point during the summer months only. The ranger team protect and monitor the seal colony which includes regularly counting them, and if any are found to be in need of medical attention, they are taken to the RSPCA Wildlife Hospital.

When pups are sometimes found on their own, as it does so happen, it does not always mean they have been abandoned, nor does it

mean they are distressed, especially when you hear them make a ruckus which will inevitably sound like crying to you. They're just being baby seals and doing what they do best. Mothers do tend to leave them for short periods of time, everyone needs a breather every once in a while, but they'll soon come back to nurse them. Approaching baby seals is not advised as this does cause a lot of unnecessary stress to them, so it's best to keep a distance and assess the situation from a different angle as to whether or not it does actually need help. If it does need help, then call the National Trust directly and their expertise will solve the problem. Interfering with baby seals can cause major issues such as actual abandonment or crushing of the pups which can be fatal.



DEEPBLU COSMIQ⁺ THE IPOD OF DIVING?

FEATURE **JESPER KJØLLER** PHOTOGRAPHY **DEEPBLU**

Deepblu COSMIQ⁺ is a dive computer with a solid integration of social media, it utilizes cloud storage, and it facilitates analysis of big data and implementation of mobile technologies – in other words: it's a SMAC dive computer!





While it can be difficult to innovate the parts of scuba equipment that is based on atoms, the few components of your gear that relies on bits and bytes are constantly changing. For instance, I'm still using rubber fins designed in the sixties, but I have probably worn at least 15 different generations of digital instruments on my wrist during my diving career. Deepblu COSMIQ⁺ claims to be "The Next Innovation in Dive Computing", but does it live up to the tagline?

The world around us is heavily impacted by four major technologies: social, mobile, analytic and cloud (SMAC). The fact that they are coinciding makes the impact even more powerful – they form a perfect technological storm, if you will. Almost all disruptive businesses such as Netflix, Uber, Airbnb, Tesla, Amazon and most social media platforms are thriving on the synergy between these four trends. They are all riding the wave of SMAC.

Deepblu COSMIQ⁺ is a dive computer with a solid integration of social media, it utilizes cloud storage, and it facilitates analysis of large data and implementation of mobile technologies – in other words: it's a SMAC dive computer!

But there is yet another reason for its interesting potential. The computer plays into another mega-trend: Wearables. We love to measure

and analyse biological data such as sleep quality, heart rate and how many steps we walk, and we wear devices such as Fitbits, smart watches and heart rate monitors to capture data of our daily activities. COSMIQ⁺, is in other words, very much a product of its time.

This is not necessarily the first time this is implemented into a dive computer – other units offer similar possibilities to upload and share information, but not as simple and elegant as this.

The first incarnation of any new technology is usually not fruitful. Many attempts to make a successful mp3-player failed before Apple finally got it right with the launch of the original iPod. It is too early to predict if Deepblu COSMIQ⁺ is going to be the diving iPod. At the time of writing this review, the product was temporarily sold out, so it looks like a success already.

UNBOXING

The unit is delivered in a small and nice zippered carrying case with a USB charging cable, two screen protectors and a small manual. The package also includes a bungee cord and the Nato strap.

The physical shape of the surprisingly small and light fibreglass reinforced polycarbonate

casing has a major design flaw. The underside is flat which means the computer will only sit comfortably on either the top or the bottom of the wrist. If you try to angle it in a way to better view the display without having to turn your arm, it slips back on the flat portion of the wrist. A more contoured underside would have mitigated that problem. The issue is worsened by the fact that the rather shiny surface of the display dictates a very specific viewing angle, especially if you are wearing other instruments on the same arm, it is frustrating that you can't place them in such a way that all instruments can be read at a quick glance.

The Nato strap is a very cool and military looking band in ballistic nylon with two metal buckles and a velcro section, but I found the strap to be fiddly to fasten around my wrist. With cold fingers and thick gloves, I would completely lose my patience. The Nato strap can also be configured in such a way that it forms a lanyard if you prefer to hang the computer from a D-ring on your BCD or in a pocket if you use the computer as a backup.

Fortunately, the manufacturer also delivers a bungee cord as an alternative to the nylon strap. Bungees have many advantages. They are easy to slip on and move around the arm, they automatically adjust to the thickness of your



suit and even if one of the bungees should break, the other one will save the instrument. You can also use the bungee as a temporary placeholder for bolt snaps or cave markers, and they are easy and cheap to replace. So, good call to offer that alternative for those of us who prefer bungees. But it would have been ideal with four holes instead of the two slots. The prescribed way of tying the bungee supplied in the box is a little weird and cumbersome. I suspect the addition of the bungee option was an afterthought and not part of the original design of the casing. It still works much better than the strap.

CHARGING AND SYNCING

The battery can be charged from any USB power source, eliminating the need for a special charger. That is great, but it drives me crazy on the number of unique cables that have become necessary to bring on a dive trip to be able to charge all the different batteries, cameras, phones, lights, and all the other devices we rely on. It's a first world problem, I guess. The two small charging terminals are held into place by a small magnet on the socket, but it is fairly weak and you have to be very careful not to dislocate it when moving the unit.

The manufacturer claims between 7 and 12 hours of battery life after a full charge,

depending on settings and screen usage. After 4 daily hours in the water on a liveaboard trip, I still had two bars left (out of three) on the battery indicator, but I routinely recharged the unit every night. Apparently, there is a low battery warning when the juice is really low, but I never got to that point.

Deepblu's concept relies on the fact you almost certainly already own a device with impressive computing power and a high-resolution display – your smartphone! And you are probably online 24/7, even on most dive trips. A diving instrument only has to support the functions that are necessary during the actual dive. The rest can be outsourced to a device with much more computing power – a device you already paid for and always carry around.

All settings, updating, logging and sharing of data is done via the free Deepblu app and the computer seamlessly connects via Bluetooth. I never had any issues pairing the two units. The app also supports log data from a handful of other computers, most notably the Scubapro family, but also Shearwater recently announced future support for the Deepblu app.

All manipulations on the COSMIQ+ are done with two metallic buttons, one on each side of the cabinet. But it is only possible to change a few settings directly on the unit. You can switch

between the different modes (watch, scuba, gauge, freedive, dive log and sync). You can also (thankfully) change the nitrox settings between 21 and 40% without your phone in range.

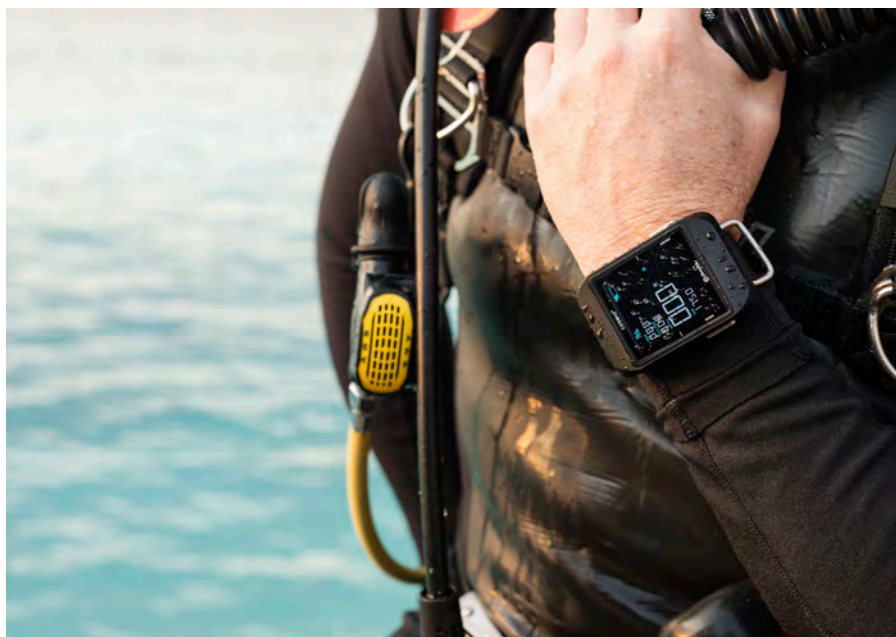
All other settings like time/date, ppO₂ (from 1.2 to 1.6), metric/imperial, conservatism and other adjustments are done by syncing with the Deepblu app on your smart phone (Android or iOS).

The internal memory is apparently good for 25 dives, so you do not have to sync the computer after every dive or even after every dive day, but moving data from the computer to the community cloud is the core essence of the computer's raison d'être, and if you like social media and online communities, you will probably want to sync every time you have a chance.

THE APP AND THE COMMUNITY

Both the app and the web application is very nicely done with a clean and modern layout. There are many groups already setup and the community seems to have reached the all-important critical mass to be sustainable and continually growing.

I did not spend a lot of time exploring the possibilities, but I still found a couple of weaknesses. When creating your profile, I



was not able to choose GUE as my training organisation. Nor was it possible to have more than one training rating, but many divers have several relevant certifications from different agencies.

The log book lacks a lot of details that are relevant to technical divers. It is not possible to describe the dive as a decompression dive or trimix and rebreathers do not exist as options either. But this can easily be fixed in future updates, and I suspect the demand for technical diving related features will be more obvious when the Shearwater support is implemented.

Let's dig a little deeper. A sufficiently large pool of data could yield interesting analytical possibilities for the scientific community. Researchers in diving medicine would have a field day if they got access to compare user data across the entire diving population. That could reveal correlated, but hidden tendencies.

But to really be useful, the log would have to have more entry fields to let the diver report physiological data such as degree of tiredness after a dive or other sub-symptomatic issues believed to be a precursor to decompression sickness.

Divers Alert Network (DAN) are already compiling dive information through other channels, and it would make sense to create an interface to the Deepblu community. The COSMIQ+ could be seen as a black box collecting data about diver behaviour to be analysed for the benefit of diver safety. This is not a new idea, COSMIQ+ just makes it simpler and easier.

SCUBA MODE

During the dive, you are presented with a fixed set of predetermined information. No customisation is offered. The two large numbers on the screen represent NO DECO and current depth. Secondary information such as temperature, dive time, max depth and time of day is also displayed but in smaller numbers. Older divers, like myself will have trouble reading the rather small digits. Even with reading glasses on the surface, I have trouble making out the smallest letters on the display.

Graphical representations of the ascent speed, the current mode and the battery status occupy the edges of the display. In scuba mode, the two buttons do not have any function during the dive and it is not possible to alter the screen in any way. What you see, is what you get.

I would have liked the option of being able to access secondary information. Current CNS %, time-to-surface, average depth and maybe a stopwatch utility could have been assigned to alternate screens that could be accessed after pressing one of the buttons.



But I guess the designers wanted to keep it simple. However, some of these functions are available in the Bottom Timer mode, so they are already there. Why not give us access to them in Scuba Mode?

This is the first time I've seen a temperature reading with decimals and compared to other computers I have used, the readings were very consistent.

The remaining bottom time (NO DECO) is displayed with three digits and it is also the first time I've seen that. In the beginning of a relatively shallow dive, most computers will just display 99 to indicate that you are not even close to a decompression limit. The COSMIQ+ spits out numbers such as "197", or even higher. I would have been perfectly happy with just "99" or even just a smiley! The numbers also change a lot, even after small changes in depth and if you have several hours before decompression, it is not really relevant if it is 150 or 200 minutes. Shallower than five metres, the no deco area just displays three dashes: ---.

NO DECO!

The manual contains a disclaimer that states that the computer should not be used as a primary instrument for decompression diving. That is very sensible advice because the implementation of decompression is rather strange. After forcing the unit into deco, the letters CEL (ceiling) appears. Ceiling refers to the fact that you now have an invisible roof over your head. The first mandatory stop and the required decompression time is displayed at the bottom of the screen. As soon as the target stop depth is reached, CEL is replaced with the required deco time (in seconds) counting down. It is hard to watch a figure such as 300 (seconds) and relate it to minutes. I would have preferred 5:00, 4:59, 4:58... and not 300, 299, 298...

If you miss the target depth with plus or minus

1 metre, the word CEL reappears, but with no indication of whether you need to go up or down. I was told to do stops on 15, 12, and 9 metres. But the last stop was on 5, not 6, which is weird.

But again – this instrument is clearly not made for decompression purposes. However, a more logical and intuitive implementation could make a difference if a recreational trained diver ended up in a decompression situation by mistake.

The decompression calculation is based on an adaptation of the popular and widespread Bühlmann ZH-L16C model, specifically designed for dive computers. Through the app, the algorithm can be modified with three settings: Conservative, Normal or Progressive. I was not able to tell the difference between the three settings nor does the manual reveal details about the settings, but I have a feeling that the model is implemented in a fairly conservative version, and even the progressive setting does not appear particularly aggressive.

SO?

The manufacturer claims that it is The Next Innovation in Dive Computing and the product actually features enough new ideas to warrant the tagline. A couple of easy fixes and a more comprehensive implementation of the log feature would make this an even stronger package. But even the current version of this product has relevancy for a lot of users. The primary audience is both beginners searching for an inexpensive and user-friendly instrument with a strong implementation of community, and more advanced users looking for a low-priced backup instrument and a "black box" to record data for sharing in the cloud. Even technical divers will appreciate the nifty bottom timer function with resettable average depth and timer functions. If the app and web page are updated with more tech-friendly fields like twinsets, rebreathers and trimix, I would consider using it myself.

THE PLUS

- An innovative product with a lot of potential
- Small and light
- User friendly
- Low price point

THE MINUS

- Screen difficult to read in sunlight
- Bad decompression implementation
- Takes time to get used to the NO DECO in three digits and the deco stops in seconds
- The physical shape of the unit and lack of holes for the bungee cord
- Missing support for technical diving information on the web app

THE TEST

I used the unit on local dives in the UAE, but also in Oman, the Red Sea and while cave diving in Florida. A mixture of recreational and technical dives on both open and closed circuits. I always used it alongside another instrument and never relied solely on the COSMIQ+. Only an exhaustive test over a longer period will reveal how durable the unit is. The white casing on the test unit we received is already a little dirty and scratched, but I imagine the black version will look nicer after heavy use.

THE FACTS

Available Colours:

- Black
- Red
- Blue
- Purple
- Grey

Modes:

- Scuba
- Freedive
- Bottom Timer

Display Technology:

Enhanced Black Twisted Nematic (EBTN) Negative Image LCD Display

Max Depth: 100 metres

Deco Algorithm: Bühlmann ZHL-16C

Dimensions: 70.6 x 48.6 x 20.9 mm

Weight: 81 grams

Accessories Included:

- COSMIQ+ Base Unit
- NATO Wrist Strap
- Bungee Cord
- Charging Cable
- Screen Protector (2 pcs)
- Quick Start Guide
- Carrying Case

THE WHERE

For more information and prices:
www.shop.deeplu.com



Digital Online 2017 – American University in Dubai



Digital Online 2016 – American University in Dubai



Digital Online 2015 – American University in Dubai



Digital Online 2014 – American University in Dubai



Digital Online 2013 – DUCTAC, Gallery of Light, MOE



Digital Online 2012 – DUCTAC, Gallery of Light, MOE



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

DIGITAL ONLINE 2018

EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMPETITION
 OUR FAVOURITE EVENT IS BACK ON!

SUBMISSIONS OPEN: SUNDAY, 7th JANUARY 2018 | SUBMISSIONS CLOSE: SUNDAY, 29th APRIL 2018 @ 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.

PRIZE SPONSORS



ABOUT DIGITAL ONLINE

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

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

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

The event, now in its 9th year, sees the continuous and steady growth of new underwater photographers taking part

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

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

THE SPONSORS

We would like to thank all our devoted and new sponsors for taking part in Digital Online 2018's upcoming event, for without them, the competition would not take place. We have a list of amazing prizes to announce in the March 2018 issue which are not-to-be-missed! We would like to give a big shout-out to BFC

Travel Management, Philippines Department of Tourism, Le Meridien Al Aqah Beach Resort Fujairah, Millennium Resort Mussanah Oman and Sea Oman Dive Centre, Grand Stores, Al Mahara Diving Center and Beach Rotana Abu Dhabi, InterContinental Hotel Abu Dhabi, Al Marsa Musandam, MTM Marine LLC, Divers Down, Freestyle Divers, The Dive Centre, Al Boom Diving, Fairmont Fujairah Beach Resort, The Palms Dive Center and Seabreacher UAE.

THE JUDGES

We would also like to thank Andy Murch, Simon J Pierce, Imran Ahmad, Simone Caprodossi and Jonathan Ali Khan for being Digital Online's asset guest judges.

We are privileged to have such talented photographers and film makers volunteer their time to take part in this event.

COMPETITION CLAUSE

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

THE DIGITAL ONLINE RULES AND GUIDELINES 2018

RULES AND GUIDELINES

- Digital Online is open to all photographers and videographers of all skill levels with a valid EDA membership status. EDA membership must be renewed if expired in order to take part.
- Each competitor can only win one prize or prize package.
- Winners will choose their own prize.
- Participants are obligated to follow environmental conservation regulations and to respect the underwater world during the process of taking their stills and video. Be advised that any damage to the protected underwater world, including the disruption of the natural habitat of the marine life, provocation through touching, displacing, feeding or annoying, is prohibited and will disqualify the images or the photographer/videographer.
- By entering the competition, entrants declare that they own copyright of the submitted photographs and films and it entails an automatic acceptance of all the rules. EDA reserves the right to publish images in the 'Divers for the Environment' magazine, EDA's social media pages and on the EDA website. Images will also be used in any future promotional material for EDA events and competitions royalty free, but copyright remains with the photographer. Use of images or video will require no additional written or verbal permission from the photographer or videographer.
- Competition organisers will take the utmost care in handling digital files submitted to the competition. However, competition organisers will not be held responsible for any loss of the submitted material at the time of uploading images. No media such as CD's, DVD's, memory cards and sticks

will be returned to the participants.

- Images (photos or videos) must not have already been submitted to previous Digital Online Competitions.
- Photos and videos must be taken underwater unless specified in a category description.
- Manipulation is restricted to colour correction, brightness, contrast, sharpening and cropping. The Digital Online judges reserve the right to examine untouched images if requested.
- Removing backscatter is allowed to an extent, this does not include the removal of subjects such as fish or divers or cutting and pasting sections of images from one to another.
- The finalists will be announced and their work displayed at the exhibition and award ceremony in May 2018 (Date and Venue TBC). Participants who do not make it to the evening of the event will be asked to collect their prize from the EDA offices.
- Prizes will be announced in March 2018.
- We pledge to run this photography and video competition ethically and with integrity. Our judges have volunteered their time to help. The photographers' details remain hidden to the judges during the judging process.
- All judge's decisions are final.

REGISTRATION AND UPLOADING ENTRIES

- Submissions can be entered from Sunday, 7th January 2018.
- The entry deadline is Sunday, 29th April 2018, at 11:59pm (GST – Gulf Standard Time).
- The participant must be a valid EDA member. Submit entries via email to photo@emiratesdiving.com with the requested category detail information.
- File names should include photographer's

name and the category:

- Name-Macro.jpg
- Name-WA.jpg
- Name-UAE.jpg
- Name-BW.jpg
- Name-Compact.jpg

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

Good luck to everyone taking part in Digital Online 2018! Dive safely and have fun!

*NOTE: HOW PRIZES ARE AWARDED

Once the judging is complete, the winners will be able to choose a prize available to them on the list they will receive via email. Digital Online Judges award a 3-way point system to each photograph/video consisting of Technique, Composition and Impact which is added to give the photograph's or video's total grand score. Best of show with the highest points will get first choice. 1st place winners by highest score will choose a prize before all other winners, 2nd place winners before 3rd place winners, etc. Please note, each individual can only win one prize or prize package.

PHOTOGRAPHY CATEGORIES

Photographers may enter one photo per category.

Details to include with each photo submission:

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

1. MACRO (DSLR/MILC ONLY)

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

2. WIDE ANGLE (DSLR/MILC ONLY)

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

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

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

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

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

5. COMPACT CAMERA (COMPACT ONLY)

Definition: Point & shoot photographers only.

VIDEO CATEGORY

Title: WHAT LIES BENEATH

Definition: Looking for films of all genres – documentaries, narratives, shorts and animation films. Film subject must focus on all aspects of our underwater world including but not limited to, ocean exploration, wildlife, environmental, conservation and oceanography. Lengths including credits: 5 minutes or less.

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

THE DIGITAL ONLINE JUDGES

ANDY MURCH | BIG FISH EXPEDITIONS Wildlife Photographer



Andy Murch is an award winning wildlife photographer and the founder of Big Fish Expeditions. Specialising in images of marine predators over the last two decades, he has probably photographed more shark species than any other diver. Andy's images and shark stories have appeared in hundreds of books and magazines around the world from titles as varied

as Scuba Diving, FHM, the New York Times, Digital Photography Magazine and the Journal of Zoology. Andy is the creator of the ever expanding Shark and Ray Field Guide on Elasmdiver.com and the driving force behind the Predators in Peril Conservation Project.

Elasmdiver Shark and Ray Picture Database: www.elasmdiver.com

Marine Life Images: www.marinelifepics.com

Predators in Peril Project: www.PredatorsInPeril.org

WEBSITE: www.bigfishexpeditions.com

FACEBOOK: Big Fish Expeditions

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



Simon is a marine conservation biologist and a Co-Founder and Principal Scientist at the Marine Megafauna Foundation. Most of his work focuses on the world's largest fish: the whale shark. He also works with other threatened species, particularly sharks, rays, sea turtles, and for the protection and management of important marine habitats. He acts as a science advisor for the Wildbook for Whale Sharks global

photo-identification library, and also a Director of Wild Me, the non-profit organisation which oversees its development. Finally, he's a Member of the IUCN Shark Specialist Group, an invited group of experts that synthesises scientific knowledge and assists in the development of global conservation strategy for these fish. Since 2012 he has become increasingly interested in photography as a way of documenting his work, and for communicating his enthusiasm for nature and wildlife in general. His photographs and videos have been published by a wide variety of media outlets, including New Scientist, the Washington Post, Scientific American, BBC Wildlife, Discovery, Earth Touch, Huffington Post, Yahoo, Rough Guides, and Sport Diver.

WEBSITE: www.simonjpierce.com

FACEBOOK: Simon J Pierce Photography

SIMONE CAPRODOSSI | ENVIRONMENTAL SUPPORTER Underwater Photographer



Simone is an Italian underwater photographer based in Dubai for the last 10 years. Despite a corporate professional life, he is a photographer, traveller and diver at heart and dedicates all his spare time to covering new destinations and chasing unique animal encounters in remote parts of the world. In addition to being the Overall Winner

of Digital Online consecutively for the past two years, his photography has been awarded in prestigious global competitions and published internationally. He is a main feature contributor to the EDA magazine and has covered several destinations with EDA from Sipadan to Sudan, and Malapascua.

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

WEBSITE: www.simonecaprodossi.com

FACEBOOK: Simone Caprodossi Photography

IMRAN AHMAD | ESCAPEINC. DIVE & PHOTOGRAPHY Professional Photographer



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

PUBLISHED BOOKS

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

WEBSITE: www.escapeinc.com.sg

FACEBOOK: Imran Ahmad Photography

JONATHAN ALI KHAN | WILD PLANET PRODUCTIONS Managing Director



JAK is a topside wildlife and underwater cameraman, producer, director and editor with a strong passion for the natural world having worked on a wide range of unique projects in the region and is recognized as an authority on environmental, conservation and diving related issues. His fascination with filming all started after years of working as a photojournalist and

shooting underwater stills. His primary interest is in marine subjects that led to the creation of Ocean World Productions in 2003. In 2008, JAK left Ocean World Productions in order to focus entirely on natural history TV development, leading to the recent creation of Wild Planet Productions.

WEBSITE: www.wildplanetfilms.org

FACEBOOK: Wild Planet Productions

ALLY LANDES | EMIRATES DIVING ASSOCIATION Project Manager, Events Coordinator, Editor, Graphic Designer, Photographer & Videographer



Ally has worked with EDA since December 2004 when she created and introduced the quarterly magazine, 'Divers for the Environment', as magazine Producer, Editor and Designer. She branded and helped foresee the development of Digital Online – EDA's Underwater Photography and Film Competition from its launch in 2009 and has since managed the event. Ally keeps busy within her fields of passion, always looking to fill gaps with improvements, developing EDA's brand, designs and managing all the EDA social media and FAM trips. As a qualified PADI Instructor, she utilizes the experience within everyday life at EDA.

WEBSITE: www.emiratesdiving.com

FACEBOOK: Emirates Diving Association



THE MADAGASCAR ADVENTURE

UNDERWATER TREASURES OF NOSY BE

FEATURE **STELLA DIAMANT** FEATURE AND PHOTOGRAPHY **SIMONE CAPRODOSSI**

While Madagascar is not (yet) well known as a world-class destination to spot marine megafauna, it harbours an incredibly biodiverse ecosystem, hosting some of the world's richest coral reefs, as well as an extensive diversity of cetaceans, from dolphins to the elusive Omura's Whale, the last species of whale discovered by scientists.





While Madagascar is not (yet) well known as a world-class destination to spot marine megafauna, it harbours an incredibly biodiverse ecosystem, hosting some of the world's richest coral reefs, as well as an extensive diversity of cetaceans, from dolphins to the elusive Omura's Whale, the last species of whale discovered by scientists.

It is also home to an important aggregation of whale shark, known as 'marokintana', in local Malagasy dialect, meaning 'many stars', who come to visit the nutrient-rich waters of Nosy Be, a small island off mainland North West Madagascar, each year from September to December.

While whale sharks have been spotted since years in Nosy Be, they only recently began to be a source of interest for tourists, partly due to the travel safety concerns with the country, partly to the lack of scientific focus on the now endangered species. So, aside from a short study in 2007, the presence of whale sharks in Madagascar remained unknown to the scientific community until recently.

I was lucky to get an invitation to join a week's fieldwork on the Madagascar Whale Shark Project with Arabian Whaleshark expert Dr.

David Robinson and global whale shark guru, Dr. Simon Pierce, who is the project's expert co supervisor through his organisation, the Marine Megafauna Foundation.

The project was created thanks to the passion and efforts of biologist Stella Diamant, who fell in love with both the country and the whale sharks, and initiated an extensive research and conservation project in Nosy Be in 2016, together with local NGO Mada Megafauna, Marine Megafauna Foundation, and the Heithaus Lab of the Florida International University. The project focuses on determining the population size and structure, as well as better understanding the distribution of whale sharks in Madagascar, and whether the population in Nosy Be is connected to other aggregations in the Western Indian Ocean. While whale sharks are an endangered species on the IUCN Red List and recently listed on the appendix II of the Convention of Migratory Species, they remain unprotected in Madagascar, like all elasmobranch species. Sadly Madagascar has a proven track record in environmental disasters, and still supplies the shark fin trade in Asia.

The project aims to rightfully demonstrate that the seasonal presence of whale sharks

in Madagascar drives tourism, and more so, that the 100-something whale sharks of Nosy Be are actually all worth their weight in gold. In order to achieve this, Stella and her team collect daily data on the sharks while joining tourists wanting to swim with whale sharks in partnership with local operator Baleines Rand'eau, a French-led whale watching company who is actively supporting the project. By combining science and tourism, the company grants a unique experience to tourists, who benefit from first-hand explanations during their trip, while it allows scientists to collect key population data through photo-identification as customers swim with whale sharks.

And it definitely is an absolute top class destination. Every morning we'd leave early into the stretch of sea between the smaller islands off Nosy Be, Nosy Sakatia and Nosy Tanikely, and look out for groups of terns and other birds actively fishing. On approaching the diving terns, we'd start to see small tuna jumping and feasting on baitballs of small fish. In most cases, the baitball would have a guest whale shark joining the centre of the action and sucking in some of the lovely food. The water is a deep blue and different from most other whale shark aggregation sites in the







world. It is crystal clear as there is no plankton, which makes it perfect for photography.

Stella has already recorded over 80 individual whale sharks this year and named them all. She would typically come out of the water referring to the one we would have just seen by name as you would an old friend, or excited about having found/met a new one.

Identification data is key to studying the seasonality and site fidelity of each shark to the area, as some sharks are seen more than others. We met Michel, for example, the most sighted shark of Nosy Be, and easily recognisable by his cut caudal fin. His seasonal presence in the area has been recorded for the past 3 years. As all sharks bear a unique combination of spot patterns, taking photographs of their left and right side readily identifies them. These photos can then be uploaded onto a citizen science website, whaleshark.org, which calculates distances between the white spots on the whale sharks' skin. Thanks to this algorithm, individuals can be compared to each other, allowing scientists to uniquely differentiate individuals and build a catalogue for each aggregation site. Another important population indicator is sex segregation; most whale shark aggregation

sites only harbour male or female dominated populations, rarely an equal ratio of the two. Like in Tanzania, Mozambique and Mexico, Nosy Be's population hosts mostly juvenile males, with only a ¼ of females. As whale sharks reach sexual maturity at 8.6m long, the juvenile whale sharks of Nosy Be, with a total length ranging from 3.5 to 7.5 metres, are still only teenagers and need to survive a few more decades in order to reproduce, a difficult feat in the age of plastic pollution, shark finning and illegal fisheries.

As whale sharks become a more studied species across the globe, experts like Dr. Simon Pierce, have reasons to believe that older and bigger whale sharks migrate offshore to deeper depths after they have reached sexual maturity. As a result, juvenile sharks come to feed on high-energy plankton blooms off coastal areas, such as Nosy Be.

Their seasonal and predictable presence means more and more people come to Nosy Be, specifically to meet these unique animals whose visit to the waters of Madagascar match exactly with those of school holidays in France and its departments of La Réunion and Mayotte. In order to regulate this steep influx of tourism, the Madagascar Whale Shark

Project launched a first code of conduct this year with the aim to improve the quality of encounters with whale sharks in a sustainable and respectful manner. That way, tourists benefit from a longer, safer and more relaxed interaction with the shark, while the shark in question, is less prone to engine injuries or boat collisions. So far the initiative has received great praise and has been popular with other operators who have been approached and briefed by Stella as part of an educational campaign she led earlier this season.

While whalesharks are the main target of the study, during fieldwork, Stella and her volunteers also record sighting of several other dolphins and whales that visit the Nosy Be coastal waters in the same season. We got the chance to encounter Humpback Whales multiple times, mostly mothers with calves heading back south through the Mozambique channel.

My dream was to see the extremely rare Omura's Whale, that while quite rarely encountered globally, are regulars in these waters. Unfortunately they decided to come into the bay a few days late this season, and there was only one sighting on our second to last day. They are apparently all over the place now that I am back in Dubai...



Humpback Whale

The area is also a turtle heaven. An extensive seagrass bed off the beach of Nosy Be and Nosy Sakatia is home to a resident population of Green and Hawksbill Turtles. We spent the last two nights in the lovely Sakatia Lodge on the small island and I could not resist a sunrise snorkel to photograph the big Green Turtles. In the early morning with the low tide, they just start their daily meal and happily feed, oblivious to the close human presence.

We have also collected a third turtle species, meeting with a very friendly Olive Ridley who swam with us in the blue. It has been reported that Leatherback Turtles are also sometimes spotted in these waters.

Out of water, it is another wildlife heaven. Sakatia Lodge has a group of Black Lemurs who

like to come out from the untouched forest for a taste of mangos from the big trees found around the lodge, allowing some pretty close encounters with these incredibly cute animals.

While a lot of Nosy Be has been deforested for plantations, villages and tourist resorts, the Lokobe National Park has been protected as a Wildlife Reserve and it is possible to access the secondary forest at the edge of this pristine area. It is an unmissable opportunity to see lemurs in their wild habitat and the different species of amazing chameleons only ever spotted by the locals' sharp eyes.

I want to thank Stella for sharing her wonderful work with us, and allowing us to discover the special place that Nosy Be is. I will definitely be back to find the elusive Omura's Whales.





GETTING THERE

Nosy Be is relatively easy to reach with direct flights to Johannesburg and from there onwards, direct weekly flights on Sundays with South African Airlink.

DAY TRIP TOURS

Day trip tours for whale shark, dolphin and whale spotting can be arranged with Baleines Rand'eau who contribute to the project with their sightings.



LES BALEINES RAND'EAU

Excursions Nosy Be – Madagascar
Tel: (+261) 0322450987 / 0325457741
Email: lesbaleinesrandeau@gmail.com
www.baleinesrandeau.com

MORE INFO ON THE MADAGASCAR WHALE SHARK PROJECT

Whale Shark Research and Conservation in Nosy Be, Madagascar. You can help make the Madagascar Whale Shark Project a success and get involved!
Email: madagascarwhalesharks@gmail.com
www.madagascarwhalesharks.org





APO ISLAND

HOW I CAME TO DIVE THERE

FEATURE AND PHOTOGRAPHY **LEVENTE ROZSAHEGYI**

Once we reached the island and got off the “ferry”, I could already see turtles in the bay. The water was so clear that I could see them feeding at the bottom from 5-6 metres deep. They regularly ascended to get some air and would then dive back down to feed again.



It all started with one of my photos winning the Digital Online Photography and Film Competition back in 2016 with EDA. The winning prize was a few days stay with dives in the Azure Dive Resort in the Philippines.

I am primarily a wide-angle underwater photographer and hardly ever take macro shots. I should have been more careful about packing my gear on this particular occasion.

I took off to the Philippines in May and travelled to Manila, on to Dumaguete, and then to the Azure Dive Resort in Dauin. Azure is quite a place. It's a top notch resort with all the diving facilities and yes, a lot of macro sites... of which I was not equipped.

I made some new friends at the resort and they had some interesting stories to tell. Lynn and Leo are senior pro-photographers and videographers for National Geographic, and they gave me some useful tips on diving in the region. It turns out, that Lynn was one of the founders of a sanctuary around Apo Island back in the 80s. She told me lots of stories of how she was involved with negotiating with the government back then and Leo was about to finish a three year project, recording the macro life of the Philippines for the National Geographic.

I spent a few days at the Azure Dive Resort, diving locally and checking out some macro sites, but I was very keen to go to Apo Island,

not just for the wide-angle but also for the turtles. They are the best guys in the water... ok, straight after dolphins!

Reaching the island via any form of transport was quite a challenge and when I left Azure, I wasn't entirely sure they had got my booking on Apo. Apo is only a few kilometres from Negros Island and a half hour ferry ride away. However... the ferry ride was more of a survival mission than anything else. The ferries are traditional Filipino boats called, Paraws and they can feel a little unsteady when the water gets a little choppy.

The island was very peaceful, and apparently I was very lucky with the weather (the grains



of sand did not stir, there was zero wind and flat mirrored waters), as a few weeks later, the monsoon season began with some very severe winds and waves.

Once we reached the island and got off the "ferry", I could already see turtles in the bay, which was basically the local harbour. The water was so clear that I could see them feeding at the bottom from 5-6 metres deep. They regularly ascended to get some air and would then dive back down to feed again.

Later on, when I was trying to get an over-under photo of a turtle, (not a small task as they tend to turn away from you all the time) I figured that they have one breath at

the surface, then they stay, descend just a few centimetres, and then ascend for another breath. This pattern allowed me to take some photos of them feeding in the sanctuary in the harbour.

I stayed at the Liberty Lodge for 3 days, which felt like 3 weeks. It is the most relaxing place on earth without any electricity, (only a few hours a day are given to recharge camera batteries) or running water. The fact that there was no running water was a little challenging at times.

The dive centre was not very busy, it was the shoulder season in May, but they get crazy busy in January-March. All dives are done

around the small island, hence very short boat rides or just a short step into the water from the shore. There are always good chances of bumping into a green turtle. All the turtles are counted, named and tagged. There is a large image of all the turtles' left and right profile views at the dive centre.

The dives are very laid back and you get the occasional nosey visitor turn up to look at you. We were at about 20 metres when our dive guide alerted us to look up by banging his tank to show us that something was approaching. I didn't have the time to adjust any of my camera settings as a green turtle literally approached me from above, with the sun positioned directly behind it.

There is a dive site called the Coconut Point, otherwise referred to as the "Washing Machine". As its name suggests, this dive site is at the edge of the west part of the island, creating very strong currents. In some cases, these currents only flow horizontally, but sometimes the downstream caused issues.

There was a really nice school of Jackfish there, and on the first dive I took some reasonable photos of them. I asked to go back the next day, however my dive guide took me to another spot, on Rock Point East.

I left the island incredibly relaxed and satisfied with lots of photos and memories gained from just a few days. I highly recommend a trip to Apo Island.

RECOMMENDATIONS:

LIBERTY'S COMMUNITY LODGE

Apo Island, Dauin

Tel: +63 920 2385 704

Mob: +63 920 9124 593

Email: apoislandliberty@gmail.com

Website: www.apoisland.com

BEST TIMES TO GO: January-May

WORTH SEEING: Make sure you take a walk to each end of the island, meet the locals and check out the state of the art solar panel they were building at the time of my stay.









A BOLSEL STATE OF MIND

FEATURE AND PHOTOGRAPHY **IMRAN AHMAD**

During certain months of the year, the sea in Bolsel turns itself into a swimming pool state. Flat water, easy conditions to dive in and best of all, the explosion of rich colours will mesmerize you.



You must have heard a ton of stories about the dive sites in Manado, Indonesia. You would be inspired to dive this area after seeing stunning images of exotic marine life and the beautiful coral covered walls. Yes... it's a beautiful place.

I had the opportunity to discover some of Sulawesi's secret spots off the beaten track. These dive spots are fun to explore, and in Sulawesi they are plentiful. The local dive community hint whispers about these dive spots to others and others take years to discover them, and some of them are outrageously underrated. I'm about to describe just one of the many undisclosed sites of Sulawesi.

My journey began with a 7 hour car ride from Sam Ratulangi Airport in Manado to a place called Bolsel in South Bolaang Mongondow in the region of North Sulawesi. The coastline is filled with winding roads, picturesque cliffs and lush greenery. The province is rich with plantations of pineapples, rice, coconuts, corn, ground nuts and more. Fisheries are also a source of income for the locals.

Upon arrival, we were greeted by Bolsel divers and professionals from ESCAPEINC ASIA. We were briefed on safety measures, our accommodation and the diving ahead. It was important that we understand the safety

briefing as the diving in Bolsel is unique and we were the only boat out there.

Turquoise blue surrounds you as you look across to the horizon and its crystal clear water meets you as you dip your head below the surface. During certain months of the year, the sea in Bolsel turns itself into a swimming pool state. Flat water, easy conditions to dive in and best of all, the explosion of rich colours will mesmerize you.

The one thing you notice during these dives, is how enormous and long the reefs are. Just like the journey's winding roads getting there, you are immersed within winding reefs filled with incredibly large hard coral formations, massive gorgonian fans and the giant cruising Napoleon wrasse (*Cheilinus undulatus*). Life seems so much slower underwater and you get to take it all in.

If you love wide-angle photography, you will need a model to compose the mood with the colourful soft corals. Beautiful deep red gorgonian fans and whip corals sway gently in the deep. In the shallows, schools of barracuda and jack fish patrol the reefs. The fun really begins at depths of 30 metres. The electric blue calms you, while the soft corals excite you with their schools of little fish. Upon surfacing one of our dives, we were informed of a Tiger

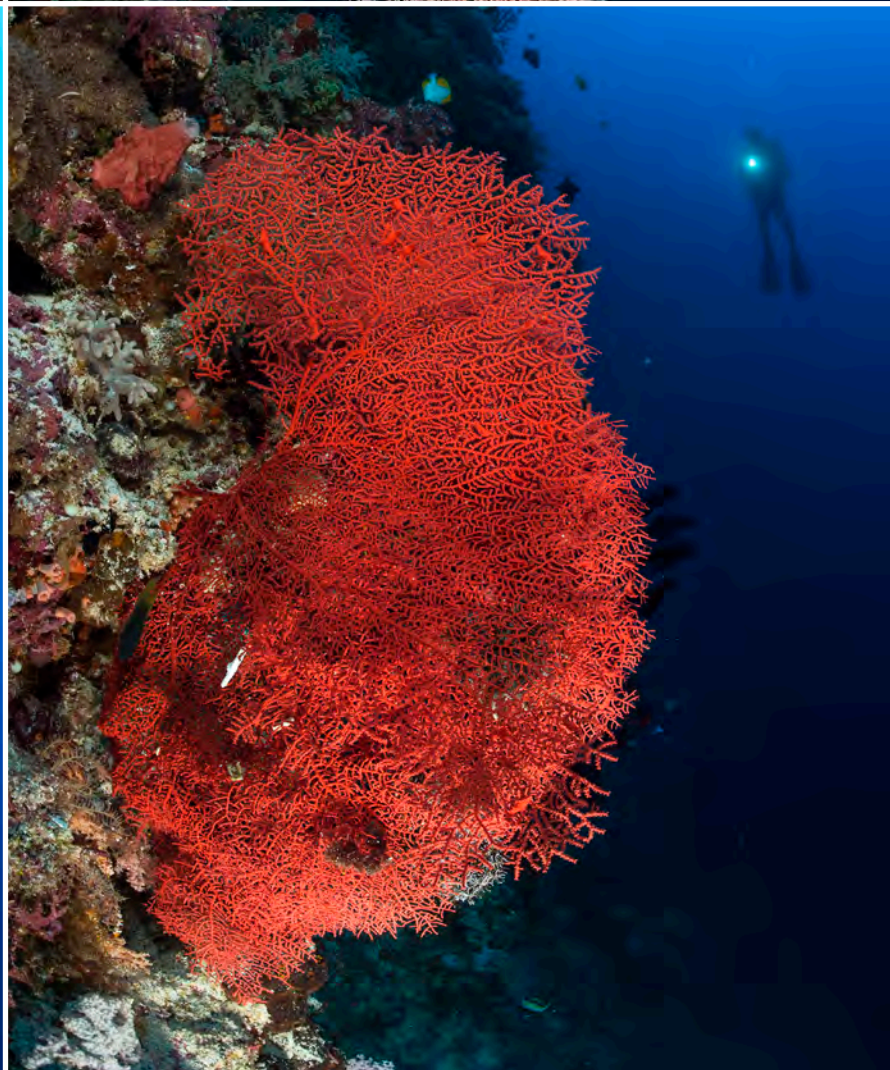
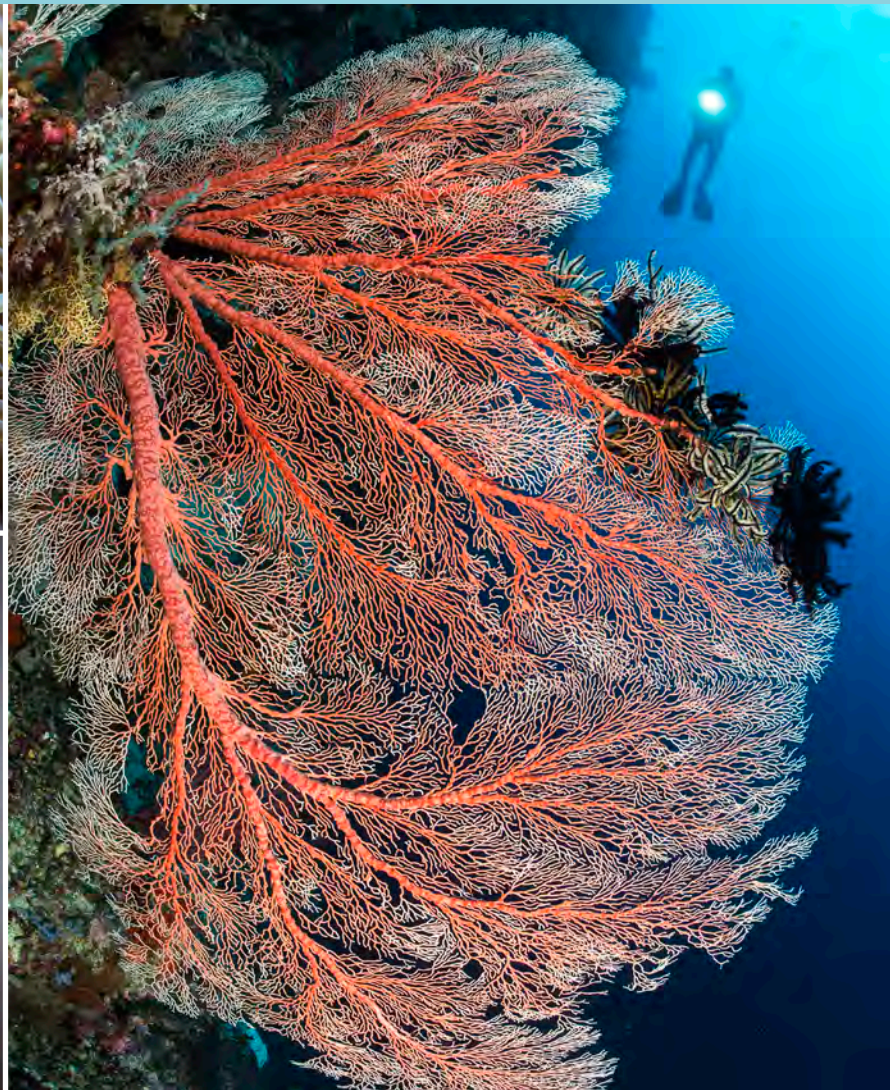
shark (*Galeocerdo cuvier*) sighting.

Now, should you be a macro addict, Bolsel has more to offer than just your regular nudibranches. From pygmy seahorses, butterfly nudibranches to the many other strange critters that thrive in the shallow waters, a night dive just outside the Bolsel Dive Centre is a must! However, if you yearn for more action, you can also opt for a session of Black Water Diving with our ESCAPEINC ASIA professional. Following the current's flow and hanging out at 20 metres with huge lights attracting some of the most alienated critters will have you firing your camera in amazement.

IS THERE A BEST TIME TO DIVE, BOLSEL?

I believe any time out of the office is the best time. However, in Bolsel prime times are between November and June before the monsoon kicks in. It only leaves a very small window to enjoy this site. Accessing this beautiful site, you will need a very experienced dive guide or photographer to show you around. Point of entry to Bolsel, can be from either Manado or Gorontalo. You can either fly or drive. Either way, paradise is just around the corner.

For more information on scuba diving in Bolsel, Sulawesi, contact Imran Ahmad: imp@escapeinc.com.sg



MORE THAN JUST BUBBLES

FEATURE **FRANS CRONJÉ, NICHOLAS BIRD, M.D., MMM**

Diving grants us a great freedom to explore. It offers the opportunity to experience what most people see only on film. As terrestrial creatures, we are all adapted to the aquatic world but nonetheless eager to survey its wonders. For divers new to the sport as well as seasoned veterans, each dive is unique and requires diligent preparation prior to entering the water. Divers recognize that any excursion into or under the water carries with it some risk of injury. The question

is – do we actually pay most of our attention to the greatest risks to our health and safety?

In numerous articles, seminars and presentations, DAN is a vocal advocate for physical and mental preparation prior to diving, including physical fitness, equipment maintenance and skills training. In practice, however, decompression sickness (DCS) frequently becomes the ultimate focal point. DCS is very well represented throughout DAN's publications and research and also forms an integral part of all introductory dive training programs. Ironically, however, DCS is actually relatively rare compared to so many other common injuries and ailments that may occur while diving or while on a diving trip. Moreover, DCS is neither the most severe injury nor is it the most likely to be fatal. So, what is the greatest risk to divers?

WHAT HARMS DIVERS?

DAN has been gathering dive injury and fatality statistics for more than 30 years. In 2008 a team of researchers led by Dr. Petar Denoble, senior director of DAN Research, published a paper on the causes underlying dive fatalities. While the ultimate endpoint is often classified as drowning, the triggering events that lead to these deaths provide insight into how such accidents may be avoided. For instance, health-related problems such as heart disease, account for approximately 26 percent of dive fatalities. Other triggering events like running out of gas contribute 41%; entrapment – 20% – or trouble with equipment – 15%. This illustrates the fact that the majority of dive fatalities stem from human factors. This is a recurring theme throughout the published literature on accidents and mishaps in other fields such as medicine and aviation. It also points to the importance of procedures, consistent practices and a disciplined focus on accident avoidance.



Running out of gas, entrapment and equipment problems – three human-related triggers – account for about 75% of dive fatalities. The common pathway toward in-water incapacitation in most of these cases was asphyxia or rapid ascent associated with pulmonary barotrauma (lung-overexpansion injury) and subsequent arterial gas embolism (AGE). In the unforgiving aquatic environment, incapacitation or unconsciousness usually results in drowning.

It is also important to emphasise the significance of AGE in the fatality statistics and differentiate it from DCS. AGE is far more likely to lead to drowning, as symptoms often occur while the diver is still in the water; onset is sudden, and often results in loss of consciousness. DCS, on the other hand, is almost never fatal in recreational diving.

DCS IN PERSPECTIVE

When considering all the effort that goes into DCS prevention – including extensive dive table training, dive planning, dive table calculations, completing logbooks, and the use of dive computers, divers tend to lose perspective of the fact that DCS is actually quite rare. DCS incidence rates are low in recreational diving (aggregated DCS incidence from all sources is 2 to 4 cases per 10,000 dives). In addition, DCS is rarely fatal and, at least among recreational divers, an uncommon cause of long-term disability. Please note that this is by no means an endorsement of unsafe decompression practices or an encouragement to slacken preventive efforts. Even though severe symptoms, long-term disability and death are indeed rarely associated with DCS, this is the result of conservative training standards, adherence to established protocols and diligent monitoring of nitrogen exposure. However, the point is that divers should not be so preoccupied with

DCS prevention that they ignore all the other aspects of their diving activities, no matter how mundane they seem. We must, for example, ensure adequate air supplies and properly configured equipment. On a statistical basis, errors and omissions in these areas have much greater lethal potential than DCS.

SHIFTING THE FOCUS

Decompression-related problems represent only a fraction of the injuries and medical problems that travelling divers experience.

Dive trips often involve other forms of recreational activities and thus, additional sources of injury. Of the calls DAN receives from symptomatic individuals who receive evacuation or medical-care-coordination, about 70% have injuries that are unrelated to diving. This is a powerful statistic that points to other causative factors. Trauma tops the list as the single most common injury type: from broken legs to car accidents, DAN's evacuation services spend the most time on injuries acquired out of the water. So, whether cycling, driving, walking or riding a scooter, the risk of injury while out of the water certainly warrants attention. If you're a diver who wears multiple computers to ensure adequate DCS prevention, don't put all your safety eggs in that basket and forget to watch your footing on boat ladders. Increase your caution while travelling in areas that have different traffic patterns than those with which you are familiar. Crossing a street with cars travelling on the opposite side of the road is a common scenario for pedestrian injuries in tourists. Injury prevention is even more important in remote locations where the local quality of medical services may be deficient and transportation and evacuation to higher levels of medical care may cause delays to receiving optimal care and contribute to the additional complications.

Accidents are by definition unplanned. Our best defence against them is vigilance and education. These enhance our knowledge of possible hazards, guide our behaviours that reduce their likelihood, and make us anticipate problems before they occur. First aid and rescue diver courses don't just teach people what to do when accidents happen; they also promote heightened awareness and a mindset of prevention.

Live safely, dive safely, and may all your dives and travels be accident and injury free.

SEA LION BITE

FEATURE **MARTY MCCAFFERTY**



THE DIVER

The diver was a 67 year old male with 35 years of diving experience.

THE INCIDENT

Early one afternoon near La Paz, Mexico, at Los Islotes, a popular dive site and sea lion rookery, a sea lion bit the diver on the stomach. At the time of the attack he was scuba diving in less than 20 feet of seawater with approximately 50 other divers from several dive boats present. After the attack, fellow divers and the crew helped him back aboard the ship. They removed his 3 mm wetsuit to assess the injury and control the bleeding. He was conscious and lucid the entire time.

The liveaboard arrived in the harbour approximately two hours later; just before 3 pm, and the diver was transported ashore in a waiting panga boat. The crew had dressed and bandaged his wounds, and he was in good condition overall. The patient, trip leader and crew determined that waiting for an ambulance might delay transport (unfortunately ambulances in that area cannot always provide timely responses), and so the trip leader chose to drive the diver in his private vehicle.

During the drive, the diver's vital signs were normal, and he did not show any signs of distress despite his obvious wounds. Because he appeared stable and the bleeding was controlled, they chose to go to a nearby local clinic. Area hospitals are usually quite busy with patients, possibly causing a delay in treatment for this diver.

They arrived at the local clinic just before 4 pm, and the attending physician assumed care of the patient. The wounds were two parallel lacerations approximately 5 cm long, 1 cm

wide and more than 2.5 cm deep with some smaller adjacent puncture wounds.

The doctor and his staff thoroughly cleaned the wounds, injected a local anaesthetic and sutured the wounds closed. Two internal sutures were used first in each wound as they required a multilayer closure. Before he completed the closure, the doctor placed a sterile wick to promote drainage. One of the small puncture wounds required a single suture to close.

At the doctor's instruction, a nurse administered a tetanus booster. The diver was discharged around 6 pm, and his travelling companions escorted him to his hotel.

ANALYSIS

This incident is an excellent reminder of why dive operators need to have a preexisting emergency action plan and not hesitate to implement it. It also serves to illustrate that any action plan needs to accommodate emergencies beyond those involving decompression illness. For dive crew, good first aid skills for physical trauma are a must.

The dive operator contacted local personnel who were familiar with local resources and made a decision based on their input and knowledge. The operator decided to transport the injured patient with the assistance of an EMT who was on the trip as well as a local lifeguard who was also an EMT.

Medical evaluation and treatment are important with any injury in which the skin is penetrated in the marine environment. Seal and sea lion bites in particular have a very high probability of infection. The importance of proper cleaning and disinfection cannot be overstated, even with apparently small wounds.

All such wounds should be monitored for signs of infection for at least seven to 10 days. Those signs can include increased swelling, pain or tenderness at or around the wound, increased redness, foul-smelling discharge from the wound, red streaks extending away from the wound site, fever and nausea.

Although it is not entirely clear why the sea lion bit the diver, a witness saw two bull sea lions fighting aggressively followed by one turning to flee from the other. The diver was approximately 50 feet away from them, but he was in the path of the fleeing animal and was bitten. Regardless of how playful or docile a marine animal may appear, we must not forget we are visitors to their environment and should remain vigilant of their behaviour. Be sure to learn how to observe and approach animals, and always follow experts' recommendations.

SEAL & SEA LION INJURY MANAGEMENT

Contact with seals or sea lions can result in a serious infection by the bacterium leptospirosis, commonly known as "seal finger." Avoid feeding seals, as this will significantly reduce the likelihood of seal/human contact. Prevent contact between dogs and seals; diseases can be transmitted between them.

Wash any wounds caused by seals or sea lions thoroughly with disinfectant, and dry them. Seek medical care for any injuries caused by these animals, as there is potential for serious long-term health implications. Be sure to tell the doctor you were bitten by a seal or sea lion. Watch carefully for unusual signs or symptoms for seven to 10 days, and go to the hospital if you feel unwell at any time. Although uncommon, unprovoked sea lion bites can occur, and divers should be aware of the potential hazard.

TEMPOROMANDIBULAR JOINT DYSFUNCTION IN DIVING

FEATURE **MAUREEN ROBBS**

It is not uncommon for divers to complain of pain or tenderness in the jaw, a headache or aching facial pain after diving. The gripping action required to hold a mouthpiece in place may strain the muscles used for chewing (masticatory muscles) or the temporomandibular joint (TMJ), which connects the jaw (mandible) to the temporal bone. Pain associated with the TMJ and masticatory muscles is known as temporomandibular dysfunction (TMD).

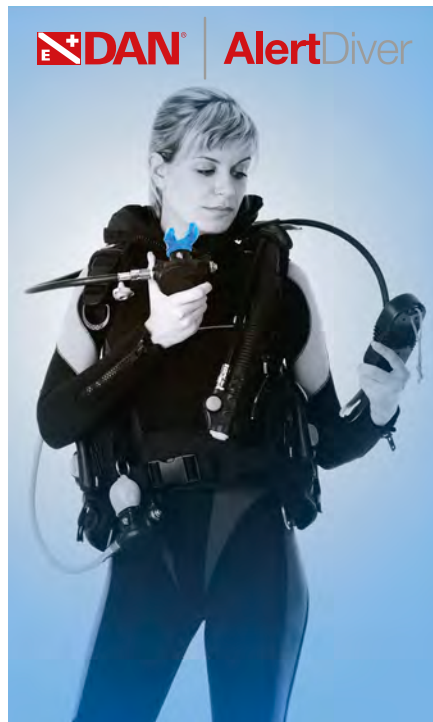
"During diving, the TMJ is subjected to a stress equal to that which you would experience if you kept your mouth open – not fully, but as if you stuck three fingers into it vertically – during the entire dive," said Costantino Balestra, Ph.D., Vice President of research and education at DAN Europe. "This acts on the retromeniscal neurovascular bundle and can cause myalgia or a headache. By having a customized mouthpiece moulded, this can be reduced or even eliminated." Balestra is the lead author of the study "Scuba diving can induce stress of the temporomandibular joint leading to headaches," published in the British Journal of Sports Medicine in 2004.

The most common mouthpiece designs feature an elliptical airway attached to the second stage of the regulator; a labial flange to provide stability and a platform the diver bites for retention. Mouthpieces generally feature short bite tabs and are made of a soft material to accommodate use by a wide range of jaws and teeth; this requires forward movement of the jaw to effectively grip the mouthpiece. This design may not support posterior occlusion, which is the most effective contact of the molar and bicuspid teeth of both jaws for allowing the natural movements of the jaws essential to normal chewing and closure. This lack of support may result in uneven loading of the TMJ. Cold water may exacerbate this problem by impairing a diver's ability to use his or her lips to properly grip the mouthpiece.

UNDERSTANDING TMD

The TMJ is one of the most complex joints in the body; its movement involves a combination of hinging and sliding action. To locate it, place a finger directly in front of your ears. Move your jaw from side to side, or open and close your mouth. You can actually feel the mandible moving in and out of the TMJ socket. The upper section of the joint is a depression in the temporal bone of the skull; the lower section of the joint is the mandibular condyle, a rounded projection at the upper tip of the mandible. These bones, which make up the joint, are covered in cartilage and are separated by a small disc, which facilitates smooth opening, closing and side-to-side movements.

In many cases, the cause of TMD is not clear.



TMD may occur if this disc erodes or becomes improperly aligned, if the cartilage is damaged by arthritis or if the joint is subjected to trauma or long-term microtraumas. Researchers are still seeking to fully understand the causes of these conditions and what treatments are most effective.

REPORTED SYMPTOMS INCLUDE:

- Pain or tenderness in the TMJ
- TMJ clicking or crepitus (cracking or popping sound)
- Discomfort while chewing
- Difficulty opening or closing the mouth
- Facial pain
- Headache
- Blockage of Eustachian tubes
- Vestibular disturbances such as vertigo or disorientation (either of which could be hazardous should it occur underwater)

WHAT YOU CAN DO

There are a few styles of standard mouthpieces designed for scuba diving. When selecting your diving equipment, try several mouthpieces to find the style and size that fits you best. For added comfort, some divers add a second-stage swivel adaptor to their regulator that adjusts to subtle head movements and reduces hose tug. Some regulators incorporate this adaptor as standard design.

If you experience symptoms of TMD during or after diving, seek a dental consultation. While most cases of diving-associated TMD resolve spontaneously, your dental professional can recommend management strategies such as muscle relaxation exercises, techniques for reducing stress or, if necessary, medical

intervention. Your dentist can also advise or assist in the development of a custom-fitted mouthpiece, which requires less muscular effort for retention than the traditional design. (There are also commercially available custom mouthpieces that do not require a dental consultation).

"The dive industry has tried to make a mouthpiece that will fit everyone, and in doing so they had to make it soft and short due to the variability of teeth and jaws," said Dr. Randall Moles, orthodontic specialist and developer of the SeaCure™ custom mouthpiece. "A customized mouthpiece is moulded to fit one person and can be made out of a stiffer material that goes to the back of the mouth, which transfers the weight of the regulator to the back – where the muscles are. This provides leverage and greatly reduces the force needed to keep the mouthpiece in place. In addition, because the mouthpiece can be made of a much stiffer material, it retains the bite marks that grip the teeth instead of the diver having to constantly bite down to get a grip on the soft spongy material of the standard mouthpiece."

If you opt for a custom-fitted mouthpiece, consider the proper positioning for a diver. "There is a common mistake made during the moulding: People keep their head in the neutral position," Balestra noted. "This will not mould the mouthpiece correctly; instead the individual should position his head as if he was diving, tilting the head backward."

SAFETY CONSIDERATIONS

If you decide to swap your mouthpiece for a custom one, make sure your new mouthpiece fits your regulator's second stage. Not every mouthpiece fits every regulator; and an ill-fitting mouthpiece could incur leakage or decouple from the regulator. In addition, when attaching your mouthpiece with a cable tie, confirm tightness, and use a razor blade to cut off excess and ensure there are no sharp ends.

Do not use a customized mouthpiece on an air source that might be handed off to a buddy in an emergency; it may make breathing difficult or be impossible for another diver to use.

List of Scientific Publications from DAN Europe regarding TMD:

119. Balestra C., Nammour S., Germonpré P., Snoeck T. Scuba Diving can induce temporomandibular joint stress leading to headache. Proceedings of the 25th EUBS Annual Meeting. Israel Aug 28 - Sept 2, 1999.

127. Salem W., Snoeck T., Nammour S., Balestra C., Germonpre P., Marroni A., Cali Corleo R. Finite elements of temporomandibular joint stress; useful tool for divers. Undersea Hyperb Med 28, 45.

152. Balestra C., Germonpré P., Marroni A., Snoeck T. Scuba Diving can induce stress of the temporomandibular joint leading to headache. Br. J. Sports Med. 2004; 38:102-104.

UPCOMING EVENTS

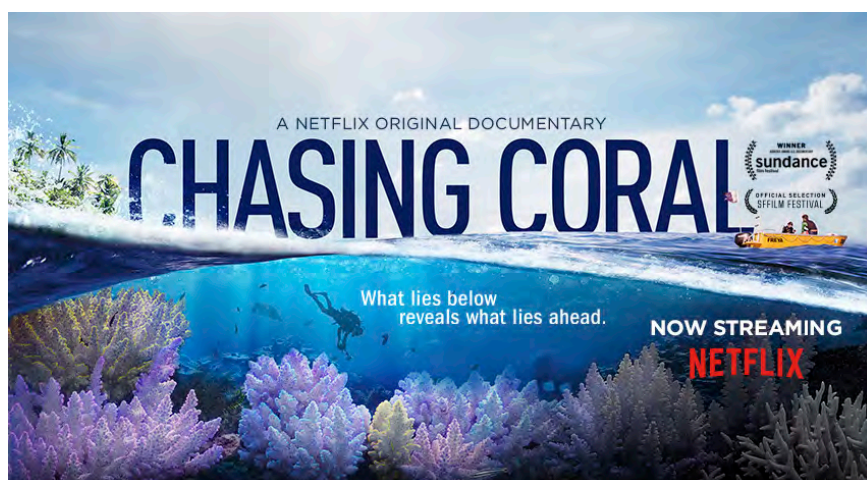
EDA MOVIE NIGHT AND Q&A WITH VOX CINEMAS

CHASING CORAL | Wednesday 7th February 2018 | 18:30 Registration, 19:00 Start



Chasing Coral taps into the collective will and wisdom of an ad man, a self-proclaimed coral nerd, top-notch camera designers, and renowned marine biologists as they invent the first timelapse camera to record bleaching events as they happen. Unfortunately, the effort is anything but simple, and the team doggedly battles technical malfunctions and the force of nature in pursuit of their golden fleece: documenting the indisputable and tragic transformation below the waves. With its breathtaking photography, nail-biting suspense, and startling emotion, Chasing Coral is a dramatic revelation that won't have audiences sitting idle for long.

EDA and VOX Cinemas are teaming up to proudly bring you the first EDA screening of 2018 by Exposure Labs, a company dedicated to both quality storytelling and powerful campaigns.



Chasing Coral will be followed with an informative Q&A on the research done of the corals in the Gulf by Dr. Aaron Bartholomew – PhD in Marine Science, College of William and Mary, USA, a Professor at the American University in Sharjah.

Aaron Bartholomew has taught general biology, ecology, evolution, fish biology, marine biology and senior research. His areas of research include coral and coral reef fish communities of Dubai, artificial reefs, predator/prey/habitat relations and marine ecology in general. Prior to his academic career, he was a post-doctoral researcher at the National Marine Fisheries Service in Miami, Florida, USA.

DIVE MIDDLE EAST EXHIBITION (DMEX)

27th February - 3rd March 2018 | At the Dubai International Marine Club, Mina Seyahi
DIVE INTO A MARKET OF 154,000 UNDERWATER ENTHUSIASTS



Anchored firmly at the centre of the UAE's diving community with 154,000 certified divers, DMEX will celebrate its 11th year being co-located with the Dubai International Boat Show.

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

For information on exhibiting in one of our fastest growing sectors, please contact Sharon Kelly by email: Sharon.kelly@dwtc.com or call +971 4 308 6275

www.boatshowdubai.com



EDA
جمعية الإمارات للغوص
Emirates Diving Association

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MISSION STATEMENT

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

LEGISLATION

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

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

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DMEX

DIVE MIDDLE EAST EXHIBITION

27 Feb - 3 Mar 2018

— Dubai Canal, Jumeirah —

Co-located

معرض دبي
العالمي للقوارب



DUBAI INTERNATIONAL
BOAT SHOW

DIVE INTO A MARKET OF 154,000 UNDERWATER ENTHUSIASTS

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

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