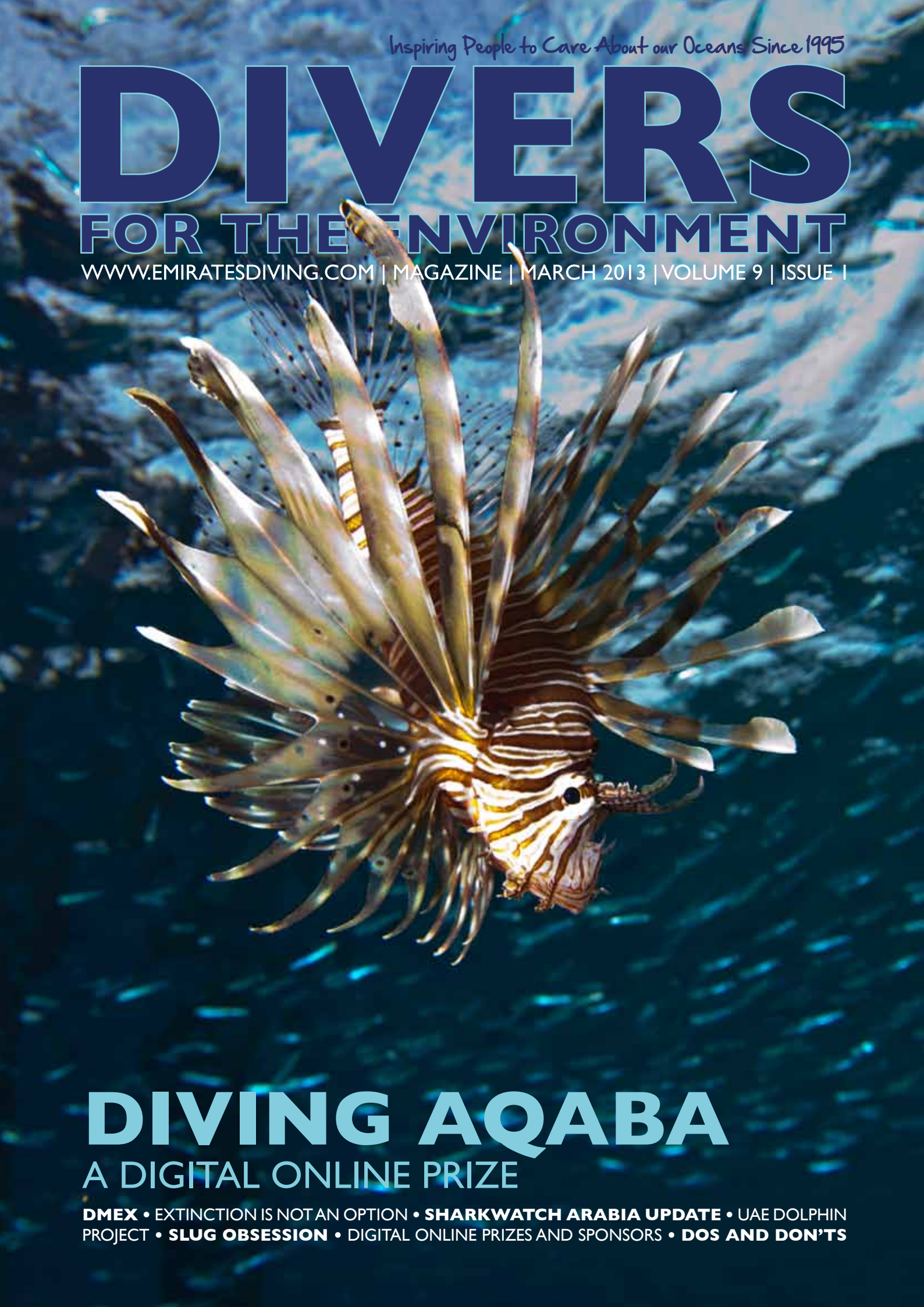
Inspiring People to Care About our Oceans Since 1995

DIVERS FOR THE ENVIRONMENT

WWW.EMIRATESDIVING.COM | MAGAZINE | MARCH 2013 | VOLUME 9 | ISSUE 1



DIVING AQABA

A DIGITAL ONLINE PRIZE

DMEX • EXTINCTION IS NOT AN OPTION • **SHARKWATCH ARABIA UPDATE** • UAE DOLPHIN PROJECT • **SLUG OBSESSION** • DIGITAL ONLINE PRIZES AND SPONSORS • **DOS AND DON'TS**

ENTER DIGITAL ONLINE 2013

EDA'S UNDERWATER PHOTOGRAPHY AND FILM COMPETITION

COMPETITION OPENED:
Tuesday, 1st January 2013

COMPETITION ENDS:
Tuesday, 30th April 2013 @ Midnight

AWARDS & EXHIBITION:
Wednesday, 29th May 2013 | 19:00-22:00 | Venue: TBC

DIGITAL ONLINE
EMIRATES DIVING ASSOCIATION
PHOTOGRAPHY AND FILM COMPETITION

PRINT WORKS
MEDIATECH

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Email: photo@emiratesdiving.com
www.emiratesdiving.com

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

EDA
جمعية الإمارات للغوص
Emirates Diving Association

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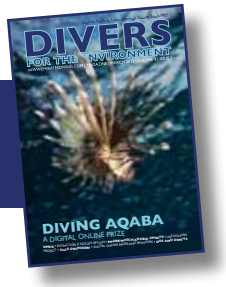
DIVERS FOR THE ENVIRONMENT

Please note that EDA's magazine, "Divers for the Environment" includes articles written by individuals whose opinions, whilst valid, may or may not represent that of EDA. It is hoped that the magazine can become a platform for individuals to voice their opinion on marine and diving related issues. You are welcome to submit an article for the next issue of "Divers for the Environment" released in June 2013. Send all articles, feedback or comments to: **magazine@emiratesdiving.com**

EDA COVER

PHOTO BY SIMONE CAPRODOSSI
WWW.SCAPRODOSSIPHOTO.COM



REDUCE REUSE RECYCLE

Please recycle this magazine after you have read it.

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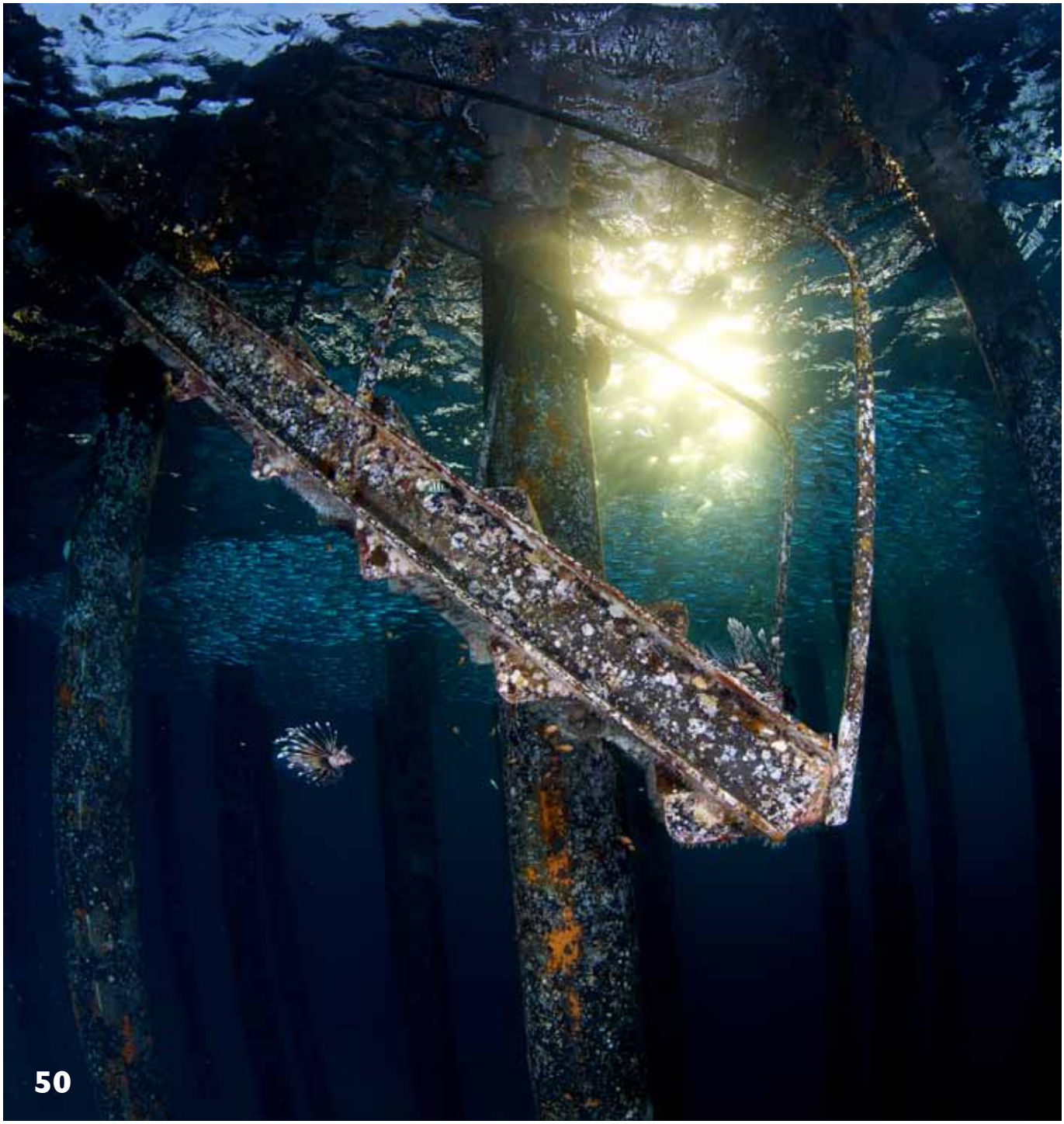


EDA HAS COME A LONG WAY

IBRAHIM N. AL-ZU'BI
EDA Executive Director

Welcome to the March issue of 'Divers for the Environment'. It has been 18 years since the late Sheikh Zayed bin Sultan Al Nahyan gave his blessing for us to establish EDA, and in doing so he not only placed conservation as a priority for us to uphold, but also inspired us to bring about change in the small things we can do to make a difference for our planet. Our EDA team and members certainly know how to work tirelessly to make a difference to our marine conservation, and I want to take this opportunity to show my appreciation to all our members and staff for the dedication, loyalty and enthusiasm that each and every one has demonstrated throughout this journey. I would also like to take the opportunity to thank our board of directors for their leadership and visionary ideas over the last 18 years. I'm confident that the next 18 will hold even more achievements we can be proud of.

For our first issue of 2013, I must first say a huge thanks for our fantastic sponsors for the financial support they have given EDA to enable us to continue our mission of conserving and protecting the UAE marine resources. We salute them for being environmentally responsible organizations and we hope that our partnership will last for a long time, and we look forward to the exciting 2013 initiatives that we will be working on together.

March is the month of DMEX – The Leading Diving Exhibition in the region, where the diving community of the UAE and the region meets alongside the Dubai International Boat Show to discuss diving updates and share the latest diving equipment news. DMEX this year will be the biggest so far, so if you ask me about the future of diving in the UAE, then quite simply it will always continue to grow. As we get closer to DMEX, we've already noticed the increase in EDA individual memberships and dive centers, in addition to more than 1,800 Facebook fans, and with the UAE continuing to strengthen it's position as one of the most popular tourist destinations in the world, I cannot see this slowing down.

I am looking forward to this year's Digital Online Underwater Photography and Film Competition, we have lots of underwater photography enthusiasts participating and sending EDA amazing photos of the varied marine life from all the places our members have dived. These photos are amazing and educational for fellow divers. I want to welcome the new members of the jury and wish them luck in their tough job judging these photos from our members and I am looking forward to another fun awards ceremony this year.

Thanks to all of the EDA members who have shared their insightful diving experiences with us for this issue. Your insights and articles are imperative in recommending when and where to go diving as well as what to look out for on your trips. You will read in the diving destinations in this issue, tips about diving in Aqaba, Honduras and other fascinating destinations across the globe.

You will also be reading more vital health articles in this issue by EDA's Health and Safety committee coordinator – Dr. Barbara who has been busy organizing meetings with DAN who will be present during DMEX 2013 at the EDA stand. You will also find in this issue exclusive news and special offers to our members from our dive centers and clubs in the UAE. The diving industry is in for a busy 2013!

As you all know, EDA is an official Training Reef Check Facility in the UAE, so you will be reading a lot about our latest news! With input given by Reef Check, and with EDA being one of the main partners, we hope you will enjoy the updates and research about the condition of the coral reefs in our seas!

I hope you enjoy reading our issue of 'Divers for the Environment', we have a busy year ahead, full of activities and events for you and we're looking forward to your support as always to ensure we remain protectors of our seas.

Happy reading and safe Eco Diving!

Ibrahim Al-Zu'bi

DIVE MIDDLE EAST EXHIBITION
DMEX 2013 IS NOW IN ITS 7th YEAR

AL BOOM DIVING
STAND NO: DMEX M10 and L0

Al Boom Diving

The ever popular Al Boom Diving stand is back even bigger and better than before for DIBS 2013.

Make your way to the DMEX section of the show to meet our team and make the most of Al Boom Diving's Boat Show Special Offers whether you're looking to sign up for your next PADI Dive Course, book a dive trip in Dubai, Fujairah or the Musandam or find a deal on the latest and best diving equipment.

Aqua Lung, Go Pro, iGills, Apeks, Cressi-Sub, Suunto, Poseidon, Innovative Scuba Concepts, Underwater Kinetics, Sea and Sea, GoPro, Amphibious Outfitters, Trident Diving Accessories, Sea Pearls weights, XS Scuba Cylinders, Bauer Compressors and more…you'll find it all at the Al Boom Diving stand!

DELMA MARINE
STAND NO: DMEX M40

DM

Dema Marine was established in 1976 under the name of Delma Industrial Supply & Marine Services Holding.

They are a pioneer in the marine industry in the UAE, Bahrain and Omani markets. Their showroom network covers Abu Dhabi, Dubai, Fujairah, Manama and Muscat; supplying a unique range of brands.

Delma Marine offers a superior level of after sales services and offers mobile workshops to assure high quality service standards and customer satisfaction across the coastline.

BLUE WATERS MARINE
STAND NO: DMEX L14

bluewaters

Blue Waters Marine are leading retailers of game fishing tackle with many renowned brands, such as Shimano, Penn, DAM, Yo-Zuri, Abu Garcia, Berkley, Sea Striker, Boone, American Fishing Wire and many more.

The long list of products offered includes rods, reels, lures, lines, hooks, baits and other sport fishing tackle for trolling, popping, jigging, bottom and surf fishing.

Blue Waters Marine entertain orders received from their online and actual stores from either the UAE or abroad and deliver on the same business day in Dubai and the following business day in other parts of the UAE. International shipping is also available.

Held in association with Emirates Diving Association (EDA), Dive Middle East Exhibition will celebrate its 7th year at the Dubai International Boat Show in 2013.

Offering its visitors an incredible selection of targeted diving companies including Emirates Divers Centre, Deep Blue Sea Diving Company and Scuba Tec, DMEX gives you a chance to attend one of the show's most commercially vibrant exhibition spaces – where the best deals of the diving industry are done!

Not only that, but in 2013, DMEX will be 35% bigger and promises to provide the widest range of products and services, from the latest innovations in training and technical equipment to idyllic diving destinations!

*"Al Boom Diving has attended the DMEX show since the beginning and has seen the show getting **bigger** and **better**, year on year! We see this as a key point of contact with our customers - both current and future!"*

Samantha Joffe
Al Boom Diving - Business Development Manager

Be the first in the region to discover the latest diving equipment, special offers from dive clubs, accredited diving organisations and diving holiday organisers.

Get ready to dive!
DMEX brings an opportunity for you to

- Experience live diving demonstrations at the DMEX pool
- Explore latest equipment from across the region
- Connect with leading retailers, distributors and diving clubs
- Discover the joy of diving with industry professionals
- Engage with diving enthusiasts from all over the world
- Network with key players and strengthen your presence in the market

Be a part of the show!

Visit **www.boatshowdubai.com/DMEX** to know more!

Opening Hours: 3pm - 9.30pm daily

Team contact
Barbara Herve, Sales Manager
Tel: +971 4 308 6451
E-mail: Dubai.Boatshow@dwtc.com

ORGANISED BY: DUBAI WORLD TRADE CENTRE
IN CONJUNCTION WITH: DUBAI INTERNATIONAL BOAT SHOW
IN ASSOCIATION WITH: EDA
VENUE: MINA SEYAHI
SUPPORTING PARTNER: OFFICINE PANERAI
OFFICIAL CAR: Mercedes-Benz
JET SPONSOR: BOMBARDIER
OFFICIAL MAGAZINE: عالم البحوث
PREFERRED HOTEL PARTNER: One&Only Royal Mirage, Dubai
OFFICIAL FOOTWEAR PARTNER: crocs

BEUCHAT
STAND NO: DMEX M21

The company was founded in the 1930s by ocean enthusiast, Georges Beuchat who was heavily involved in the development and all aspects of underwater activities. He conducted many of his experimental dives and the early developments off the coast of Marseille. He even equipped Captain Cousteau expeditions. In 1953, George Beuchat invented the first isothermal diving suit.

Beuchat has been at the forefront in design, development, manufacturing and marketing of new products which have marked the history of diving and spearfishing. Products such as the well-known, "Jet Fin" and the "Focea Comfort", were recommended by specialized dive shops in the year 2009, and reinforce our image on the market and grow our desire to match our client's needs.

Distributed around the world in 80 countries, Beuchat is recognised worldwide as a market leader in the fields of Scuba Diving and Spear Fishing.

DEEP BLUE SEA DIVING CENTRE
STAND NO: DMEX L23

Deep Blue Sea Diving centre is one of the leading dive centers in the UAE and was established in 2004. They offer a range of courses from beginner to instructor as well as First Aid.

The dive centre facilities include a dive shop, classrooms, equipment rentals and a booking office. Deep Blue Sea Diving works closely with various corporate clients providing recreational and professional diver training as well as offering weekly diving trips to various locations within the UAE and Oman.

Deep Blue Sea Diving are the only accredited center in the UAE licensed to offer IDEA Life Guard Certifications and Dive Medic licenses. They are authorized to issue diving certificates from both PADI and CMAS and are the exclusive agent for Beauchat and distributor of OCEANIC diving equipment and other established brands in Dubai.

DIVER BIKE
STAND NO: DMEX L8

For the ultimate diving experience from a beach or a boat!

The Diverbike was created by our founders Andreas Krauss and Jens Keller (AKJK). Being very avid divers and enthusiasts, traditional sea scooters were becoming cumbersome with low speed and not enough battery power for their dives. With that, Andreas sat down several years ago and created his own diver propulsion vehicle, which over the years evolved into the Diverbike.

Because of the numerous inquiries from other divers who wanted to see more and travel farther during dives, the Diverbike was commercially sold in 2009.

Our units are now available for the commercial, recreational and industrial divers; configured with either 2 or 4 motors.

Please visit our web site at http://www.diverbike.com for more information.

EMIRATES DIVERS CENTRE
STAND NO: DMEX L17

مركز غواصين الإمارات
Emirates Divers Centre

Emirates Divers Centre is a leading marine leisure and diving services centre in Abu Dhabi, founded by an Emirati entrepreneur with 100% ownership.

Emirates Divers Centre provides a variety of diving and marine recreational services in a safe, professional and friendly manner. We always strive to put the customer first. We offer the complete range of PADI educational training courses, from the fun filled Bubblemaker experience, to becoming a qualified PADI professional. With additional speciality courses such as Wreck Diving, Night Diving and Underwater Photography, we are able to train in all aspects related to scuba diving. We are insured and registered with the local authorities, as required by local jurisdiction, and operate under the legal statutes of the Emirate of Abu Dhabi. Emirates Divers Centre is the sole authorised dealer of AERIS in the UAE; a leading US Scuba Diving Equipment Manufacturer, retailing a complete range of diving equipment.

Our Khorfakkan branch will soon be unveiled to the public, to offer our customers the variety they deserve and to continue to deliver our unique brand of customer services.

TOURISM MALAYSIA
STAND NO: DMEX L9

Tourism Malaysia's mission is to promote Malaysia as an outstanding destination of excellence and to make the tourism industry a major contributor to the socio-economic development of the nation. Visit our official website at **www.tourism.gov.my** for further information. Malaysia Truly Asia!

EMIRATES DIVING ASSOCIATION
STAND NO: DMEX L26

EDA
جمعية الإمارات للغوص
Emirates Diving Association

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

DAN Europe will be with us this year so come on over to say hello to the EDA and DAN team to ask any questions you may have. Don't forget to collect a copy of the EDA March magazine issue, 'Divers For The Environment'.

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

ESAL MARINE
STAND NO: DMEX L16

Esal Marine, a division of Esal Trading LLC is a specialty marine and water sports distribution company that services the Middle East markets with the latest unique products from all around the globe with a main focus on brand building and excellent customer service trying to redefine the leisure of water sports in the Middle East with affordable products that satisfies all tastes.

We are proud of being the Middle East's exclusive distributors for SEA-DOO® and SEASCOOTER™ and with this range of products, our aim is to enhance the water sport and leisure industry to provide extreme water sport fun to our customers.

You can soon start following us on our website www.seascooters-me.com

MTM MARINE
STAND NO: DMEX M30

MTM Marine LLC

MTM Marine, an affiliate of Al Masaood Group is a regional importer for a range of state of the art Mares scuba diving products. MTM Marine will be showcasing the latest and complete range of Mares scuba gear.

In 1949, Ludovico Mares designed and manufactured his first masks and spearguns with one dream and purpose in mind: To share his unbridled passion for the sea and diving with the rest of the world. At its birth, Mares was just one small factory in Rapallo, but now, 60 years later, the Italian based company dominates the scuba diving world, and is at the forefront of new and innovative dive technologies.

Enjoy diving with advanced performance through superior technology: this is our mission.

Discover all that Mares has to offer, you will find a collection of new fantastic products where superior technology and emotion is at the core.

Come and discover the Mares world, all you need to do is…Just add water.

NATIONAL TOURIST OFFICE OF DJIBOUTI
STAND NO: DMEX L18

Office National du Tourisme de Djibouti

One of the most fascinating areas of the African continent, The Republic of Djibouti is an ideal destination for ecotourism.

The majestic and alluring unconventionality of its land, irrigated by a sumptuous sea, its traditions of hospitality, its legendary nomadic shepherds and now its facilities in constant development, can only entice tourists and travellers eager for beauty and a change of scenery.

Sports are available in the form of safaris, underwater diving, big game fishing, swimming, water-skiing, sailing, sand yachting, hiking, etc.

OMAN SAIL DIVE CENTRE
STAND NO: DMEX M31

The Oman Sail Dive Centre is based in the marina of the prestigious new Millennium Hotel and Watersports resort in Mussanah – just an hour from the best dive sites in Oman. Foremost among these is the Unesco recognised Damaniyat Islands Marine Nature Reserve and Kharābah Island.

Oman Sail Dive Centre is proud to offer a full spectrum of internationally certified dive courses in this extraordinary marine environment. Located on the Tropic of Cancer and defined by three seas – the Arabian Gulf, the Sea of Oman and the Arabian Sea – Oman boasts an abundance of healthy coral, and an astonishing variety of marine life for you to discover from sheltered mainland and island anchorages, beautiful secluded bays and sandy beaches, mangrove inlets and stunning rocky outcrops.

The Dive Centre is run by a team of highly experienced dive professionals certified by the internationally recognised Professional Association of Diving Instructors (PADI) and divers can expect diving activities, courses, customer service and safety procedures that meet the highest of international standards.

PREMIERS FOR EQUIPMENT
STAND NO: DMEX L15

Premiers for Equipment is a 100% local establishment based in Abu Dhabi in the UAE founded in 2001, dealing with several government authorities, municipalities, oilfield companies, divers and diving centers as a sole agent to worldwide companies.

We are committed to provide a first class service to complement our quality products, and to offer our clients a strong local support along with the latest technology in the field of diving. Our main aim is to make diving easier and more enjoyable to discover the pleasures of the underwater world by offering you a complete range of reliable top quality gear.

SCUBAPRO
STAND NO: DMEX M50

SCUBAPRO first appeared in the scuba diving world in the early 1960's. It was guided by two men, Gustav Dalla Valle and Dick Bonin. They brought to the market many innovations for diving that are still being used today. Today, SCUBAPRO remains a premier manufacturer of scuba diving equipment and employs over 400 people in 17 locations spread over 13 countries, covering 4 continents. SCUBAPRO is a Johnson Outdoors Inc. company.

SUBGEAR focuses on quality dive equipment at reasonable prices. SUBGEAR was originally a German brand (SEEMANN SUB), enjoying great success since 1979. It was acquired by Johnson Outdoors in 2007 and launched in most of Europe in 2008. In 2010, SUBGEAR dive gear was launched worldwide, including North America, Australia, Asia and the Middle East.

THE PAVILION DIVE CENTRE
STAND NO: DMEX L27

As a PADI Career Development Centre, we can provide you with just about any PADI course you might be interested in from Discover Scuba Diving to PADI Instructor. In addition to mainstream scuba training, we also hold (DDI) Disabled Diver Training for Instructors and divers with disabilities. We also specialize in the education of children aged 12 to 18 through the Jumeirah Tawasul project and in addition to gaining a PADI license, children can also get involved in our environmental projects. We regularly dive at the popular shipwrecks off Dubai as well as the impressive Musandam. We stock SCUBAPRO dive gear and accessories.

We have a great deal for you this year at DMEX so come and visit the booth for more information.

SCUBATEC DIVING CENTER
STAND NO: DMEX L12

Scubatec Diving Center LLC is a 5 Star IDC Center established in 1993 and licensed by the Professional Association of Diving Instructors (PADI).

We are well known in Dubai as one of the friendliest and busiest dive centers. Our team of dedicated and professional instructors will ensure that you gain all the knowledge and experience required to be safe scuba divers.

Scubatec prides itself on the personal touch and prefers smaller groups on dive trips so the divemaster and instructor can dedicate more time and attention to individuals. We also feel the same way about diving courses and can cater to one student at a time, ensuring that you the diver gets the best of our time. We will also fit the timings around your schedules, enabling you to do the courses at your own comfortable pace.

Diving is one of the worlds fastest growing sports. Allow us at Scubatec to show you the magic and thrill that the underwater world has to offer. With Scubatec you can be sure to have a memorable and exciting underwater experience.

We sell the following equipment brands: Oceanic, IST, Akona, Sherwood, Gopro and Sealife under water cameras, have a full time repair workshop, and rent diving and snorkelling equipment, as well as offer dive trips in the UAE and Oman.

SUBWING
STAND NO: DMEX L28

SUBWING is a small established company dedicated in inventing and developing new exciting products to introduce to the watersports market.

After a year and a half of intensive testing and developing, we give you a set of wings that literally takes the knowledge of the sky into the water and totally reinvents the way we experience the ocean and move underwater…The "SUBWING" is born…

GULF MARINE SPORTS
STAND NO: DMEX L3

الخليج للرياضات البحرية
GULF MARINE SPORTS

Gulf Marine Sports is based in Abu Dhabi, in the Unite Arab Emirates and distributes a wide range of basic snorkeling equipment and professional and pleasure diving gear. Gulf Marine Sports has been established since 1998 and offers an extensive range of diving equipment and professional services.

AL SAMMAK DIVING & MARINE SPORTS
STAND NO: DMEX L4

AL SAMMAK السماك

Al Sammak Diving was established in 2000, trading and dealing in scuba diving equipment and accessories, free diving equipment, outdoor camping equipment, fishing equipment and boat inflatables and tubes. They also offer scuba diving and free diving courses and certifications, diving gear rentals, equipment repairs, air and nitrox fills and organize diving trips locally and abroad.

A recap of DMEX 2012

MANTA TRUST AND EDA MOVIE SCREENING WITH VOX CINEMAS

PROJECT MANTA



EDA and Manta Trust teamed up together with VOX Cinemas, Mall of the Emirates on the 27th of February to screen 'Project Manta', which was followed with a presentation and Q&A by Manta Trust's Associate Director, Katie Brooks.

As the opportunity to protect mantas with robust international legislation fast approaches, the film has revealed the secret lives of these amazing ocean wonders.

DOCUMENTARY SYNOPSIS

The Manta ray, one of the largest of all marine animals, and yet one of the oceans' best kept secrets. Weighing up to two tons, these mesmerising creatures glide through the oceans like giant shadows.

Manta rays aren't just giant ocean wanderers, they're smart. With the largest brain of any living fish, these mesmerizingly graceful creatures are intelligent. They curiously interact with people, travel vast distances, and show surprisingly complex behaviour.

In this documentary we join Australian biologist, Dr Kathy Townsend and her Project Manta team as they reveal the mantas' secret world. Filming takes place at Project Manta's base on the Great Barrier Reef and features additional footage from Manta Trust projects in Mexico, Micronesia, the Maldives and Sri Lanka, where they discover breathtaking feeding frenzies, and rare mating rituals.

But mantas are under threat and this at a time when they could be key indicators of our rapidly changing world. With just weeks left until parties to the Convention on International Trade in Endangered Species of Flora and Fauna vote on whether or not these animals require international level protection in March 2013, this film is a must see for those who care about the future of our oceans.











EDA PARTICIPATES IN 'WHAT WORKS SCIENCE'

Emirates Diving Association was invited to participate in 'What works Science' on the 15th January 2013, which was all about transforming education through positive practice. The event was organised by The Knowledge & Human Development Authority and was held in Zayed University (Dubai campus).

ABOUT WHAT WORKS

What Works is a unique opportunity to transform Dubai's private education sector through collaboration. We have a vision where schools regularly come together to share best practice, to provide support and guidance to each other so that we can all advance education in Dubai.

What Works is an excellent opportunity to meet and talk to fellow education professionals who share the same goal of delivering world class education in Dubai. By concentrating on what we do well, by focusing on the positives and sharing this practice we will be able to continue the journey to transforming education in Dubai for the benefit of our students and our community.

Held for the first time in September 2012, What Works brings together educators from all the private schools of Dubai. Participants have the chance to listen to teachers and principals who have demonstrated excellence in a specific area of education. The September 2012 event covered topics such as Islamic Education and Arabic, Special Education Needs, good school governance, and more.

ABOUT DAN EUROPE

DAN Europe visited EDA offices on the 27th January 2013.

DAN Europe is a not-for-profit worldwide organization that provides emergency medical advice and assistance for underwater diving injuries. DAN Europe also promotes diving safety through Research, Education, Products and Services

MISSION

DAN's mission is to operate and maintain an international network of alarm centers, active 24 hours a day with guarantee in the event of an emergency which gives specialized assistance to any diver, anywhere in the world.

DAN also provides diving medical advice, carries out research into diving safety, organizes courses and seminars with the aim of increasing the knowledge and sense of responsibility of recreational divers and provides financial and technical assistance to hyperbaric treatment centers in developing countries.

No diver should be without a DAN membership card. If you're not a member, you need to join. We're divers helping divers.

COMPANY OVERVIEW

DAN stands for Divers Alert Network, or as it is familiarly known, the 'diver's safety net'. DAN was born in the early 80's following the initiative of scientists and university professors of international stance in the USA and in Italy, who had understood that managing a diving emergency requires special knowledge not commonly found part of normal medical structures.

www.daneurope.org

DJOKOVIC TO THE RESCUE

BY **DTRP** PHOTOGRAPHY **JORGE FERRARI**

World number one Novak Djokovic now has a vested interest in the Dubai Turtle Rehabilitation Project at the Burj Al Arab, after he recently assisted the project and named one of the turtles undergoing rehabilitation. Novak was in Dubai ahead of the Dubai Duty Free Tennis Championships.

Novak was first introduced to two juvenile critically endangered hawksbill sea turtles that were under primary rehabilitation at the Burj Al Arab's aquarium facility. He then met the aquarium's variety of sharks and fish, along with a larger hawksbill turtle that had just completed its primary rehabilitation, which he named 'Leonardo', the name of Novak's favourite mutant ninja turtle character.

Novak then helped transport the 30kg sea turtle to the outdoor rehabilitation pen at Mina A'Salam, and was invited to return to satellite tag Leonardo when he will be ready for release. The project has been in operation since 2004 and has helped to secure the release of more than 550 rescued sea turtles from UAE waters. Once Leonardo is tagged and released, Novak will be able to track him online at www.seaturtle.org.

The DTRP is based at the Burj Al Arab and Madinat Jumeirah and run in collaboration with Dubai's Wildlife Protection Office. Since its inception in 2004, the project has seen the release of over 550 rehabilitated sea turtles. The project's sea turtle satellite tagging initiative began in 2005 and was the first of its kind in the region. Since then, over a dozen sea turtles from three different species including the hawksbill, green and loggerhead have been satellite tagged and tracked.

The DTRP's outdoor rehabilitation enclosures are open to the public for viewing at any time; scheduled feeding and educational talks take place on Wednesdays at 11am and Fridays at 1pm. The project can be followed on Facebook at www.facebook.com/turtle.rehabilitation. If you find a sick or injured sea turtle on the beaches of the UAE, please call the DTRP directly on 043017198.

2012 LIFEGUARD CHAMPIONSHIPS BACK ON THE EAST COAST

LE MERIDIEN AL AQAH TO HOST WORLD-CLASS COMPETITION NOW IN ITS 7th SEASON

Le Meridien Al Aqah, Fujairah's leading hotel, hosted the UAE Lifeguard Championships on 16th December 2012.

This world-class event, in its 7th season, saw more than 20 teams from some of the UAE's most popular hotels and resorts battle against each other in a competition to test their lifeguard skills, physical fitness and stamina. It is also designed to give them an opportunity to exchange their expertise and experience whilst raising the public's esteem for lifeguards and the significance of their role.

What makes this more special is the fact that Le Meridien Al Aqah is where it all started. The award-winning resort hosted the inaugural tournament in 2006 as well as the next two before the event was moved to Dubai in 2009. For 2012's event, the resort hosted its fourth Lifeguard championship taking over from Atlantis, The Palm, Dubai. Making 2012's championships better than the last is a true challenge.

"The growth of this competition has been tremendous with increased participation from teams from all over the country, an illustration of the collective commitment of the UAE hospitality industry to ensure that our pools and beaches are in safe and capable hands. It is with immense pride that we welcomed the Lifeguard Championships back to the venue where it all started," said Patrick Antaki, General Manager, Le Meridien Al Aqah.

The various events that made up the high-level competition included an Ocean Swim, Beach Relay, Run-Swim-Run, Board Relay, Beach Flags, Casualty Rescue and Beach Run. The objective of the competition was to raise awareness about water safety and also to engage the lifeguards in some healthy competition to keep them motivated and ever learning.

Another welcome addition to 2012's event was regional sports distributor Sun and Sand Sports coming on board as a partner.

"Sun and Sand Sports are privileged to be associated with the UAE Lifeguard championships promoting safety in the waters. This further strengthens our commitment to local CSR activities. To associate a leading swimwear brand like Arena with this event clearly underlines its positioning to be present wherever there is water", said Rahul Batavia, Arena Brand Manager, Sun and Sand Sports.

Le Meridien Al Aqah had already received many awards for 2012, including the prestigious Blue Flag title and the Ahlan Award for the 'Best Weekend Getaway', as well as the platinum award for 'Best 5-Star Leisure Hotel' in the MENA region at the Arabian Travel Market.

BUDDYING-UP

BY **ANDREW ROUGHTON**

Now, we all like diving for different reasons. Some of us love the marine life; others like going deep, some of us like exploring wrecks; others like perusing coral reefs, and some of us love the escapism; whilst others just love the gadgets. And whilst I do believe these are all fair and just reasons to pursue scuba diving, I also believe that you should select your buddy based on mutually agreeable reasons for – as well as your joint objectives from – pleasure diving.

In many cases divers plan their trips with friends based on the aforementioned criteria. Friends may learn to dive together, newly qualified divers may plan shallow dives with other newly qualified divers, and technical divers will plan deep, exploratory dives with similarly certified divers. However, what happens if your reasons for diving differ from your friends, you plan a trip alone, or you don't have any similarly qualified friends? Getting the most out of diving means finding a buddy who is diving for the same reason as you every time you dive. Therefore, you must take several steps to ensure you get the most out of all your pleasure dives.

If you're diving with friends it's a lot easier. You should discuss where you want to dive based on your certification level, the depth you're comfortable with, and the marine life you like to observe. Moreover, you should discuss the style of diving you prefer. Do you want to move slowly to look for smaller marine life and take photos? Do you want to descend quickly and maximise your bottom time? Do you want to enjoy a gentle perambulation at ten metres so that you can comfortably enjoy a full fifty minutes? This is easier with friends, but don't be forced to be macho about your limits. Before you dive you need to agree that anyone can cancel any dive, at any time, and for any reason. If you're uncomfortable in any way (you're nervous, nauseous, cold, tired, or running low on air) you should tell your buddy and stop your dive. Pleasure diving is no longer a pleasure when your health is at risk.

Now, this can be a lot more difficult when buddying-up with a diver you've never met before. However, if you plan a trip alone, try to cut through the competitive element that seems to remain amongst many divers. Pleasure diving is a pastime; not a competition. And there is nothing macho about having a higher certification, consuming less air, or having more dives logged. I have dived with Dive Masters who have the buoyancy control of inebriated Elephants, newly qualified divers (usually female) who can finish a fifty minute dive with one-hundred and twenty bar left in their tanks, and veterans of hundreds of dives who still get lost on ten metre reef dives.

What you need to do is determine the sort of dive you both want to do. And if you're looking for completely different things, there is nothing wrong with politely agreeing to find another buddy, join another group, or tag along with the Dive Master. Remember that you're a paying customer, dive clubs are usually flexible, and that you can form groups of three or four in order to dive with likeminded divers.

Of course, if you like underwater photography, keep an eye out for other divers with cameras. Conversely, if you want to hurtle around a dive site chasing sharks, rays, and turtles, you should avoid those of us who prefer to carry a camera.

Additionally, if you know your air consumption isn't great, you shouldn't hide the fact. You don't want to cut someone else's dive short unnecessarily. After all, they're paying just as much for their air as you are.

Furthermore, if you are newly qualified, slightly nervous, and/or know that you're buoyancy isn't great yet; don't buddy-up with an experienced pleasure diver. Ask the Dive Master if you can join him or her until you're completely comfortable. There is nothing more frustrating than trying to look after a new diver when you've paid for a pleasure dive.

In short, when selecting a buddy, you must be selfish about your requirements, but unselfish about your abilities. That way, you and everyone else diving will be happy, safe, and get the most from a wonderful pastime.

RARE FISH FIND

BY **MEGAN BELL**, QUICKSILVER GROUP MANAGER MEDIA

The Weedy or Lacy Scorpionfish is a beautiful rare and rarely seen fish species but visitors aboard Silversonic this week have been amazed at seeing this fish which is "uber" rare to see.

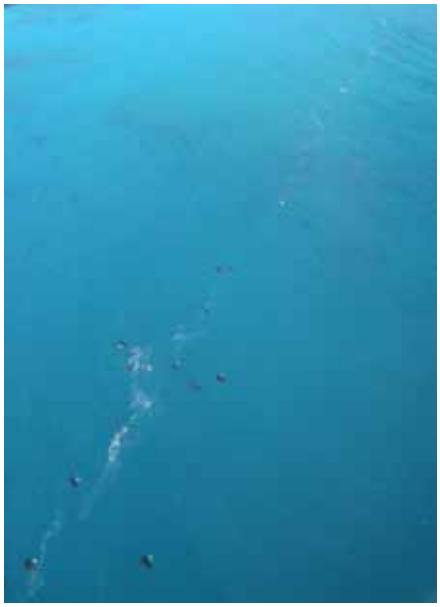
At one of Silversonic's exclusive reef sites, Pavona the rare sighting of this fish has occurred several days in a row. Due to the ideal weather conditions this past week Pavona is a site we can only use in light northerly winds and is on the front side of Agincourt 2D.

Dougie Baird, Environmental and Compliance Manager, Quicksilver Group said "This Scorpionfish is a beautiful rare fish species and was first described in 1973. This species is a master at camouflage and blends in well with its background and can be seen hiding under plate corals or on coral ledges. It has a distinctive head shape, large upturned mouth, dangly tentacles on the snout and varies in

colour to blend into the environment. The 3 dorsal spines are venomous. They are ambush predators and feed on other fish. They are known to "ambush" other fish by walking on their pectoral fins instead of swimming and can grow up to 30cms. This is a special experience for the Silversonic divers who came up close and personnel to this marine life wonder."

IS IT A BIRD, IS IT A PLANE? NO, IT'S A MANTA TRAIN.

BY **SONYA MROZ**, LADY ELLIOT ISLAND ECO RESORT



Over 150 manta rays have been observed feeding along the western side of Lady Elliot Island due to the abundance of plankton pushing onto the continental shelf over the past few weeks.

Data provided by the UQ-GPEM Biophysical Oceanography Group previously shows the largest sighting of manta rays spotted during similar feeding events was between 80 and 100 back in 2009-2010. This time in excess of 150 manta rays have been spotted in the waters surrounding Lady Elliot Island.

"The water flow of Capricorn Eddy has intensified in strength in the aftermath of ex Cyclone Oswald resulting in an increased upwelling of nutrient rich, deep sea water flowing directly past Lady Elliot Island. The mantas have been taking advantage of the increase in plankton in this area", said Kathy Townsend of Project Manta.

One guest staying at Lady Elliot Island Eco Resort sighted 72 mantas in one dive and other guests, including Bruce and Kay Laverty were treated to an aerial view of over 50 mantas feeding on the surface of the water on their departing flight.

"While Lady Elliot Island is known as the 'Home of the Manta Ray', the sheer number of mantas enjoying the plankton buffet around the island at the moment is amazing" said Ms Mroz, Sales and Marketing Executive at Lady Elliot Island Eco Resort.

Lady Elliot Island works closely with Project Manta to assist with the research of the world's largest ray. The Manta Ray is listed as vulnerable on the IUCN Red List of threatened species.

EXTINCTION IS NOT AN OPTION:

SCUBA DIVERS WORLDWIDE ARE DEMANDING URGENT TRADE PROTECTIONS FOR SHARKS AND RAYS

Officials from countries around the world are set to discuss and vote on the fate of vulnerable shark and ray species at the upcoming 16th meeting of the Conference of the Parties to CITES (Convention on International Trade in Endangered Species of Wild Fauna & Flora) to be held in Bangkok,Thailand from 3 to 14 March.

Divers worldwide are rallying to urge CITES delegates to vote in favor of 11 proposals supported by more than 32 countries to protect sharks and rays – including oceanic whitetip sharks, hammerheads, and manta rays – from the unsustainable international trade that threatens their survival.

It's high time that sharks and rays get the trade protections that many terrestrial animals have already received from CITES. International trade in wild plants and animals is worth billions of dollars a year and in too many cases, threatens species survival. In the case of sharks – sought after for fins, meat, oil, teeth and cartilage – regulation is sorely lacking for almost all trade.

Project AWARE Foundation is calling on the diving community to urge CITES leaders to vote "YES" for sharks and rays this March. You can help by taking the following actions:

1. Sign the petition urging CITES authorities to give sharks and rays the trade protection they desperately need.
2. Send a letter direct to CITES leaders.
3. Spread the word that extinction is NOT an option:
   -Download the sign and contribute a photo to Project AWARE's CITES 2013 photo album.
   -Add the #CITES4SHARKS Twibbon to your Facebook or Twitter profile picture.

Since 2010, the Project AWARE Foundation has taken every meaningful opportunity to put CITES protections for sharks and rays front and center on government agendas. They've participated in the public consultation processes, met with CITES representatives, and talked about international trade and sharks at every turn, including the IUCN World Conservation Congress and the 1st Meeting of the Signatories to the CMS MoU on the Conservation of Migratory Sharks. It's about time they get the protections they deserve.

Strong off their recent success with securing the European Commission's vote to close loopholes in the EU shark finning ban and armed with petition signatures from more than 120,000 divers and shark advocates worldwide, the Project AWARE team is pounding the pavement harder than ever before pushing for the 2/3 majority vote necessary in March to secure a brighter future for vulnerable shark and ray species.

With CITES just a few weeks away, officials from countries around the world have a historic opportunity to turn the tide for sharks and rays. International trade is a key driver in their decline. We must insist they vote 'yes'. Join divers worldwide who are taking a stand for shark conservation. Extinction is NOT an Option. Visit www.projectaware.org/cites to take action today.

IGILLS + IPHONE = CAMERA, COMPASS, LIGHT AND DIVE COMPTER

When I first heard that there was an underwater housing for the iPhone 4 and 4s, I was the most negative member of the dive team. I believe that this was the reason I was given a sample to test it out.

When I was un-boxing the unit, I was glad to find out that it did not enable you to receive calls, messages or emails as it operates with the 'Airplane Mode' on. I had to download and install a free app (iGills) from the itunes app store, which would allow me to use the camera (in picture and video mode), light, compass and even give me a great unexpected feature, a dive computer.

After pressure testing the housing to half of its MOD (maximum operating depth) of 40 meters I was ready to take my phone underwater??? As I descended on the 1st dive, it was great to see how user friendly the unit was, switching between modes was very easy as there are only six buttons on the underwater housing.

The dive computer function shows 3 modes; AIR, NITROX and GAUGE and the iPhone screen makes it easy to read in any visibility, even on a night dive. The log book stores all the diving information, including the location and shows all the pictures and videos.

After using the iGills housing, I believe the NASA Curiosity Rover on it's ground breaking mission on the planet Mars, is just another housing testing for the iPhone 5s.

NIGHT DIVING: MARINE LIFE POLLUTION USING LIGHT-STICKS

BY **AWNI HAFEDH**

Since I earned my Advanced Open Water diving certificate, my passion turned to night diving. Divers need to be more careful during a night dive, be equipped with primary and secondary lights and learn a few extra techniques to navigate and communicate in the dark. It is a wonderful experience as the same site that you dived in day light, becomes completely different when you dive it at night. You get to see different marine life and behaviors.

Before a night dive, you need to make sure everything is working and pay attention to what your dive partner is equipped with. It is very easy to lose site of your buddy in the deep dark water and you want to be able to recognize each other if you lose distance between each other.

So a month ago, I started searching for ways to keep me from losing my buddy. The first thing that popped into my mind was using light-sticks as I've seen many people use them to navigate by attaching them to their tanks where they are easily visible. They are simple to use and with a quick snap, they light up for several hours and you can buy them from most places.

But a simple search through the internet showed me that those sticks can be really bad for the marine life and are a source of pollution as they contain chemicals that are considered to be toxic and bad for the environment.

Have no fear, there are other alternatives which are more environmentally friendly such as using battery powered night beacon lights that you can use on several dives and which have a minimal impact on the environment. One of them which is available to purchase from many websites is called, i-Torch i-Buddy Beacon Light. They are available in different colors and positively buoyant which means they will float when you strap them to your tanks and will in turn transform your partners tank into a beacon.

I purchased four lights from Amazon (Green & Blue) and took them on a night dive. Once I paired up with my buddy, I strapped one to his tank and we never lost sight of each other, in fact everyone followed us and now everyone wants one.

So please, the next time you get ready for a night dive, first of all be careful, but also be responsible and reduce your negative impact on the planet. Find another alternative to light-sticks.

MY INTRODUCTION TO SHARKS

I have never thought in my whole life that I'd be working alongside "fearful" sharks but, here I am in the 10 million litre Dubai Aquarium tank, the world's largest suspended aquarium, the Guinness World Record for the largest single acrylic panel.

I started to be a professional diver in 2007. The thought of diving and witnessing sharks underwater sends shivers to my bones. It, to me, was intriguing and fearful at the same time. Intriguing, because I have seen divers swimming along sharks. Fearful, because I have never tried it.

I had a 2 week training on shark behavior in April 2012. During that training I learned behaviors of the different kinds of sharks, especially those that are housed at the Dubai Aquarium.

My job as assistant instructor allows me to teach and guide guests at tours in the aquarium. I show guests the beauty underwater and guide them during their discovery of life underwater. Learning shark behavior and understanding these big sea creatures by heart will help me do my job better as an aquarium dive guide and teacher.

The two week training culminated with an underwater tour with my trainer Ryan Todd. Fear came to my mind while I was preparing to dive. I started to recall the things I learned during the training. As we started to descend, I observed a sand tiger shark a few feet from us. It had a fearsome appearance but relatively placid and slow moving. Instead of being scared, I'd felt like I'd known this shark for a long time. The sand tiger shark just passed us by. Fascination started to grow in me as I saw more amazing sharks beneath me – the bottom-dwelling and well camouflaged wobbegong sharks, the fast-swimming grey reef sharks and the nocturnal nurse sharks. I realized that these huge creatures have to be respected, not feared, and I will only be able to respect them if I get to know them better – their behavior, habitat and how they interact with humans.

My new experience swimming alongside sharks has given me a different perspective of diving and has enriched me as a professional. It has eliminated my old way of looking at sharks as a threat to man. Sharks are part of the marine ecosystem. Just like humans, they need to exist, be respected as underwater creatures.

It is rewarding because I see guests' pleasant eyes and nice smiles during and after tours. Aside from showing them the beauty of sea life, I also have to ensure that they are safe in the process.

THE COSY, COMFORTABLE AQUALUNG BALANCE COMFORT

BY **SAMANTHA JOFFE**

I'm no fan of diving in a wetsuit, let me make that clear from the start of this review. Wetsuits bring back memories of dive trips where the dive deck disappears in a fog of talcum powder and annoyed divers. Some even gave up diving in cooler water just because of the difficulty of getting into the old wetsuits.

But with the Aqualung Balance Comfort, it seems those days are over, wetsuits no longer fit like a coat of paint – or need to – thanks to the clever new seals at the wrists and ankles. Even the neckline, while seals keep the water out, you are still able to look around for your dive buddy underwater and keep breathing at the same time.

In technical terms this is all due to, in Aqualungs' words:

HIGHLIGHTS

- Aqua Lung Balance Comfort 7mm wetsuit in Ultrastretch neoprene.
- 7mm one piece premium wetsuit without hood, back "G lock" closure.
- Double seals on wrists and ankles, composed with a 4.5mm ultra-stretch "glideskin" with a zip closure.
- Ultra-soft 5mm neoprene flex panels at the arms.
- "Water Flap System".
- V Lycra collar for more comfort, internal "glideskin" prevent water entries.
- Collar with zip and protection.
- Available in both mens and ladies fit.

Roughly translated, the suit is now really spongy and easy to get into, while allowing maximum mobility once inside the suit. The cool water also stays on the outside, where it should be, and not leaking against your skin just when you thought that you had warmed up, as was the case with wetsuits in general some years ago.

I used the suit while conducting a PADI Rescue Diver course, both in the pool and in the sea. Throughout the exercises, twists, turns and energetic panicked diver moves involved, I didn't feel any water getting past those wrist and ankle seals. Nice. I can also say that I was actually able to complete most of the moves, again in Aqualungs' words due to:

• Ultra-soft 5mm neoprene flex panels at the arms.

The other issue with a wetsuit in the past, especially for us lady divers, is the fashion statement aspect. Let's face it, we want to look good in and out of the underwater world. In the past, this wasn't that easy, but now, thanks to pink trim, imprinted flower designs and a comfortable ladies cut wetsuit, this is also a thing of the past. Comfort, warmth and (most importantly) appearance, finally all in the Balance Comfort!

So, do you need one in Dubai and when and where do you wear them? The answer is, anywhere the water is less than 32C. If the water is cooler than your skin temperature you will lose heat. And even if you lose heat very slowly, you will get cold eventually. This means that it's best to take a wetsuit along all the way from mid-October until sometime in May. That's half the year in Dubai. This could mean that my personal dive season has just doubled!

The Balance Comfort can be found among the wide range of diving products available from AL Boom Diving. For more information call 04 342 2993 or email abdiving@emirates.net.ae, www.alboomdiving.com.

TWENTY-SIX COUNTRIES MEET TO PROGRESS DUGONG AND SEAGRASS CONSERVATION

The Second Signatory State Meeting for the Memorandum of Understanding on the Conservation and Management of Dugongs and their Habitats throughout their Range (Dugong MOU) was hosted by the Government of the Philippines on 19 and 20 February in Manila, Philippines. The Dugong MOU was concluded in 2007 under the auspices of the UNEP Convention on the Conservation of Migratory Species of Wild Animals to protect an endangered sea cow species. The Dugong MOU Secretariat coordinates support for international efforts to conserve dugongs and seagrasses from the UNEP/CMS Abu Dhabi Office which is hosted by the Environment Agency – Abu Dhabi (EAD), on behalf of the Government of the United Arab Emirates.

While dugong populations and seagrass habitats remain threatened, the Second Signatory State Meeting for the Dugong MOU highlights the fact that considerable progress is being made. The ten new Signatories to the MOU since the first meeting in 2010 and the proposed international Global Environment Facility (GEF) Project in seven countries are encouraging signs for supporters of dugong conservation. The governments of the 26 nations attending are demonstrating their commitment to take positive action. A number of coastal communities that have been approached to participate in conservation projects have shown their willingness to make adjustments in an effort to live in harmony with dugongs. The plight for survival of the charismatic dugong has captured people's imagination on an international scale.

In total, 26 countries registered to attend the two-day meeting, including 17 of the 21 Signatory States ranging from the Indian Ocean to the Pacific, to discuss priorities in conserving dugongs. In a joint ceremony, four new Signatories – Bangladesh, Egypt, Somalia and Sudan – joined the Dugong MOU bringing the total to 25.

The meeting attracted government officials and experts to consider the conservation status of dugongs and share information on related conservation efforts worldwide. Leading authorities on marine mammals, in particular Professor Helene Marsh from James Cook University (Australia) and Dr. John Reynolds from Mote Marine Laboratory (United States of America) gave presentations highlighting the challenges facing dugong and seagrass conservationists. These marine mammals are affected by a range of human-related threats such as capture in net fishing gear and habitat degradation. In addition, extreme weather patterns such as severe storm events destroy critical seagrass beds on which dugongs depend.

In association with the meeting of Signatory States to the MOU, an international workshop of the GEF Dugong and Seagrass Conservation Project is also being held with the seven GEF Partner Countries and the four GEF Supporting Partners in attendance. The GEF Dugong and Seagrass Conservation Project is currently being prepared to address a range of key threats to dugongs and their critical seagrass habitats through a set of activities including working with local communities and government agencies.

UNEP/CMS

The United Nations Environment Programme's Convention on the Conservation of Migratory Species of Wild Animals (UNEP/CMS) works to conserve terrestrial, aquatic and avian migratory wildlife. The UNEP/CMS Dugong MOU aims to protect and conserve dugongs and their seagrass habitats.0 The UNEP/CMS Abu Dhabi Office hosts the Dugong MOU Secretariat, which coordinates support for countries in their efforts to conserve dugongs and seagrasses.
www.cms.int/species/dugong/index.htm

CONSERVATION ACTION

The dugong is listed on CITES Appendix I and CMS Appendix II.

25 SIGNATORIES TO THE DUGONG MOU

Australia, Bahrain, Bangladesh, Comoros, Egypt, Eritrea, France (Mayotte and New Caledonia), India, Kenya, Madagascar, Mozambique, Myanmar, Palau, Papua New Guinea, Philippines, Seychelles, Solomon Islands, Somalia, Sri Lanka, Sudan, Thailand, United Arab Emirates, United Republic of Tanzania, Vanuatu and Yemen.

7 GEF PARTNER COUNTRIES

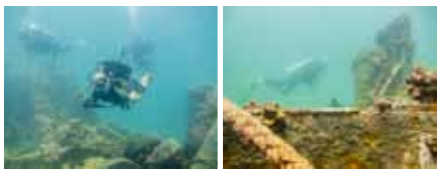
Indonesia, Madagascar, Malaysia, Mozambique, Sri Lanka, Timor Leste and Vanuatu.

4 GEF SUPPORTING PARTNERS

Australia, Papua New Guinea, Philippines and Solomon Islands.

DIVING AROUND SIR BANI YAS ISLAND

BY **JOHAN VAN DE POEL**



Who would expect the desolate Western Region of Abu Dhabi to boast some the most interesting and relatively accessible dive sites in the Emirate. So far, little is known about the area itself as a diving destination, which makes diving out there even more exciting. You could say every new dive there is like a new discovery leading you to untouched boat wrecks, natural reefs, steep drop-offs and even a peculiar topographic feature which is believed to be a meteor crater.

Focusing on one location in particular, some 10km East of Sir Bani Yas Island, lies what may be considered as the local wreck diver's playground. Having the benefit of being partially surrounded by a shallow reef, it invites all kinds of aquatic visitors. The main points of interest are two old wrecks of what appear to be pilot boats, along with an overturned barge lying just a short distance to the South. In between and to the side are three huge anchor blocks, set up almost like guard towers. Various randomly scattered bits and pieces create plenty of opportunity to explore the rest of the area once you've figured out where everything is in relation to each other, which in itself will take more than a few dives.

Obviously, over the years marine life has completely taken over the site and it has become home to ever-present snappers, seasonal shoals of barracuda, angelfish, sweetlips, batfish, the occasional sea turtle and one particularly large hamour. Average depth being around 11 meters means there is still adequate light for photography and depending on the conditions, the wreckage can even be spotted from the surface.

In short, these wrecks off Sir Bani Yas always make for an interesting dive, either to simply explore the countless nooks and crannies that this site has to offer, or to sharpen your underwater navigation and charting skills. In any case, time has transformed this once underwater junkyard into a well established artificial reef, teeming with marinelife.

Desert Islands Watersports Centre is a PADI 5 star dive center offering diving, snorkeling, cruising, PADI programs, catamaran sailing, deep sea fishing in the area of Sir Bani Yas Island. Bookings can be made by email to sby@divemahara.com or calling +971 2 801 5400, extension watersport centre (Anantara Desert Islands Resort and Spa).

CHILDREN, SCUBA & JUMEIRAH TAWASUL

For 10 years now The Pavilion Dive Centre has been educating children in the UAE about Scuba Diving and related environmental issues. The variety of subjects over the years forged what we call, Jumeirah Tawasul and has become an integral part of the business.

So what is Jumeirah Tawasul and why is it so important to us? Jumeirah Tawasul is a branch for all CSR related activities conducted by the Pavilion Dive Centre. It is a fact that children are the future for this planet's longevity so we believe in educating them about the fragility of the ocean and its surrounding environment with a view to stabilizing what we are currently destroying. That said, we cannot wait until they hold positions of influence to bring about change, so not only are we educating them now, we are taking action now.

Jumeirah Tawasul is populated by school and college students in the UAE in the 12 to 18 year bracket and roughly 100 students each year pass through the training. In order to populate a movement, you need to have a hook and our hook is scuba diving. Once the students start breathing underwater and begin their adventures under the sea, it is easy to start discussing what's going wrong. Because scuba diving is the hook they need to keep diving and this is done through continuing PADI courses and frequent day trips in the Gulf and Oman.

We hold workshops on the marine environment's impacts using a variety of sources such as visibility, the living reef, dolphins, sharks, turtles and indigenous endangered species. This involves field trips, field reports, investigation and live presentations from the industry's professionals.

The scuba education and the environmental awareness are then combined to create the action. This takes place through beach and underwater clean ups, artificial reef engineering and in some cases, independent student action through extreme passion for the subject.

For example, one student managed to get blue fin tuna removed from a restaurant menu.

As a result of Jumeirah Tawasul some of our 'Tawasuleers' as we call them, have changed their focus and developed a desire to become Marine Biologist to further investigate what we have begun and place themselves directly in the stream where they can make a difference. In addition, the dive centre offers work placement and full internships to students who really want to get more involved. We are so proud that some students have even chosen scuba diving as an interim profession prior to University to become PADI Instructors and Disabled Diving Instructors because they have been so moved by the goals of Jumeirah Tawasul. These and other special individuals are stars in their own right and prove to us that what we are trying to achieve actually works. This drives us to keep the campaign alive.

Jumeirah Tawasul also hosts Disabled Diving Instructor Training courses and sponsors PADI professionals to become DD Instructors to then teach disabled individuals in the country. We support the PCRF (Palestinians Children Relief Fund) by providing scuba experiences to seriously injured children of Palestine.

If you would like some more information on Tawasul or would like to get involved to help the cause, please contact The Pavilion Dive Centre on 04 406 8828 or email Phil.Oshea@jumeirah.com.

SHARKWATCH ARABIA UPDATE

Photo by Rachel Amos

Throughout 2012 we received a total of 47 whale shark encounters reported to Sharkwatch Arabia from the waters of Fujairah, Musandam and the Daymaniyat Islands. Whilst this number of encounters is slightly higher than 2011, unfortunately the number of IDs retrieved from images of the sharks dropped from 32 in 2011 to just 23 in 2012.

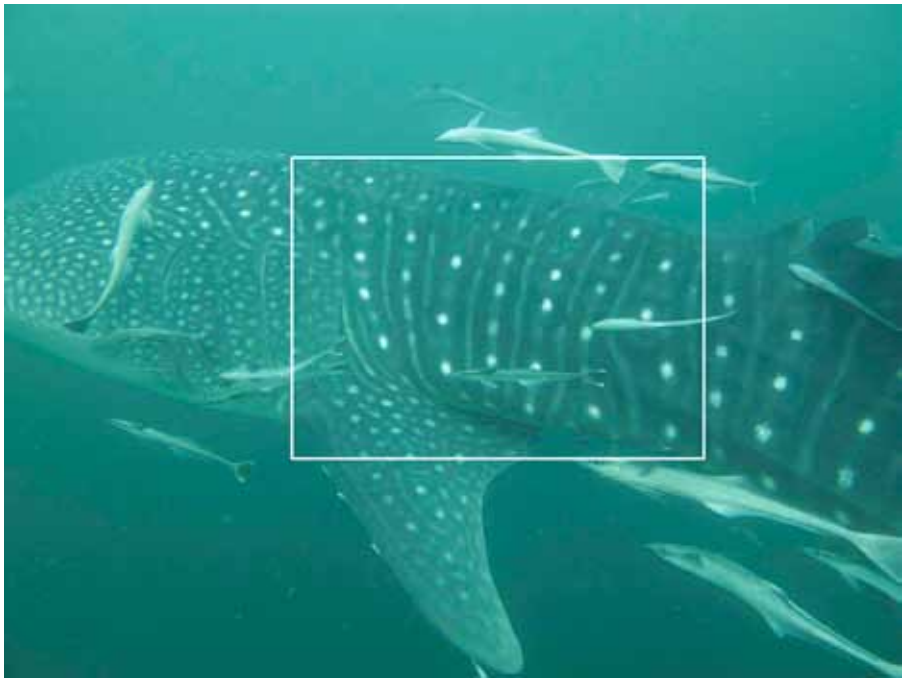
Of the 47 sharks encountered in 2012, 27 of these occurred in the Musandam, which has consistently been a whale shark hotspot since the research started in 2010. Although sharks are encountered all year round in the Musandam, the majority of sharks in 2012 were encountered during the summer months with the majority of encounters occurring during the month of July.

Trends are starting to form in regional whale shark movements using simple spot pattern identification, with sharks from the Musandam making journeys into and out of the Arabian Gulf and also to and from the Daymaniyat Islands. These re-sights and movements will help to identify areas of importance for whale sharks, although it is already clear from the data that the Musandam is a very important habitat that is frequented all year round.

We hope that with your support, we can build on the information collected in the coming years. Sharkwatch Arabia is a 'citizen science' initiative; all of the information used, is collected by you. We ask, if you encounter a whale shark, or you know of someone that has, that you send the images in to Sharkwatch Arabia and please remember to take that all important ID shot as shown in the image.

We want to say a special thank you to Rachel Amos for sending in the picture of a whale shark she encountered in Sheesa Bay at the end of January. Unfortunately for the whale shark, it seems to have had a run in with fishermen as it has a tail rope now slowly cutting in to its caudal keel. This is the third shark we have seen with a tail rope in 2012 alone and demonstrates that protection is definitely needed and that the whale sharks we encounter are under threat within this region.

'Many thanks to everyone who supported Sharkwatch Arabia in 2012 and we are looking forward to an exciting 2013.'



FEATURE CREATURE

GREAT WHITE SHARK (*CARCHARODON CARCHARIAS*)

FEATURE **IUCN RED LIST 2012.2 BY IUCN** PHOTOGRAPHY **PHILIPPE LECOMTE**

RED LIST CATEGORY & CRITERIA: VULNERABLE
Scientific Name: *Carcharodon carcharias*
Common Name: Great White Shark

Justification: This assessment is based on the information published in the 2005 shark status survey.

Despite the high profile media attention the Great White Shark (Carcharodon carcharias) receives, relatively little is known about its biology. It appears to be fairly uncommon compared to other widely distributed species, being most frequently reported from South Africa, Australia, California and the northeast United States. World catches of Great White Sharks from all causes are difficult to estimate, though it is known to have a relatively low intrinsic rebound potential. Threats to the species include targeted commercial and sports fisheries for jaws, fins, game records and for aquarium display; protective beach meshing; media-fanned campaigns to kill Great White Sharks after a biting incident occurs; and degradation of inshore habitats used as pupping and nursery grounds.

Range description: The Great White Shark occupies a cosmopolitan range throughout most seas and oceans with concentrations in temperate coastal seas. It is principally known as a pelagic dweller of temperate continental shelf waters, but also ranges into the open ocean far from land and near oceanic islands, the cold boreal and austral (sub-Antarctic) seas and the coastal tropics. It is found from the surfline and the intertidal zone to far offshore, and from the surface down to depths over 250m. It does not occur in fresh water, but penetrates saline bays and estuaries; during high tide it may swim in bays that have no water at low tide. Recent tagging and tracking studies and DNA analyses have demonstrated that this species undertakes long distance trans-oceanic movements, for example between South Africa and Australasia and California and the Hawaiian Islands. Consequently its distribution is not considered disjunct, albeit that interchange between some populations may be limited. It is most commonly recorded from the waters of southern Africa (particularly from Namibia to KwaZulu-Natal and Mozambique); eastern, western and particularly southern Australia; New Zealand; the Japanese archipelago; the north-eastern seaboard of North America, especially Long Island and environs; the Pacific coast of North America, primarily from Oregon to Baja; the coast of Central Chile; and the Mediterranean Sea, primarily the Western-Central region and Tyrrhenian Sea.

Great White Sharks also occur, albeit less frequently, at many sites elsewhere (e.g., Brazil, Caribbean, Azores, Hawaii, north-west Africa, east Africa (Kenya, Tanzania), Seychelles, Mauritius, Madagascar, Sri Lanka, northern Australia, New Caledonia and Philippines). Limited inter-hemispherical movement between temperate areas, across equatorial waters by means of tropical submergence has been suspected, but more recently Great White Sharks have been found in tropical inshore waters of east and southern Africa and even sighted and photographed by divers on coral reefs in Mozambique and elsewhere.

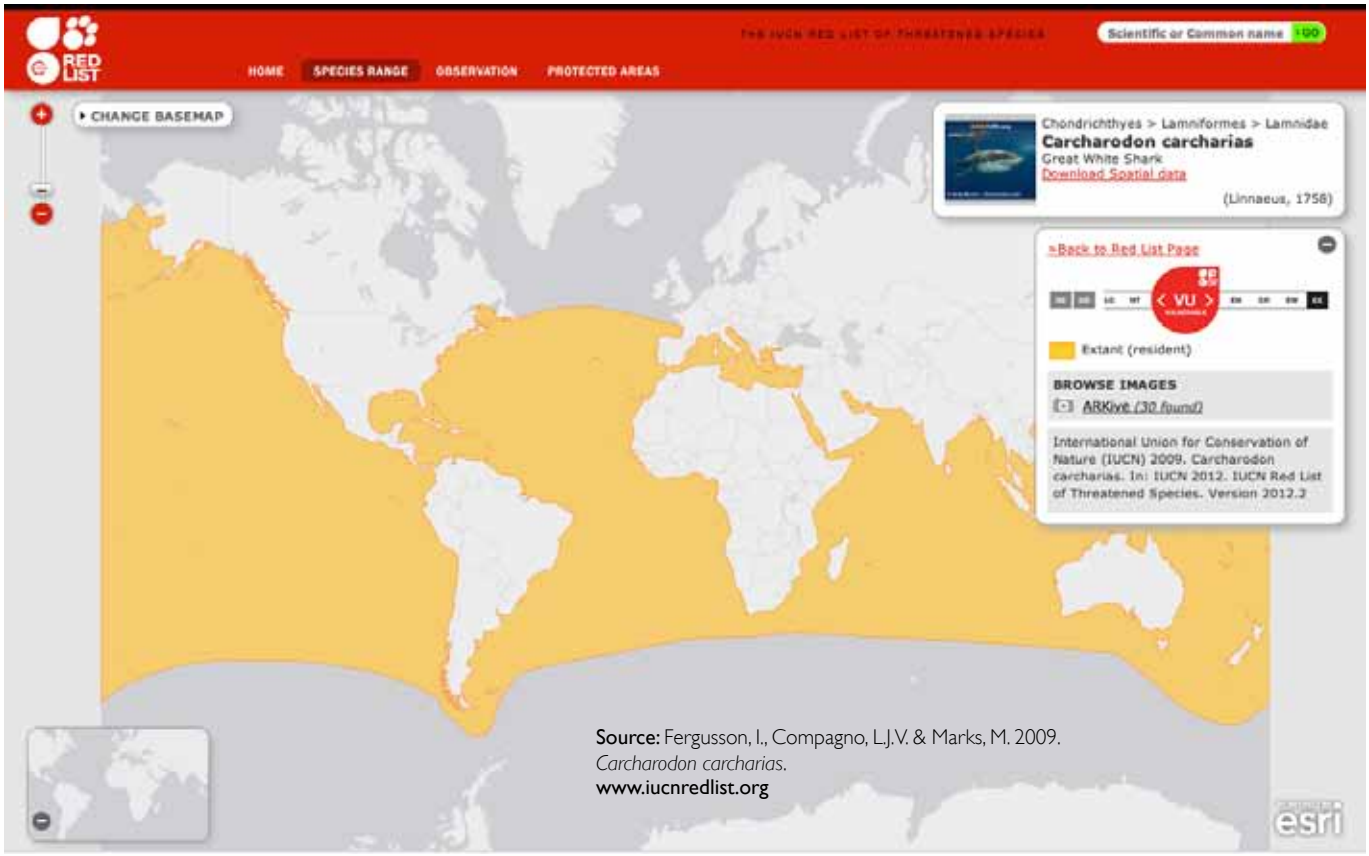
Native: Albania; Algeria; Australia (Northern Territory, South Australia); Bahamas; Barbados; Bosnia and Herzegovina; Brazil; Chile; Croatia; Cyprus; Egypt; France; Gibraltar; Greece; Israel; Italy; Japan; Kenya; Lebanon; Libya; Madagascar; Mauritania; Mauritius; Montenegro; Morocco; Mozambique; Namibia; New Caledonia; New Zealand; Philippines; Seychelles; Slovenia; South Africa; Spain; Sri Lanka; Syrian Arab Republic; Tanzania, United Republic of; Tunisia; Turkey; United States (California, Hawaiian Is., Oregon); Western Sahara.

Population Trend: Unknown

Habitat and Ecology: The maximum size attained by Great White Sharks remains a matter of debate, and is estimated to be around 6m, and possibly to 640cm or more; the largest free-swimming individuals commonly captured are between 500-580cm (mostly adult females). Lengths at maturity for both sexes remain somewhat undetermined and based on (currently limited) age-growth data it may be possible that different populations mature at varying lengths. The majority of females mature at between 450-500cm total length (TL), but have been reported as immature at sizes as much as 472-490cm long. Males mature at about 350-410cm. One study of age and growth, pooled from 21 specimens suggests a generalised age of maturity of 10-12 years based on counts of vertebral growth rings that are deposited yearly. A mature female of 500cm is estimated to have reached c.14-16 years. The average reproductive age is estimated at 17 years. The oldest individual reported is a female with 23 growth rings from South Africa, assumed to be at least 23 years old. Longevity is suspected as being about 30 years. Since 1980, six pregnant females have been verified, taken from coastal waters off Okinawa and Japan; North Cape, New Zealand and Cape Bon, Tunisia. Further recent but unconfirmed reports originated during the same decade from Australia and Taiwan. Reported litter-sizes range from 2-10 foetuses. Gestation time is unknown but likely to be a year or more. Size at birth is within a range of 109-165cm TL. The Great White Shark is ovoviviparous and practices uterine cannibalism in the form of oophagy (ingestion of unfertilised eggs). Mating has not been reliably witnessed to-date. Conceivably, females may give birth every two or three years rather than annually. Parturition apparently occurs during the spring to late summer in warm-temperate neritic waters.

Great White Sharks take a variety of bony fish as prey, from sedentary demersal rockfish, lingcod and benthic flatfish to fast pelagic species, and ranging in size from small demersal and schooling fish to giants such as broadbill swordfish and bluefin tuna. Great White Sharks are known to congregate at concentrations of schooling bony fish such as pilchards and bluefish, and follow the KwaZulu-Natal sardine run off South Africa. A broad range of elasmobranchs (sharks and batoids) are eaten by Great White Sharks, as are chimaeroids, chelonians, cephalopods and other molluscs, crustaceans and occasionally sea birds such as cormorants and penguins. The role of *C. carcharias* as a primary predator upon marine mammals and especially pinnipeds (e.g., northern elephant seals, harbour seals, California sealions, fur seals), has dominated much contemporary study of this species due to accessibility and intensive studies of seal colonies and a focus on seal predation as being related to biting of humans by great white sharks. The global importance of pinnipeds as prey taxa may be overstated, due to the regional bias in contemporary field observation towards those areas where sharks and pinnipeds are sympatric. Great White Sharks (especially larger individuals) are also active hunters of small odontocetes, particularly so (but not exclusively) in regions where pinnipeds are scarce or absent. Dead baleen whales and other large cetaceans may contribute a significant amount to the Great White Shark's diet in some areas, but such food is sporadically available.

Major Threat(s): Under various synonyms (maneater, white death), the Great White Shark has long been a focus for negative media attention, generated by its sometimes lethal interactions with humans. As a consequence of this typically exaggerated threat to human safety and an almost legendary "Big Fish" status, the species is targeted as a source for sports-fishing, commercial drumline trophy-hunting (for jaws, teeth and even entire specimens preserved), sporadic human consumption or merely as the piscine whipping-boy of individuals pandering to shark attack paranoia. All of these activities have greatly increased since the "JAWS" media phenomenon of the mid 1970s, not only to the detriment of *C. carcharias* but also in encouraging targeting of other, less high-profile species. Nowhere is the Great White Shark abundant and productive enough to sustain long-term directed fisheries; the majority of annual captures worldwide being made incidentally through commercial fisheries operating longlines, setlines, gillnets, trawls, fish-traps and other gear. The Great White Shark is ensnared throughout the water column in nearshore fisheries but, notably, is rarely represented in the elasmobranch bycatch of offshore oceanic pelagic fisheries (unlike Shortfin Mako (*Isurus oxyrinchus*) and Porbeagle (*Lamna nasus*). The Great White Shark is vulnerable to capture trauma and



Source: Fergusson, I., Compagno, L.J.V. & Marks, M. 2009. *Carcharodon carcharias*.
www.iucnredlist.org

may be killed or has limited survivorship after capture. Great White Sharks are curious and readily approach boats, scavenge from fishermens' nets or longlines and devour hooked fish taken by rod-and-line or swordfish harpoon. This vulnerable propensity often results in either their own accidental entrapment or deliberate killing by commercial fishermen. In certain regions the Great White Shark has traditionally been viewed negatively as manifesting a costly interference to fisheries, although some fishers appreciate it for its role in eating pinnipeds that devour their catches. This species is unquestionably vulnerable to directed exploitation such as sports fisheries, the curio trade, the oriental shark-fin trade and even the public aquarium trade. The overall, long-term impact of these causes of mortality upon regional populations, coupled to those caused through indirect fishery captures or protective beach meshing, is probably detrimental. The removal of even a few individuals apparently has very tangible effect at discrete localities (such as the Farallon Islands, California, based upon observations following the cull of four local sharks in 1984). Habitat degradation (development, pollution and overfishing) also threatens this species and may largely exclude it from areas, perhaps traditionally utilised for feeding or as nurseries, where it was historically much more abundant. Great White Sharks have been sought as the ultimate species to display in large public oceanaria, but with poor survivorship so far. Directed fishery exploitation of Great White Sharks is primarily undertaken with the aim of trading its teeth and jaws as trophies or curios and its fins for the oriental fin trade. In South Africa offers of US$20,000-$50,000 have been made for great white shark jaws and US$600-$800 for individual teeth. Apart from their size, Great White Shark products in the form of curios and fins are boosted in value because of notoriety. A fin-set from a large great white shark may be valued at over US$1,000. Unfortunately, as with rhino horns and elephant tusks, the high value of Great White Shark products encourages poaching, clandestine trade and flouting of protective laws. Comparative data of catch-rates and CPUE are sketchy or lacking for most of the Great White Shark's range, although some figures are available from select regions. Observations of game fishery captures in south-east Australia between 1961-1990 indicate a catch-ratio from 1:22 in the 1960s, declining to 1:38 in the 1970s and 1:651in the 1980s, suggesting a possible decline in abundance. South Australian game-fishing catches from 1980-1990 averaged 1.4 sharks per year and has declined since the 1950s, possibly through a reduction in effort. Sydney game fishing catches have ranged from 0-17 between 1950-1980, with no significant trend. Commercial bycatches off Australia are suspected to be the largest cause of mortality to Australian Great White Sharks, although without any data to currently substantiate this claim.

Recent tagging off South Australia (70-90 animals tagged) has demonstrated a 4-6% recapture rate, which may be considered cause for concern. Approximately 40% of 126 Great White Sharks tagged at Dyer Island or Struisbaai, South Africa, between 1992-94 were resighted. Both the Australian and African research demonstrates at least short-term residency and site-affinity with some pronounced seasonality, coupled to more irregular nomadicity. Off the eastern USA, NMFS statistics from 1965-1983 show a decline from 1:67-1:210, suggesting a possible decline in abundance. Data from beach meshing programmes in NSW and Queensland show a gradual and irregular decline in CPUE since the 1960s whilst trends in KwaZulu-Natal meshing programmes are variable and less clear, but essentially downwards. Other indices of catch-rates are available from: California, between 1960-1985 as 0-14 sharks per year (mean 3.2), KwaZulu-Natal, between 1974-1988 as 22-61 sharks per year and the Central Mediterranean Sea (Sicilian Channel), between 1950-1994 as 0-8 sharks per year (mean 2.2). We presently have no complete data for Japan, New Zealand or Chile. In other areas, catches are much more nominal and very sporadic (e.g., Brazil, Hawaii).

Conservation Actions: The Great White Shark is currently protected in the Australian EEZ and state waters, South Africa, Namibia, Israel, Malta and the USA (California and Florida states, with directed fisheries prohibited off all coasts). Protective laws are strict, but loopholes and inadequate enforcement causes problems including promoting the black-market for high-value Great White Shark products including jaws, teeth and fins. Australia has developed a comprehensive and multidisciplinary recovery plan for great white sharks in its waters. A proposal to list the great white shark in CITES, to regulate or ban international trade failed in 2000, but Australia has since listed the species in Appendix III. A CITES listing might help slow trade in great white shark products, but will not eliminate low volume criminal trade. The Great White Shark was added to both Appendices of the Convention on the Conservation of Migratory Species (CMS) in 2002 with the objective of providing a framework for the coordination of measures adopted by range states to improve the conservation of the species. The great white shark should be removed from international game fish record lists, and needs consistently rational and realistic treatment by entertainment and news media to counter its notoriety and inflated market value.

NOAA FISHERIES FINDS ENDANGERED SPECIES ACT LISTING OF ALASKA COLD-WATER CORALS IS NOT WARRANTED

BY **NOAA**

NOAA Fisheries has concluded that a petition to list 44 species of cold water corals off Alaska as threatened or endangered, does not present substantial information that listing under the Endangered Species Act (ESA) may be warranted. The agency will not conduct a formal status review of the species.

The Center for Biological Diversity petitioned NOAA Fisheries last August to list 44 species of corals under the ESA, citing threats of ocean warming, ocean acidification, commercial fisheries, oil spills and other factors.

NOAA considered these factors, but found that there are no empirical studies that have shown harmful effects of these threats to these corals or to similar corals in the area. The ocean acidification research cited in the petition was conducted on types of corals – mostly tropical, reef-building corals – that are very different from the corals the Center asked to be listed.

The Alaska coral species in the petition are non-reef building, and exhibit many different characteristics than shallow-water tropical corals, which have been comparatively well researched. All of the species covered in the petition have a type of external tissue that protects them from acidic water, and may not be as susceptible to the effects of ocean acidification as other organisms.

In November, NOAA Fisheries proposed the ESA-listing of 66 species of reef-building corals, including 59 in the Pacific and seven in the Caribbean.

The 44 species of corals included in this recent petition for listing occupy a vast array of habitats across thousands of miles at up to 4,500 meters in depth, mostly in western Alaska.

Alaska has closed more than 600,000 square nautical miles to fishing since 2005, and many of these closures protect cold water coral habitats in the Aleutian Islands, Bering Sea and Gulf of Alaska from the effects of fishing. According to scientists, these closures provide substantial protection for corals.

Although NOAA Fisheries will not review the status of the Alaska cold-water coral species at this time, the agency is encouraging interested parties to continue to gather data that will assist with the conservation of cold water corals in Alaska.

According to NOAA Fisheries scientists, the study of deep-sea corals in Alaska is a new science, and very little information exists on their basic biology and distribution, environmental variables, or species-specific responses to stressors.

In 2012, NOAA Fisheries began a three-year, $2.4 million field research program in Alaska, as part of NOAA's Deep Sea Coral Research and Technology Program, to help answer some of the unknown questions about corals in Alaska. The goals of the program are to better understand the location, distribution, ecosystem role and status of deep-sea coral and sponge habitats.

THE ROLE OF TEMPERATURE IN THE SPREAD OF RED LIONFISH

BY **WAYNE BENNETT**, PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF WEST FLORIDA AND **THERESA DABRUZZI**, UNIVERSITY OF WEST FLORIDA

The expansion of exotic red lionfish into the western Atlantic may be explained by their tolerance of cooler waters, according to a new study.

The red lionfish, *Pterois volitans*, is perhaps the best recognised and most notorious group member of scorpion fishes – a large and diverse group that take their name from the potent sting they deliver using a formidable array of venomous spines. Prized by aquarium hobbyists for their showy looks and hardy nature, the fish are a bane to biologists struggling to manage exotic introductions in the Mediterranean and western Atlantic.

The Atlantic introduction is especially troubling as the fish have established persistent populations from North Carolina on the US eastern seaboard, to the Florida reef track, into the Gulf of Mexico and throughout the Caribbean Sea – all in less than 20 years.

Lionfish are voracious predators with few natural enemies and early indications are that they will significantly impact the ecological balance of Florida and Caribbean reefs.

Temperature is thought to be an important environmental factor influencing red lionfish ecology in the Atlantic. While surprisingly little is known about their thermal ecology, it is clear that this tropical fish can feed, grow and reproduce in cooler Atlantic waters. In 2012 researchers with Operation Wallacea quantified thermal niche, preferred temperature and metabolic thermal sensitivity of native population of red lionfish from Hoga Island, Indonesia.

TEMPERATURE

The findings indicate that while the red lionfish thermal niche is not notably large, it is shifted towards cooler water temperatures. For example, lionfish could be acclimated to temperatures as low as 12.5°C and exhibited a preferred temperature of 23°C. A similar study on blue-spotted ribbontail stingrays from the same back reef habitat yielded considerably higher acclimation and preferred temperatures of 17.5 and 28.2°C, respectively.

Together the results may explain the persistence of lionfish in cool US waters. Metabolic studies revealed that increasing temperature elevates biological rates exponentially, a feature consistent with the current hypothesis that warmer Caribbean Sea summer temperatures relative to the Pacific, have contributed to the rapid reproduction rate and alarming pace of lionfish expansion into the Caribbean.

The current plan is to repeat these studies with a Caribbean lionfish population at the Operation Wallacea site in Honduras. The potential exists to see significant changes in thermal tolerance characteristics between the two sites, owing to the small founding population in the Atlantic. Insights gained from these comparative studies will provide a better understanding of red lionfish thermal ecology between the two regions and how global climate change may effect lionfish distribution of both areas.

Original Publishers – Biodiversity Science
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Photo by Mr. KIO – Marine Photobank

TORTUGAS MARINE RESERVE

YIELDS MORE,LARGER FISH NO ECONOMIC LOSS TO FLORIDA KEYS FISHING COMMUNITIES

BY **NOAA**

A new NOAA research report finds that both fish populations and commercial and recreational anglers have benefited from "no-take" protections in the Tortugas Ecological Reserve in the Florida Keys National Marine Sanctuary.

The report, "An Integrated Biogeographic Assessment of Reef Fish Populations and Fisheries in Dry Tortugas: Effects of No-take Reserves," is the first to evaluate how the 151-square nautical mile Tortugas Ecological Reserve affects the living marine resources of the region and the people whose livelihoods are connected to them.

The report's analysis of long-term socioeconomic and scientific information found that after the ecological reserve was designated in 2001:

- Overfished species such as black and red grouper, yellowtail and mutton snapper increased in presence, abundance and size inside the reserve and throughout the region.
- Annual gatherings of spawning mutton snapper, once thought to be wiped out from overfishing, began to reform inside the Reserve.
- Commercial catches of reef fish in the region increased, and continue to do so.
- No financial losses were experienced by regional commercial or recreational fishers.

"The findings in this report are good news for NOAA management efforts to enhance fisheries and other natural resources in the Florida Keys," said Holly Bamford, Ph. D., NOAA assistant administrator for the National Ocean Service. "The results are equally important in other areas where NOAA science provides support to management decisions that are made to best utilize and protect our natural resources."

To assess economic effects of the area closure, social scientists from NOAA's Office of National Marine Sanctuaries and the University of Massachusetts, analyzed catch landings and revenues from commercial fishers (reef fish, shrimp, spiny lobster and king mackerel) and surveyed recreational fishing guides operating within the Tortugas region before and for five years after reserve protection.

"This research shows that marine reserves and economically viable fishing industries can coexist," said Sean Morton, sanctuary superintendent. "The health of our economy is tied to the health of our oceans. They are not mutually exclusive."

Key West commercial fishery landings had an estimated value of $56 million in 2011, up from $40 million in 2001, according to NOAA's Fisheries of the United States reports. Ocean recreation and tourism support approximately 33,000 jobs in the Florida Keys.

Contributors to the report also included researchers from NOAA's National Centers for Coastal Ocean Science, NOAA Fisheries Service, Southeast Fisheries Science Center, and University of Miami.

The 151-square nautical mile Tortugas Ecological Reserve was designated by the Florida Keys sanctuary in 2001, and its design involved extensive collaboration between commercial and recreational fishermen, divers, scientists, conservationists, citizens-at-large and resource managers. The reserve is closed to all consumptive use, including fishing and anchoring, and a portion of it is open to permitted marine researchers only.

Florida Keys National Marine Sanctuary protects 2,900 square nautical miles of critical marine habitat, including coral reef, hard bottom, sea grass meadows, mangrove communities and sand flats, as well as shipwrecks and maritime heritage resources. NOAA and the state of Florida manage the sanctuary.

Visit us online at floridakeys.noaa.gov or on www.facebook/floridakeysnoaagov

COULD TELA HOLD ONE OF THE CARIBBEAN'S BEST CORAL REEFS?

BY **DANIEL EXTON**, OPERATION WALLACEA

A newly discovered reef in Honduras could turn out to be one of the best coral reefs in the Caribbean.

Truly healthy coral communities are now few and far between and in the Caribbean they are a rare commodity indeed. The dual threats of overfishing and organic pollution in particular have led to widespread overgrowth of algae resulting in phase shifts away from traditional coral dominated systems.

For many years now scientists have been discussing the importance of so called refuge habitats for the continued survival of reefs around the world. These are typically environments which go against everything people associate with coral reefs – the crystal clear waters replaced by increased turbidity. These conditions have long been argued to buffer benthic communities from environmental factors such as high light, which plays such a crucial role in many global threats such as coral bleaching.

It is with these ideas in mind that, whilst descending below the surface in the murky waters several kilometres offshore in the mainland Honduran bay of Tela, a quite astonishing sight was revealed. Complex communities dominated almost entirely by Scleractinian corals covered the area known as the Banco Capiro, giving the reef the impression of a healthy Indo-Pacific site, let alone one in the highly impacted Caribbean.

Preliminary data collected by local conservation organisations indicates the Banco Capiro has an average cover of hard coral of 69% (compared to a Caribbean average of below 25%), and only 2.5% macroalgal cover. In addition, populations of the sea urchin *Diadema sp.*, a vital herbivore on Caribbean reefs which was almost entirely wiped out throughout the region by disease several decades ago, was found to be 16 times the local average and approaching pre-disease densities.

To put into context, reefs around the nearby tourist hotspot of Utila and the Cayos Cochinos Marine Protected Area exhibit coral cover of 25 and 18% respectively, algal cover of 23 and 47% respectively, and an urchin population which is absent but for a few isolated individuals.

Initial observations by Operation Wallacea scientists, who will be establishing an annual research base in the area from 2013 onwards, also noted a high level of coral recruits and the clear recovery of more complex coral structures (eg *Acropora sp.*) which were regionally reduced by recent hurricane activity. These factors further point towards an extremely healthy benthic community which shows signs of high resilience. This is no isolated good news story either, for the Banco Capiro reef stretches for many kilometres across the mouth of the bay, with exploratory dives suggesting the quality of the benthic community does not diminish throughout.

WORK TO BE DONE

But a healthy coral community does not necessarily equate to a healthy reef ecosystem, and it is not all good news on Banco Capiro. Apart from the impressive hard coral community, the most striking feature of the reef is the almost complete absence of fish, making diving eerily quiet. We know from anecdotal evidence that fishing pressure in the area has been high in the past, but also that the total collapse of fisheries has led to a high degree of livelihood diversification and a move away from heavy fishing reliance.

Fish and invertebrates are an integral component of a coral reef ecosystem, and their recovery on Banco Capiro will be crucial to the long term health of the system, but efforts are being made to ensure this happens. There are extensive mangroves and seagrass beds nearby, which provide important nursery grounds for reef fish, whilst Operation Wallacea will be working alongside local conservation organisations to lobby for the inclusion of Banco Capiro in nearby protected areas which currently ignore the marine environment.

There is certainly a feel good factor around Tela and its hidden treasures, with the potential both for conservation and research, an exciting prospect for local stakeholders and the scientific community alike. With this momentum and continued efforts to gain its protection, Banco Capiro could soon be truly considered as one of the most important reefs in the Caribbean.

Original Publishers – Biodiversity Science
www.biodiversityscience.com

EDA'S REEF CHECK TRAINING

To end 2012 off properly, EDA did the last Reef Check training of the year in December. We had an amazing team of 8 volunteers eager to learn all about reefs. The four days of training included classes about coral reefs as well as fish, invertebrates, different substrate types, and the threats this magnificent ecosystem faces nowadays. Thanks to the amazing support of Al Boom Diving, our classes were done within their facilities where we could enjoy the company of their friendly staff. As any other diver training, we finished our four days of hard work underwater. Yes there was for an underwater exam, but they all did a great job in the end.

With three beautiful starts to their Reef Check cards, the new Reef Check volunteers are now able to join the EDA Reef Check team on our monthly surveys and help us collect important data regarding our coral reefs. We are looking forward to our first 2013 Reef Check training. We hope you will be able to join us when we announce the dates!

REEF CHECK TRAINING IN DETAIL

If you are wondering whether or not Reef Check training is for you, maybe taking a closer look at the topics we cover in the training will help you make your final decision.

Reef Check training is not only for those who dream of or have dreamt of becoming a marine biologist, but for everyone that loves to snorkel and are enquisitive about our marine environment. Are you concerned about the threats our marine wildlife is facing, and how you can help? Then this training is definitely for you. The UAE Reef Check EcoDiver program gives any UAE diver the chance to learn more about coral reefs and how to act by taking on an active role in the conservation of, not only the UAE's reefs, but the rest of the world's also.

INTRODUCTION TO THE REEF CHECK ECODIVER COURSE

- What are coral reefs and why are they so important?
- What environmental factors do coral reefs need to stay healthy?
- What are the threats facing coral reefs worldwide?
- What are the threats facing your local coral reefs?
- What are the solutions to these problems?
- Why is coral reef monitoring important?
- Reef Check's history and the importance in global coral reef conservation efforts.
- EcoDiver survey methods.
- Identification of target species.

FISH

- Fish monitoring methods
- Long-term fish monitoring
- Which fish do we count? Look at the different species of groupers, parrotfish, butterflyfish, moray eels, snappers, the exquisite Humphead Wrasse and the Barramundi Cod.

INVERTEBRATES

- Invertebrates monitoring methods
- Which Invertebrates do we count? Learn more about banded coral shrimps, lobsters, crown-of-thorn starfish, sea cucumbers, sea urchins, giant clams and tritons.
- Impacts: Coral bleaching, coral disease, destructive fishing, trash and other coral damage.

SUBSTRATE

- The basic Reef Check substrate categories.
- Learn how to identify different hard corals, soft corals, sponges, ascidians, algae and many more.







REEF CHECK
BEST DIVING PRACTICES

RESPECT THE REEF
1. Observe but don't handle marine life
2. Avoid feeding reef creatures
3. Use waterproof sun block
4. Leave no trash behind

BRING HOME MEMORIES, NOT REEF SCRAPES
1. Master neutral buoyancy
2. Keep dive gear from dragging on the reef
3. Stand and walk on sand, not on corals
4. Keep fins away from the reef

KNOW AND FOLLOW LOCAL REGULATIONS
1. Respect no-fishing and no-collecting areas
2. Stay within catch and size limits
3. If collecting shells, make sure they are empty

GO BLUE
1. Patronize reef-friendly dive shops, hotels and tourist operators, especially Reef Check Certified Facilities
2. Ask what operators are doing to monitor and protect their reefs

GET INVOLVED
1. Join Reef Check and become an EcoDiver
2. Help spread best diving practices
3. Take a reef education course

REEF CHECK CONCLUDES
FIRST COMPREHENSIVE SURVEY OF BRUNEI REEFS

BY **DR. GREGOR HODGSON**, REEF CHECK'S EXECUTIVE DIRECTOR



ABOVE FROM LEFT | Transect line crosses Table Acropora; Alvin does RC survey; Feather star and barrel sponge.

Reef Check recently completed work on the baseline Marine Protected Area (MPA) monitoring in Brunei, a small nation located on the north coast of the island of Borneo, in Southeast Asia. Located at the edge of the Coral Triangle near the world center of marine biodiversity, the reefs exhibit a very high biodiversity. Reef Check was requested by the Brunei Department of Fisheries (DOF) to carry out a survey of its coral reefs, most of which were placed inside a new network of MPAs that was implemented January 1, 2012. Each of the reefs located within the MPAs is a no-take fishing area. The baseline survey will allow the DOF to track changes and hopefully improvements in the health of the country's coral reefs over time.

A team of six scientists from Reef Check International (RC), Reef Check Malaysia and the National University of Malaysia surveyed 36 reef sites in April 2012 using the Reef Check protocol augmented with video, still photographs and roving swims to document fish families. An additional 7 sites were previously surveyed in October and November 2011. These 44 sites covered all major reefs in Brunei waters and included sites from the three MPA areas, as well as Champion Oil Field which is currently not included in the MPA network.

A second and more detailed round of surveys was carried out in October 2012 that added a great deal of new information about the condition of Brunei's coral reefs and species living there. For this set of surveys more information was obtained on the distribution of coral genera and non-coral invertebrates that are not part of a standard Reef Check survey. In addition, fish surveys were carried out to determine the distribution and abundance of target species of interest to fishermen and biomass of populations of food fish was calculated.

The October surveys confirmed the April findings that Brunei's reefs are all structurally similar with a very low vertical profile and low relief due to geology and present day influences of freshwater, turbidity, sedimentation and wave action which all negatively affect the ability of corals to reproduce and grow in Brunei. Large (5-10m diameter) "bommies" comprised of individual Porites coral colonies are found sporadically at most sites and provide habitat for resident reef fish including high value commercial fish such as Sweetlips (Haemulidae) and Grouper (Serranidae).

Reef Check indicator fish populations are quite low and most food fish are immature, indicating over fishing of these reefs. Enforcement of the no-take zones will be an important goal that will allow the reef fish populations to repopulate naturally.

The coral cover ranged from a low of 9% at Otter Shoal to a high of 76% at Abana Rocks. The average coral cover of about 40% is consistent with reefs in the region. Nutrient Indicator Algae is low at most reefs but reached as high as 15% at some reefs, indicating a lack of herbivory. For no apparent reason, there are almost no sea urchins on Brunei reefs, exacerbating the lack of herbivorous fish. Coral consuming Crown-of-Thorns Sea Stars (Acanthaster) and the gastropod Drupella are present but not abundant. Two invertebrate indicators for food collection – spiny lobster and giant clams – were recorded in low numbers and most were small to medium size. The low numbers of small size classes of giant clams recorded indicates that there is little successful reproduction and recruitment occurring on Brunei reefs. Therefore it may be necessary to introduce aquacultured clams to build up the populations to the size where they can begin to reproduce naturally.

Little trash was observed on Brunei reefs, however, ghost nets were found on almost all. At the Champion Oil Field sites, quite a lot of construction debris was found on most reefs. The underwater visibility during the surveys ranged from 6 to 20m, and the water colour was typically green or yellow indicating a high density of phytoplankton.

Prior to the baseline survey, very little was known about many of the reefs of Brunei and there had never been a comprehensive survey done. Annual re-surveys of the reefs are recommended so changes due to the implementation of the MPAs can be assessed.

'The baseline survey will allow the DOF to track changes and hopefully improvements in the health of the country's coral reefs over time'

THANK YOU FOR ANOTHER SUCCESSFUL YEAR!

BY **DR. GREGOR HODGSON**, REEF CHECK'S EXECUTIVE DIRECTOR

Thanks to your generous support, Reef Check volunteers in California and around the world have been working hard to save our rocky and coral reefs.

This year we worked with the small Asian country of Brunei to set up its first system of Marine Protected Areas that placed an unprecedented 90% of its coral reefs into no-take conservation areas. Although tiny, Brunei is biologically important because it is near the world center of marine biodiversity – more species of corals and fish than anywhere. Because of unique local conditions (high turbidity) that help block sunlight, Brunei's reefs have been protected from the ravages of coral bleaching that have damaged reefs in Thailand, the Philippines and Indonesia. They form a genetic bank of species that will help to maintain coral reefs forever.

Here in California, we trained over 200 new volunteer divers and our teams tracked the health of rocky reef ecosystems at over 80 sites following the completion of the new Marine Protected Area Network in our state. With your help, we will soon release a report on our first six years of monitoring California rocky reefs. The initial results are promising, with some good signs of progress in protecting the underwater world we love.

From one of the richest countries in the world in Brunei, to the poorest, Haiti, Reef Check tries to bring together governments, academics, businesses and other environmental groups to try to find solutions to marine and coastal conflicts. In Haiti, we are working with the government and USAID to set up the first Marine Protected Area in the country and to promote the potential of the reefs of Haiti to help save lives through fish and shellfish production. Thanks to your help, our first team of Haitian students has completed both their scuba and Reef Check EcoDiver certifications. Remember this is the group of university students who did not know how to swim one year ago. Some have already participated in a survey expedition along the south coast.

It is amazing – but Haitian kids don't know how to swim let alone snorkel. We are trying to change this with our kids programs.

So many generous supporters like you came together this year with a shared sense of purpose and a common goal: to save our reefs and oceans. We could not be more grateful for your support or more proud of what we have accomplished together.

With your help, in 2012, our scientific data was used locally in dozens of countries to help manage coral reefs internationally and here in the US to help make important decisions regarding how to better manage both coral reefs in e.g. Hawaii and Florida and to track the status of newly declared Marine Protected Areas in California. We continue to assist the government of Mexico to establish sustainable fisheries across three regions of the country, but especially with a focus on our neighbor, Baja California. Our education efforts helped create "ocean awareness" for hundreds of children from tropical countries by showing them first hand – with a mask and snorkel – the beauty and importance of reefs.

We could not have done this important work without you!

Sadly, the threats facing our reefs and oceans continue. Please consider making a special year-end gift to help support our work both here in California and internationally. Your gift today, either by making a donation or becoming a Premium member of the Reef Check Foundation, will help support our efforts in conservation, education, and research. It doesn't cost a lot to make a real difference:

- $25 can provide training materials for a Reef Check EcoDiver in Haiti.
- $50 purchases survey materials for an entire reef monitoring team in the Caribbean.
- $100 can cover the boat cost for 1 diver's reef survey in California.
- $250 covers the cost of a kids training in Southeast Asia.

This year we learned that even the Great Barrier Reef in Australia has lost 20% of its living coral due to avoidable human impacts. And yet we are having success in some areas. In the Philippines where dynamite fishing is rampant, we have helped to stop it in the central islands around Cebu. Now more than ever, we need your help. In the coming year, additional funding is needed to ensure we continue these successes. Remember, for every dollar donated, it is multiplied many times by thousands of volunteers in California and around the world.

NEW ECOEXPEDITION TO MYANMAR

REEF CHECK/ECOSWISS ECOEXPEDITION: MERGUI ARCHIPELAGO, MYANMAR **EXPEDITION DATES:** 10-19 April 2013

INTRODUCTION

ECoSwiss welcomes all passionate divers who care about corals and conservation to join the Reef Check Expedition to our study area in Myanmar! This project is part of our trans-border MABR conservation programme and promotes international collaboration on nature conservation and awareness. We particularly encourage recreational divers to join reef scientists in the first extended expedition to survey the basic health of the coral reefs around the Bada Island group. Burmese, Thai and international divers and scientists are warmly welcome!

LOCATION

10 day expedition on board the MV Thai Sea, from 10th to 19th April 2013. We'll explore and collect data at our study area, the Bada Island group (about 12 islands) in the southern part of the Mergui Archipelago, Myanmar.

AIMS

1. To collect information on coral reef health status and composition in the study area (Bada group of islands).
2. To train Myanmar, Thai and international divers and researchers in Reef Check survey methodology.

ACTIVITIES

- Up to 3 dives per day including 1-2 Reef Check surveys in unusual dive sites and additional recreational dives (day & night). Coral reef surveys include identification of substrate, fish and invertebrates.
- Wherever possible, manta tow surveys for coral distribution mapping and estimation of coverage of different ecosystems.
- Theory classes on Reef Check methodology and marine biology.
- Entry and evaluation of collected data on board. All the data is submitted to the global database.

EXPEDITION COST: $2,000

SPECIAL REQUIREMENTS

This expedition focuses on Reef Check surveys. The minimum requirement for participants is a diving certification (PADI, SSI, etc.) and excellent buoyancy.

For more information about the Myanmar EcoExpedition and how to sign up, please visit the website: http://www.ecoswiss.org/mabr-programme/reefcheck-expedition-april-2013/

REEF CHECK THAILAND TAKES PART IN GO ECO PHUKET – DIVE AGAINST DEBRIS EVENT

BY **DR. SUCHANA APPLE CHAVANICH**, REEF CHECK THAILAND COORDINATOR

On September 30, 2012, Reef Check Thailand was proud to be part of the biggest diving event in Phuket – "Go Eco Phuket – Dive Against Debris".

The event was organized by PADI Project Aware with the support from several Thai government offices, PADI dive shops, PADI professionals, PADI divers as well as universities and volunteers. More than 500 divers and 200 volunteers participated in this event.

In addition, 14 vessels were generously donated and sponsored by the dive shops for use during the event. Reef Check Thailand generously sponsored one of the Scuba Cat Diving boats.

Go-Eco Phuket's goals were to safely remove debris from the reefs and beaches of Phuket and other surrounding islands, and to build a network of eco divers to raise awareness and find solutions to local problems. At the end of the underwater cleanup, about 15 tons of debris was removed.

REEF CHECK WINS 2012
KATERVA AWARD FOR ECOSYSTEM CONSERVATION

Reef Check Foundation, a southern California based non-profit organization won the international Katerva Award for Ecosystem Conservation for its innovative citizen scientist reef monitoring and conservation approach. Winners were announced on January 30th, 2013. Reef Check's mission is to empower local communities through grassroots research, conservation, and education to protect and rehabilitate reefs worldwide. Through its Tropical Reefs, Baja California, and California programs, Reef Check has grown into the largest global reef monitoring organization, a feat that is now being recognized by the Katerva Awards.

The Katerva Award is billed as the Nobel Prize in sustainability, where "the best ideas on the planet are identified, refined and accelerated for global impact" (Katerva, katerva.org). According to Terry Waghorn, founder and CEO of Katerva, "Today's unprecedented challenges require a new kind of organization, one that optimizes the world's unprecedented interconnectedness, prioritizes action and systematically taps the most innovative ideas on the planet. Katerva is that organization: designed to convene, catalyze and accelerate breakthrough solutions to global challenges."

In winning this 2012 Katerva Award, Reef Check Foundation has thus been named the world's top Ecosystem Conservation organization.

"We are overjoyed and very honored to have won the 2012 Katerva Award for Ecosystem Conservation in recognition of more than a decade of work to conserve reef ecosystems worldwide. This award is a testament to the passion and dedicated effort of more than 30,000 volunteers and hundreds of partners and supporters in over 90 countries and territories around the world who have undergone rigorous training so that they can carry out scientific surveys of reef conditions, produce standardized data, and help governments sustainably manage their local reefs. This direct action by citizen scientists has resulted in slowing the decline of reef ecosystems and in many cases helped to return reefs to their natural condition. This award renews our resolve to continue our global efforts to improve reef status against alarming predictions of rapid climate change," says Reef Check's Executive Director, Dr. Gregor Hodgson.

With this award in hand Reef Check hopes to catalyze the energy, awareness and passion of new supporters and partners to further grow our worldwide efforts to conserve reefs as one of the world's leading ecosystem conservation organizations.

Founded in 1996 by marine ecologist Dr. Gregor Hodgson, Reef Check Foundation is an international nonprofit organization dedicated to conservation of two ecosystems: tropical coral reefs and California rocky reefs. Reef Check programs provide ecologically sound and economically sustainable solutions to save reefs, by creating partnerships among community volunteers, government agencies, businesses, universities and other nonprofits. The Reef Check California program, established in 2005, continues the organization's global mission locally by empowering California's ocean enthusiasts, through education, training and community engagement, to become active stewards of California's marine environments.

MEGA MALIBU, MEGA FUN FOR THE FIFTH YEAR!

BY **COLLEEN WISNIEWSKI**, REEF CHECK CALIFORNIA'S SOUTHERN CALIFORNIA MANAGER

Saturday, October 20th, 2012 marked our fifth fall survey cruise to the beautiful coast of Malibu, California. Nicknamed "Mega Malibu", this is a unique trip where we fill the boat with dedicated and hearty Reef Check Californian divers, head up the coast to the farthest site and do survey dive after survey dive as we work our way back to the harbor. Our goal this year was to start at Leo Carrillo, move on to Lechuza, proceed to Paradise Point/Little Dume and then end the day at our fourth and final site, Big Rock. Typically we just do the first three sites, but this year we were trying to take advantage of our huge team so we could complete this additional survey.

Mega Malibu always draws a crowd, despite the fact that it's a very long day and the diving conditions typically aren't stellar. Usually we have some fairly surgy conditions along this stretch of coastline and I've rarely encountered amazing visibility at any of the locations. Despite all this, the sites are beautiful and each is very different from the next. This year we had a team of 16 divers on the boat, many of them having joined us on previous Mega Malibu expeditions, including Michelle Hoalton, who had this to say after all was said and done, "We call our Malibu survey "Mega Malibu" for a reason as Mega Malibu = Mega Fun! There is such a wonderful diversity of marine life and underwater structure to explore that I always make attending this survey a priority. I have been fortunate to participate in this survey with Reef Check four out of the last five years. This is not a destination that is easily accessible for diving without a special boat charter. It's an exceptional treat for us divers and it has been a pleasure to monitor these sites for the last several years."

This year we ran the trip a little differently than in the past – we boarded the Magician Dive Boat in San Pedro harbor the night before. We departed just after midnight and traveled through the night, awaking at our first site just as the day broke under very cloudy skies. Unfortunately, our lofty goal of surveying four Malibu sites was thwarted due to very poor underwater visibility at our first destination. We ended up aborting the dive at Leo Carrillo, but lucky for us, conditions improved as the day moved on, with better conditions at Lechuza and then the best conditions of the day at Paradise Point/Little Dume, my favorite of all the four sites. After I was done with my data collection at that site, I looked around and observed a plethora of kelp, fish and invertebrates, including sea stars, sea cucumbers, giant keyhole limpets, urchins, lobsters and even several abalone nestled in the shelf-like cracks along the bottom. And I believe everyone (except me!) spotted either a horn shark or a swell shark here. It's easy to get engrossed in following the cracks along the bottom, searching for all the critters at this site and then suddenly realize that you are farther from the boat than you had thought – it happens to me every time at this site! Our last dive was at Big Rock, which was formerly a shore dive for our team, but after years of stumbling over large rocks in the surf zone, I think it will now officially be a boat dive. I look forward to exploring this interesting site more when the visibility is a bit better, but wow, what amazing rock formations underwater!

Our team has just recently completed all of our 2012 surveys and it was a very productive year for us in the field. While we are taking a brief break from our transects and slates, I think back fondly at all the smiling and enthusiastic divers who joined us for the challenging, but mega fun, Mega Malibu 2012. It's a huge effort and we couldn't possibly do it without all of them!

REEF CHECK CALIFORNIA COMPLETES SEVENTH YEAR OF MONITORING

BY **JAN FREIWALD**, REEF CHECK CALIFORNIA DIRECTOR

Reef Check California has just finished its seventh year of surveying the rocky reefs along the California coast. 2012 has been very successful and the program has surveyed more sites than in any previous year. We conducted 15 volunteer trainings to get new divers involved and ready to survey California's reefs. We also held 11 recertifications during which long-term volunteers recalibrated their skills and were tested before data collection began this year. We surveyed a total of 73 sites and completed 85 surveys at these sites. This enabled us to continue to monitor marine protected areas (MPAs) in the regions of the state where the baseline monitoring had been completed in previous years and allowed us to track the long-term development of the reserves. In southern California, RCCA just completed its second year of MPA baseline monitoring of the MPAs that were established in January 2012.

To grow our monitoring program, we formed several new partnerships with universities and research institutions. For the first time this year, we trained scientific divers from the California State University Monterey Bay, University of California Santa Cruz, and from NASA's research facility in Mountain View, CA. We are excited to have formed these additional partnerships; they join our growing network of institutional partners throughout the state. We look forward to working with all our partner groups in the coming year to train more of their divers to conduct surveys, to collaborate on research projects and to provide our data to the many student projects that are using it.

In addition to the surveys our citizen scientists conducted, we worked on several collaborations in 2012 to put the data our dedicated volunteers collect year after year to good work. In the central coast region, where MPAs are coming up for their first five-year review after being established in 2007, we worked with the MPA Monitoring Enterprise and other researchers that conducted baseline monitoring of these MPAs. Through this collaboration, we are establishing a regional baseline of the status of reefs in central California as well as investigating early initial changes in the populations and communities inside the MPAs. This work is almost completed and the results of this first region wide review of MPAs established under the MLPA (Marine Life

Continued on next page

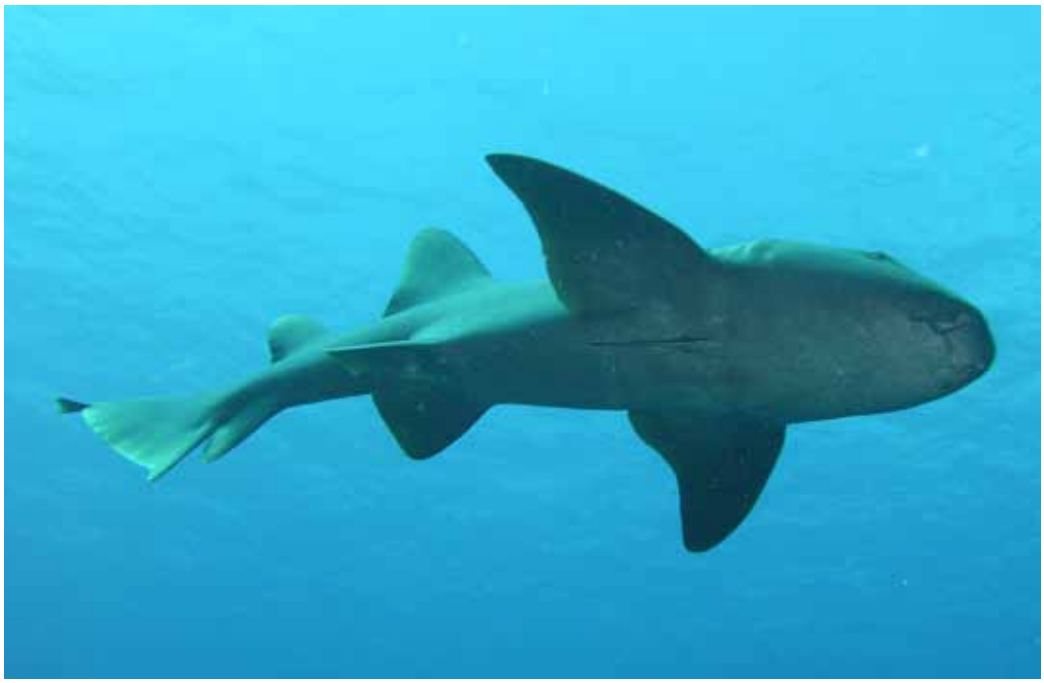
Protection Act) initiative will be presented at a public symposium in Monterey from February 27th to March 1st 2013. As a continuation of this work in the central coast, RCCA also began participating in a working group convened at the National Center for Ecological Analysis and Synthesis (NCEAS) to develop indicators of kelp forest ecosystem conditions or health for the region. This group of kelp forest ecologists is developing an expert judgment process that will be used to assess the conditions of kelp forests inside and outside of MPAs in order to be better able to inform adaptive management of these ecosystems in the future.

In southern California, RCCA is bringing its seven years of data to the table at the development of a new region wide effort, the 2013 Southern California Bight Regional Monitoring Program (Bight '13). This project, organized by the Southern California Coastal Research Project (SCCWRP) is a continuation of previous efforts to bring together researchers and agencies from the region to conduct an integrated assessment of the southern California Bight every five years. RCCA is participating in a working group focusing on MPAs and rocky reefs that will investigate the relative effects of pollution and fishing pressure on the conditions or health of rocky reefs in southern California. Just as in the central coast, this project will make good use of the data RCCA volunteers and staff have worked so hard to collect over the years.

Both of these collaborations are examples of how long-term datasets such as RCCA's are being used more and more to inform our understanding of the ecosystems along our coast and to investigate the effects of human impacts to inform their future management. We would like to thank all of our volunteers and our supporters and funders for their continued work with us. We could not do this important work without your help and support! We look forward to another successful year in 2013 and wish everyone a restful holiday season and a happy and peaceful new year.

SURVIVAL OF THE FITTEST, WITH NEW MEANING

BY **K. RAMESH**, UNIVERSITY OF PLYMOUTH



Sharks are a diverse group of fish that exhibit different reproductive strategies. Whilst many species of shark are 'egg-laying' and produce hardened cases commonly known as mermaids purses – within which young sharks grow – other species give birth to live young. This is similar to the way most mammals reproduce. The female shark has a placenta, and the pups develop in the uterus. However, in some of these species, sibling rivalry ensues. Research has revealed that in some species of sharks, early hatchers or the fittest young feed on their siblings for nutrients. This is known as intrauterine cannibalism.

This phenomenon of intrauterine cannibalism is also thought to occur in the fire salamander and some species of bony fish [1,2]. In sharks, there are two forms of intrauterine cannibalism. The first is where one embryo consumes another, referred to as 'adelphophagy' which literally means 'eating one's brother' and is seen in grey nurse sharks. The other is where embryos feed on a supply of unfertilised eggs and is referred to as 'oophagy' and is seen in shortfin mako sharks.

The most thoroughly studied cases of intrauterine cannibalism are reported in the grey nurse shark, where the female has two uteri and gives birth to two live young, one from each uterus. Although the female produces several eggs, the fittest pups use their instinct and embryonic teeth to consume other embryos in the uterus. Once, having consumed their sibling embryos, these pups continue to feed on unfertilised eggs till a month prior to their birth, where egg production ceases. It is survival of the fittest in the sharks' womb. Due to their embryonic diet, grey nurse shark pups enter the world bigger than other species of shark pups measuring up to one meter long [3]. Approximately 14 species of sharks are reported to practice intrauterine cannibalism [4]. Although the exact reasons for intrauterine cannibalism to occur are unclear, it may allow for the success of the independent nature of shark pups that swim away from their mothers after birth. In addition, the nourishment they receive through intrauterine cannibalism allows them to evade predators on birth due to their large size.

Intrauterine cannibalism reduces a females' litter size for each gestation period and therefore, has significant implications for the conservation status of endangered and threatened species of sharks. Current research is looking to develop surrogate shark wombs to allow higher litter production rates. Scientists plan to harvest embryos from pregnant females in the wild, and keep them in specially designed artificial uteri in laboratories. Once introduced into artificial wombs, the embryos will be fed with artificial shark eggs until they attain birth size, and then released into the wild.

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MOTIVATIONS BEHIND CONSERVATION VOLUNTEERING REVEALED

BY **JACQUELINE ABELL**, LANCASTER UNIVERSITY

A new study investigating what motivates people to conserve other species – and offer up their time voluntarily to help achieve this – reveals that empathy and guilt drive the behaviour.

NGO conservation organisations rely on volunteers to provide unpaid assistance. Help offered includes animal husbandry, veterinary aid, administration, research and management. What drives people to aid conservation efforts to save endangered species?

EMPATHY

Social psychologists show the key to pro-social behaviour between humans is empathy towards those we identify with. We assist those we believe we have things in common with and who are similar to us in some way. These similarities do not have to be physiological but can be constructed on the basis of other features.

The current study examined how shared identity operates in motivating people to conserve non-human species. Open-ended questionnaires given to 111 international volunteers working on global animal conservation projects involving a range of animal species, asked why they had got involved and what motivated them to continue.

Qualitative analysis revealed that shared identity with either the animal and/or the NGO's values was key to the decision to volunteer and to continue. Volunteers could create shared identity with the species being conserved through either place (we all live on earth) or anthropomorphism (the attribution of human characteristics and cognitive capabilities).

Previous studies show that anthropomorphism is common when the animal is mammal, but the current study revealed that species did not matter. A reciprocal relationship was perceived between human and animal, particularly when the work involved direct contact with the species (being 'hands on'). Touch promotes connection.

GUILT

Other motivating factors include human guilt. Most volunteers reported that as humans have destroyed and exploited biodiversity, it is our duty to repair the damage. Conservation is an opportunity to relieve some of that guilt for the common good. This gives the volunteer positive self-esteem.

Conservation NGOs must provide helpers with a positive identity. Social psychologists emphasise the importance of positive self-image and social identity in guiding human behaviour. Where volunteers reported feeling used, undervalued, and subject to significant others questioning the reputation of the NGO, he/she would cease providing help.

Any conservation practice that is implemented which requires volunteers' needs to take into account the human psychological factors that embraces or rejects it. Specifically, being given an opportunity to identify with the animal being conserved, the NGO's values, and the chance to redress the damage done by humans, seem to be at the forefront of volunteers' minds. As long as NGOs require volunteers to protect biodiversity, they will need to engage with the psychological factors required in recruiting and maintaining that help.

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PROMOTING THE CONSERVATION OF DOLPHIN SPECIES AND THE LOCAL MARINE ENVIRONMENT

UAE DOLPHIN PROJECT

FEATURE AND PHOTOGRAPHY **ADA NATOLI**

"Are there dolphins in Dubai waters?", this is the question that I have been asking around for the past two years. If you are a diver, your most probable answer will be, "Yes, sometimes we see them at our diving locations…", but if you ask any ordinary person, they will probably stare at you with a smile of surprise saying, "Really? Dolphins in Dubai?". If you ask children if they have been to one of the dolphinariums, they will jump up shrieking, "Yes! I swam with them!", but most of them will just look at you speechless. The crude reality is that this is not too far from what we actually know about wild dolphins in Dubai and in general, UAE waters, if not the whole Gulf!

The UAE Dolphin Project is a non-profit initiative that aims to investigate the dolphin population along the UAE coastline, to provide scientific baseline information and raise public awareness. The main targets are to implement a research programme focused on monitoring the coastal dolphin population in UAE waters, starting from the Dubai coastline, as well as running a media campaign and educational programmes involving the public, private and governmental organisations.

Being the first initiative focused on cetaceans in the Gulf, it entails the collaboration of everyone: national and international, private and public institutions and organizations. Indeed, everyone can actually help a lot. On our recently launched website, www.uaedolphinproject.org (kindly sponsored by Superprogetti.it), everybody can report a dolphin sighting by filling a simple online form and can also view all sightings reported in detail through an interactive sighting map. The data needed is simple: date, time, location (even a landmark if GPS coordinates are not available) and if you can, a picture or a video. It is a very simple action that can make a great difference. Particularly in areas like this, where no baseline information is available, occasional sighting data can provide crucial information to better design a dedicated research survey. On the project website, the public can also find general information on how to approach dolphins safely in case of an encounter, information about the most frequent dolphin species sighted in the area, how to recognize them, and also the latest news from other research projects on dolphins around the world.

The idea of launching this project in the UAE stems from the realization that there is virtually no information on whales and dolphins in the country and the region. A survey dedicated to assess local dolphin populations has never been conducted in the UAE nor in the Gulf. Although over ten species

of whales and dolphins have been reported, the Gulf is considered "data deficient" by the international cetacean scientific community and no baseline information is available on the status of the dolphin population: prevalence of species, whether they are resident, transitory, or whether the populations are declining. In the UAE, the only information available on small cetaceans comes from two aerial surveys on dugongs conducted in the Abu Dhabi area in 1986 and 1999. Although species were not identified, authors estimated a decrease of 71% in small dolphin sightings in 13 years. The rest of the UAE coastline has never been monitored for small cetaceans, but in several areas, dolphins are regularly seen.

From a survey questionnaire I ran last year involving government officials and participants that frequently participate in marine-related activities, I was surprised to find out that 84% of the people interviewed, had seen dolphins in Dubai waters and although the majority affirmed that they see dolphins only "sometimes or rarely", 74% had seen dolphins in the four months prior to the survey, suggesting that dolphins inhabit these waters more frequently than expected. Interestingly, most of the sightings were reported within 5 miles from shore and in very frequented coastal locations such as in front of the Palm Jumeirah and the Burj Al Arab.

Whales and dolphins play a crucial role in the marine ecosystem. Being at the top of the marine food chain, together with other species such as sharks and top marine predators, they are "Ecological Indicators" of the status of the sea. The presence of a healthy dolphin population means that the marine environment can sustain them and therefore is in good condition. Protecting dolphins means immediately protecting the whole marine ecosystem that sustains them. At least three species of dolphins are reported to frequent the Dubai coastal waters: the Indo Pacific bottlenose dolphin, the Indo Pacific humpback dolphin and the rare finless porpoise. They all share two common features, they are typically coastal species and have a tendency to be resident. This makes them more vulnerable to anthropogenic activity, generally more likely to impact coastal waters.

We aim to gather baseline information at least on these three species of dolphins, conducting a dedicated transect survey initially in Dubai coastal waters. The transect survey is a well established technique that implies monitoring an area with a boat at a constant speed, following predetermined transects, ensuring that the whole area will be covered. During this process, sightings, species and the number of animals are recorded. The statistical analysis of this data allows us to estimate the frequency of the species occurrence, the population size and the habitat used. Furthermore photo-identification data will be collected, enabling to estimate residency pattern, social structure and life history parameters. Duretti Boat Manufacturing has kindly agreed to sponsor the construction of a boat dedicated to the project for the duration of the survey. We are looking forward to seeing it in action! For the research part of the project, we will be looking for volunteers to come on board to join the research team, so if you are interested, please contact us.

"You love what you care for, you care for what you know". We believe that if people know about dolphins and the local marine environment and understand their importance, then conservation programmes will be effective. As part of our public awareness campaign, we are trying to reach as many of you as possible; you can follow the project by subscribing to the monthly newsletter, Facebook or the Twitter page. We are also contacting local schools, marinas and diving centres. If you know any group or institution that may be interested in becoming an Endorser for the project by helping us raise public awareness, please pass on our details, we will be happy to hear from them. Subscribe to our monthly newsletter and be kept up to date with the project's latest news. With the kind support from EDA, we will provide you with more interesting information about dolphins within the next few months and the project's progress.

Finally, we would like to thank our Endorsers: first of all, the Marine Environment and Wildlife Section of Dubai Municipality, that from the onset of the project has been extremely supportive, EDA, Absolute Adventure, Nautica, Wild Planet Productions and Nithyanandan Manickam, and everyone that has posted a sighting!

If you encounter a dolphin or a whale, dead or alive, please report your sighting on www.uaedolphinproject.org! Alternatively, you can text the information (Date, Time, Location and/if you have, a picture) to 056 671 7164 or post it on the project's Facebook or Twitter page.

Photo by Martina Fella

TOP | *Janolus indicus*, never seen before in the UAE.
BELOW FROM LEFT | *Goniobranchus tinctorius, Hypselodoris dolfusi, Eubranchus sp.*

SLUG OBSESSION

FEATURE AND PHOTOGRAPHY **STEWART CLARKE**

Lately a realization has been dawning on me that I have been somewhat reluctant to face up to and admit. The signs have been there for some time but it's really only been in the last year that my symptoms have been growing more acute and obvious to those nearest and dearest to me. I have a confession to make, and the nature of this confession may bring about confusion amongst those members of a wider society that have not been touched by this disorder. On those occasions when I have discussed this affliction with friends in a social setting, especially those friends of a non-diving persuasion, an embarrassed silence pervades the group and the subject is quickly changed. I've tried to rationalize it with them but this just seems to make the situation worse.

So here goes, a public confession…I'm obsessed by slugs, otherwise known as Nudibranches. On the face of it, this may not seem like such a big deal, a bit eccentric perhaps but not something that will carry a social stigma resulting in me becoming shunned by polite society. But yet of late, I have felt unease amongst fellow divers and caught the odd look of pity. I'm sure trainspotters have a similar feeling whilst huddled on a cold blighted platform at Crewe station waiting for a certain train to come in as fellow passengers look on with distrust.

Five years ago when I first came to the UAE, the situation was somewhat different. I had seen the odd Nudibranch but apart from taking note of their bright colouration, my level of interest in them was somewhat low scale. Then I started getting a bit more serious about underwater photography and my interest in slugs started growing. At this time I wasn't specifically searching for them, but those I found always made a nice subject underwater and the more I found, the more I found myself trying to determine what they were. Then I discovered macro photography, I upgraded my camera equipment and bought some macro lenses and from that point, I was on the slippery slope.

Then 18 months ago, I found myself on a Garuda Air flight descending into Manado in North Sulawesi in Indonesia. I was headed to Lembeh which is seen by many as capital of macro photography and specifically muck diving. For someone with a casual interest in Nudibranches and all things macro, this was the tipping point. I was blown away by the sheer variety and colour forms of the slugs contained here and followed the guides closely trying to learn how to find them. A month after returning, I found myself at the Miramar on the East Coast of the UAE. I was there for a quiet weekend away but took the opportunity to do a couple of dives with Divers Down. After Lembeh I had resigned myself that UAE diving would never come anywhere close, especially when it came to finding Nudibranches. However, that morning we dived Inchcape 2, and utilizing what I had learned in Lembeh and taking a different approach to my diving technique (slowly, slowly) I found myself somewhat surprised.

Inchcape 2 started life as an oilfield supply vessel, but in 2002 it was prepared and sank specifically to provide a new dive site on the East Coast of the UAE. Paul Sant of Divers Down was involved in that project along with the sinking of a further two vessels, Inchcape 1 and Inchcape 10. It lies at about 22m leaning slightly to port, and is missing its original wheelhouse that disappeared after Hurricane Gonu struck in 2007. To the less observant it is a pretty unremarkable wreck inhabited by various schools of snapper, moray eels, scorpionfish and the odd seahorse. However, to those in the know, it is probably the most biologically diverse dive site per sqm in the whole of the UAE. For those that suffer with my affliction, it is quite simply the UAE's version of Nudibranch heaven.

Over the last year, a small band of divers have been spending many of our dives on Inchcape 2 specifically looking for Nudibranches and as a result we are coming across a few surprises. After a number of discussions, Dragan Petkovic and I wanted to try and record the different species to be found on this unique site. I first met Dragan on a Photography workshop being held at Divers Down and it soon become apparent that we held a similar interest in slugs. Dragan has a collection of Nudibranch photos going back a few years with all sorts of amazing finds. We've also been lucky enough to get feedback from Carole Harris who was one of the pioneers for photographing Nudibranches in the UAE waters, and who has been very helpful with regards to identifying some of our finds.

We have begun to find new species on almost every dive, many of which were undescribed to science. Thus far, we have recorded at least 36 separate species on Inchcape 2 alone and we are expecting to find more. This is quite remarkable when you consider that on Nudipixel.net, a website that tracks Nudibranch species across the world, only 33 species are recorded across all of the UAE waters.

Some of the species we are finding have only ever been recorded before in waters as far away as New Caledonia, Australia, Japan or Indonesia. Some were thought to be endemic only to the Red Sea – but for some reason they are turning up on a specific site in the UAE. There is a chance that they have always

been there, just that in the past no one was looking for them, although I suspect that ballast water from container ships is playing a role. Many large ships draw in vast amounts of coastal water as ballast from whichever locale they happen to be in, and which can contain a veritable soup of marine organisms, they then dispense this water at their next port of call. The vicinity of Inchcape 2 to Khorfakken's container port, means it is likely that larval forms of sponges and gastropods are being brought from around the world and then settling on the surrounding reefs.

It's not just strange Nudibranches that have been turning up either. For quite a few months last year we had a small colony of Spiny Tiger Shrimp make Inchcape 2 their home, we haven't seen them for a bit but are hoping they will make their presence known again. Then in February 2012, I had just returned from a dive trip in the Philippines, where one of the critters I had been searching for was the Xeno crab. Unfortunately I had not found any whilst there, but on a special dive site not too far from Inchcape 2, the black wire coral was full of them. Who knows what else might be out there waiting for an observant diver to spot.

We have now set up a Facebook page called UAE Branchers and there we plan to document our findings and we welcome anyone else of a similar persuasion to join us. We dive regularly off the East Coast with Divers Down and are more than happy to accompany fellow divers who share our fascination in slugs.

If you have found any interesting slugs yourself and have photos of them, we are more than happy to help identify them for you and add them to our record of known species.

Cuthona yamasui by Dragan Petkovic

Flabellina sp.

Dendrodoris denisoni

MANTA EXPEDITIONS

FEATURE **BEX LYNAM** PHOTOGRAPHY **GUY STEVENS**

Manta ray cleaning at Addu Atoll

As the work of The Manta Trust continues to grow, so do the opportunities to get involved! In this issue of Divers for the Environment, we're excited to introduce Bex Lynam, dive instructor and marine biologist, who, having volunteered for The Manta Trust is now starting a new venture for the charity, 'Manta Expeditions'. So let's hear what they're about…

The list. All divers have one. It's that catalogue of marine life that divers want to experience in their lifetime. For me, diving with manta rays was at the pinnacle of my list. So where did I stand the best chance of seeing them naturally? Having done my research I set off for the Maldives, where mantas aggregate with a predictability that almost guarantees an encounter with them. And it didn't disappoint…

That was some time ago now and that first sight of more mantas than I could count swimming towards me is still fresh in my mind. As one of several manta ray hotspots around the world, the Maldives provides the ultimate experience in 'manta watching'. But I wanted to know more. What do they eat, where do they go, how do they reproduce, why do they come here? These were all questions I was left to find the answers to myself. Having dived in multiple locations across the world, I felt I'd had some amazing in-water experiences but never really been offered the chance to learn more about the marine life I was seeing in any depth.

So when the opportunity to work with Guy Stevens, Director of the Manta Trust, came along, I jumped at the chance. Over the last 10 years Guy has worked tirelessly to learn more about the Maldives manta population and get the protection they need so badly put in place. Teaming up with manta experts throughout the world, Guy created The Manta Trust charity in 2012 with the aim of conserving this most enigmatic species through ongoing research and education. Alongside this, the Manta Trust seeks to create awareness of the issues and threats faced by manta rays globally.

'Manta Expeditions' is our newest venture in raising vital awareness for these animals, a series of liveaboard dive and snorkel trips that focus specifically on getting our guests in close proximity to manta rays while imparting expert knowledge and skills. A core focus of the expeditions is to not only provide close encounters with manta rays, but to enthuse and educate divers in marine conservation issues and the environment surrounding them. This way a collection of fantastic photographs will not be the only thing they take home. Through a series of presentations on topics covering local marine species and habitats, The Manta Trust trips ensure that divers leave with an increased awareness of the threats these graceful creatures are facing and, perhaps more importantly, how they can help. A workshop in collecting and recording manta ID shots cements the theoretical and practical aspects of the research being conducted by giving divers the tools to get involved knowing that they are contributing meaningful data to the project. Divers are then able to continue this work in their future dive trips around the world taking ID shots wherever they are and submitting them online to the Manta Trust's global database.

Our most recent Manta Expedition in the Southern Maldives atolls took in a series of manta cleaning stations and feeding sites. At the cleaning station of Rangali Madivaru, we found ourselves overwhelmed by the number of manta rays flying above us. Although Guy and I were able to grab several ID shots for the IDtheManta database, several more were captured by our guests, having listened to the Manta ID workshop. The equivalent of our finger prints, the pattern on the underside of a mantas belly allows us to differentiate one manta from another with a good quality, well placed picture. Without the help of our guests it wouldn't have been possible to collect so many ID shots.

Collection of manta ID shots is just one of several methods of data collection we may employ during expeditions. However, its role as a research tool should not be under estimated. Without the IDtheManta database, it would be difficult to glean so much insight into their behaviour and ecology and to subsequently protect them. I was fascinated to learn about a manta one of our guests snapped being cleaned earlier that morning. Searching the database, I was able to see that manta number M659 or 'Riddle' as she is better known, has been sighted a total of ten times and was last sighted in June 2012 in Hanifaru Bay, almost 200km away from where she'd just been spotted. Looking further back in time, I could see that she has been seen for four consecutive years in Baa Atoll, all between the months of June and December (the South-West Monsoon). Riddle was first added to the database in March of 2006 in South Ari Atoll and a sighting in 2008 during the Save Our Seas filming expedition for a BBC Natural World documentary confirmed she was also pregnant at this time. Collectively this information allows us to piece together a picture of Riddle's movements suggesting she resides in Baa Atoll during the South West monsoon and migrates south to Ari Atoll for the rest of the year (North-East Monsoon), a trend that is well established amongst many of the Maldives reef manta rays. Armed with such knowledge we can make suggestions and recommendations to the appropriate agencies to provide adequate protection for the species.

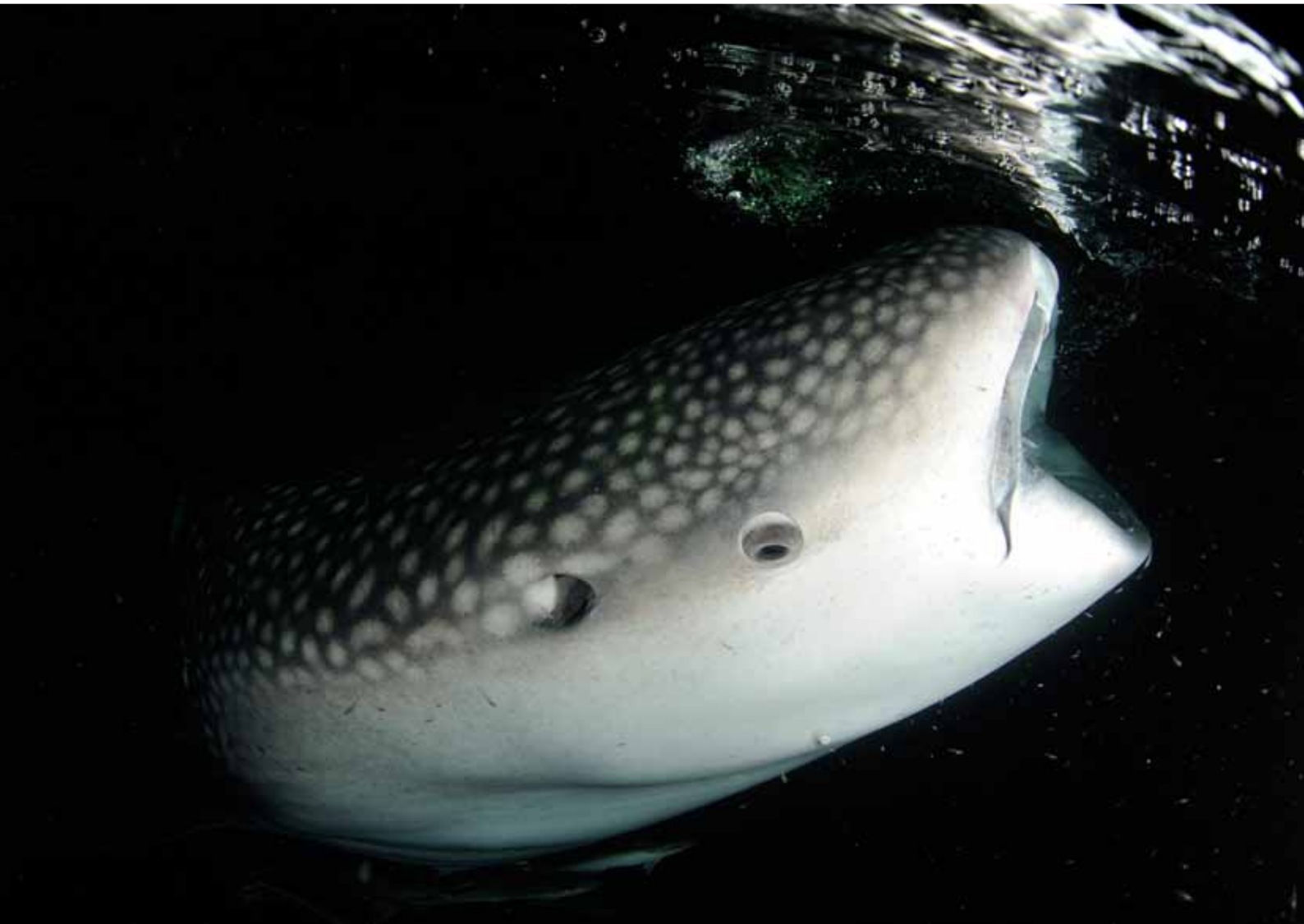
As well as focusing on education and interaction with manta rays, we are concentrating on providing that one off, unique experience, one that is not shared with hundreds of other divers! Our trips will have a low number of guests on board, usually between 10 and 12 people, to ensure that the sites we visit are not over crowded. Our expertise in each area means we have an excellent knowledge of the sites we visit and more importantly, the best time to visit them. The experts in each region have spent years studying the manta rays in these locations and understand exactly where and when they are likely to be, either cleaning, foraging, feeding or just hanging out! Our Manta Expeditions also provide the perfect platform for photographers to take advantage of such a special encounter. With low guest numbers and a crew attuned to the needs of photographers, you are sure to achieve those spectacular shots.

The Maldives is just one of several manta hotspots around the world, and the Manta Trust already have local projects in 12 locations, including Mexico, Indonesia, Yap, Fiji and Hawaii. We therefore aim to extend our expeditions to include a range of diving destinations in the near future. Later this year, alongside further trips to the Maldives, we will be offering Manta Expeditions in Mexico (Socorro) and Indonesia. So watch this space if you are interested in accompanying us in our search for mantas! You can contact us directly and express your interest in our expeditions by e-mailing us at: expeditions@mantatrust.org. For further information on the Manta Trust and the work we do please visit our detailed website at: http://www.mantatrust.org/. If you have any images of the underside (ventral surface) of mantas then we would love to see them. You can upload them at the following link: http://www.mantatrust.org/make-a-difference/id-the-manta/.

DIARY EXCERPT

"Early start with a dive briefing at 7:30am. Eagerly diving in, we were almost immediately greeted by a three metre female quickly followed by another nine mantas further down the reef. Cruising at no deeper than about 15 metres, the mantas rays glided past us, most of them showing no concern for our presence at all, and circling in amongst us. One particularly large mature female bore the scar tissue of an old bite mark that had healed well over time. Me and two guests 'sat' captivated in a rough triangle while a manta bounced back and forth between us, dipping and swooping under and over us. She appeared intrigued by us. It's fascinating to look closely at each individual and take note of their different features; what sex are they, are they mature or juvenile, do they have any scars or injuries, are they reef mantas or oceanic's? I couldn't have told you the difference before but I'm learning to distinguish one from another very quickly. I can't wait for the next manta dive."

OPPOSITE | Reef manta ray, Rangali Madivaru, Ari Atoll; It's not just mantas we encounter – whale shark gulp feeding.
RIGHT | Hawksbill turtle, Gadhdhoo Kandu, Huvadhoo Atoll; Reef manta ray feeding in a storm.
BELOW | An inquisitive female reef shark; Hovering reef manta rays at Lankan, Maldives.



University volunteers from the US help Operation Wallacea scientist calibrate a stereo-video system used to calculate the biomass of fish present on coral reef sites in Honduras in 2012.

MAKING THE MOST OF THE BLUE PLANET GENERATION

FEATURE AND PHOTOGRAPHY **DR DAN EXTON**, OPERATION WALLACEA

Coral reefs hold a certain fascination for divers. The warm clear waters and easy access make them the most popular destination for recreational diving, whilst the rainbow of colours and sheer volume of animals that make reefs their home have driven many an underwater photography enthusiast to obsession. Even amongst scientists, renowned for their ability to find interest in the most unlikely of sources, coral reefs offer such a wealth of research potential covering a broad range of disciplines that they remain the focus of a host of academics the world over. However, recent years have seen a new type of diver emerge; one who wants more than just a chance to see a coral reef with their own eyes, and who feels empowered to make a difference in the growing struggle to protect these ecosystems for the future. This group are formed from a new generation of teenagers and young adults, brought up on a diet of wildlife documentaries, who have developed a keen desire to experience the wonders on offer in the world's oceans. With developments in accessibility and budget travel opening up the tropics, once considered the realm of the wealthy, a large proportion of this group are choosing coral reefs to focus their attentions and considerable efforts on.

Fortunately, these developments have coincided with a call for greatly increased marine conservation efforts throughout the tropics, with some experts suggesting over one third of the oceans need protecting if we are to halt the steady decline towards extinctions and ecosystem loss. Global threats such as ocean acidification, sea surface temperature increases and sea level rise have combined with more localised impacts including overfishing and pollution to make coral reefs one of the most threatened habitats on the planet. Widespread management is required, but success relies on large and detailed data sets being collected to highlight the major impacts at a particular site, as well as to monitor the success of management intervention. The extent of areas requiring attention is now simply too much for the small pool of expert consultants and academics to cover. This demand for data has, however, provided the perfect opportunity for these young enthusiasts to contribute meaningfully towards improved conservation management.

But manpower is not the only consideration. A comprehensive coral reef monitoring programme is likely to set you back tens of thousands of dollars per year for even a small geographical area.

Traditionally, this has relied on significant funding from governments and NGOs, but their resources can only be expected to stretch so far, especially bearing in mind the recent global economic downturn. The involvement of passionate young amateur conservationists through marine environmental volunteering also offers a solution to this problem by providing a sustainable funding stream to add to their considerable manpower. When the added by-products of this volunteering model are considered, including increased environmental awareness, income to local communities outside the typical tourist route, and the development of the next generation of marine scientists and conservationists, the true value of this market can be truly appreciated. In short, it gives us the opportunity to achieve what the scientific community could never manage alone, and will have an important part to play in the coming battle to conserve the Earth's natural wonders.

As marine research manager for Operation Wallacea, an international NGO developing conservation through academic partnerships, I have experienced first hand the huge potential offered by the willingness of volunteers to devote their time to marine science. We work with over two thousand volunteers each summer, both high school or university level, over one thousand of whom take part in marine research and monitoring at sites including Honduras, Indonesia, Cuba, Mexico and Madagascar. This data is then passed to our charitable arm, the Opwall Trust, who uses the volunteering efforts to design and initiate best practice models of biodiversity conservation through community-led management initiatives. In spite of the global economic problems, the number of participants joining our programme continues to grow, highlighting the impressive strength of feeling this generation have towards the

importance of biodiversity conservation and marine science.

Although the benefits brought by volunteering in terms of manpower and finances are unquestioned, their efforts have always been overshadowed by a widespread belief that data quality would undoubtedly suffer if the emphasis switches from highly experienced professionals to relatively inexperienced amateurs. In some cases I would be forced to agree, but in my experience it is simply a question of research design. In the same way that a scientist will design an experiment based, in no small part, on the equipment available to them, volunteer organisations must tailor their efforts so they work to the strengths of the expertise they have at their disposal. In this sense, the most important aspect of volunteer efforts is not the experience level of participants, but more the vision of those responsible for the design and implementation of data collection. In this way, a monitoring strategy developed by a core of experienced scientists, but utilising the manpower and enthusiasm of volunteers in a sensible way, can provide information on coral reefs which are extremely useful to conservation managers and researchers alike.

The emergence of technology as a tool in marine monitoring has added to the potential impact of volunteering, by addressing some of the key concerns regarding the accuracy of data collected by individuals with only minimal training and experience. The use of photography and videography in reef monitoring allows techniques to be more standardised, lets data be checked more thoroughly by those scientists responsible for volunteer supervision, and provides a permanent record of the reef that can be re-visited at a later date. Even more recent advances include the use of stereo-video technology to assess reef fisheries, providing data on biomass which was previously questionable at best, and utterly impossible using volunteer efforts alone.

In short, the 21st Century, although young, has already seen a change in the way people perceive the marine world and coral reefs in particular. Reefs are more accessible, meaning a greater number of people are able to enjoy them through recreation. But more importantly, they are providing a target for the passion of a generation with environmental awareness and protection one of their primary concerns. If only a small percentage of those volunteering as teenagers and young adults choose conservation as a career, the future looks promising. Not many of these individuals return from volunteering unchanged though, with new perceptions of the world outside their comfort zone and the struggles facing large sections of the world's population, and this can only be good news for one of the planet's most threatened ecosystems.

TOP | A University volunteer from the UK collects important data on the health of coral reefs in Honduras on an Operation Wallacea expedition in 2012.
BELOW | Operation Wallacea Scientists catching invasive lionfish on a remote reef in Honduras for population structure and gut content analysis.

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THE UAE'S ONLY UNDERWATER PHOTOGRAPHY AND FILM COMPETITION

PHOTOGRAPHY AND FILM SUBMISSION DEADLINE: TUESDAY, 30th APRIL 2013 @ MIDNIGHT
AWARDS & EXHIBITION: WEDNESDAY, 29th MAY 2013 | 19:00-22.00 | VENUE TBC

DIGITAL ONLINE'S MAIN OBJECTIVES ARE:

- 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.
- To develop the human interaction with the underwater environment and highlight the beauty of its fauna and flora.

Digital Online is open to all UAE Nationals and UAE Residents of any diving qualification with valid EDA membership.

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2. Destination Package – 4 days/3 nights in Sharm El Sheikh, Egypt
3. Destination Package – 4 days/3 nights in Aqaba, Jordan

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Destination Package (x2) – 5 days/4 nights in Sipadan, Malaysia

DESERT ISLANDS RESORT & SPA BY ANANTARA
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Two nights stay in one Deluxe Sea View room for two with sumptuous breakfast buffet. 2 dives to discover the local marine flora and fauna and local wrecks through Desert Islands Watersports Centre which is a newly opened PADI 5 Star Dive Resort and watersports centre offering the full range of PADI programs and more.

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3. Mares Matrix Dive Computer

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3. Scubapro R295 Octopus

DIVERS DOWN

Dive Rite XT Regulator

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LIME&TONIC

Hakkasan Dim Sum & Tea Tasting for 4

PAVILION DIVE CENTRE

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2. PADI Nitrox Course
3. 2 Dubai dives with hotel access to Jumeirah Beach Hotel

GULF MARINE SPORTS

BARE Wetsuit

EMIRATES DIVING ASSOCIATION

1. A Diver's Guide to the Art of Underwater Photography Creative Techniques and Camera Systems for Digital and Film
2. A Guide to Underwater Wildlife Video & Editing
3. Reef by DK Publishing
4. Ocean Soul by Brian Skerry

DIGITAL ONLINE GUEST JUDGES

Warren Baverstock, Jonathan Ali Khan and Nuno Sá will be judging Digital Online 2013 entries in addition to Ally and Reema. We're honoured to have such amazing people and photographers be a part of this event.

WARREN BAVERSTOCK | UNDERWATER PHOTOGRAPHER
Aquarium Curator – The Burj Al Arab

Warren has been involved with a number of filming projects within the region such as the popular television documentary "Arabia's Cycle of Life" and the more recent and ongoing "Sharkquest Arabia". Having a passion for elasmobranch conservation, Warren has gained essential filming experience by joining researchers in Saudi Arabia, Qatar, Djibouti and the Maldives where his filming has included large aggregations of whale sharks and manta rays. With vast experience of working with marine animals within a commercial aquarium environment, Warren specialises in aquaria photography/videography as well as the building and filming of artificial environments for documentaries.

Warren was Digital Online's overall professional winner for 2011 and 2012 as well as 1st and 2nd place winner in British Underwater Image Festival's 2011 competition and was featured in Time magazine, 2011 for his amazing photography on manta rays of the Maldives.

WEBSITE: www.verstodigital.com
FACEBOOK: Underwater Photography by Warren Baverstock

JONATHAN ALI KHAN | WILD PLANET PRODUCTIONS
Managing Director – Natural History TV Production, Underwater filming specialists, video production and photography.

JAK is a topside wildlife and underwater camerman, producer, director and editor with a strong passion for the natural world having worked on a wide range of unique projects in the region and is recognized as an authority on environmental, conservation and diving related issues. His fascination with filming all started after years of working as a photojournalist and shooting underwater stills. His primary interest is in marine subjects that led to the creation of Ocean World Productions in 2003. In 2008, JAK left Ocean World Productions in order to focus entirely on natural history TV development, leading to the recent creation of Wild Planet Productions.

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

NUNO SÁ | WILDLIFE PHOTOGRAPHER
Professional Photographer Specializing in Marine Life

Nuno has been a professional photographer since 2004, specialized in marine life photography. He is the author of three books and several dozens of articles published in National and International magazines. He is the co-author of the "Azores Diving Guide" – Portugal's first published diving guide, and a regular collaborator of several magazines, such as National Geographic Portugal. He is the first Portuguese wildlife photographer nominated in some of Europe's major nature photography competitions, such as: Wildlife Photographer of the Year and Asferico International Nature Photography Competition, amongst others. Nuno is also on the Wild Wonders of Europe's team of top European nature photographers. This is the world's biggest ever nature photography project with an expected public of over 100 million people, a project supported by the National Geographic Society.

WEBSITE: www.photonunosa.com

EDA JUDGES

ALLY LANDES | EMIRATES DIVING ASSOCIATION
Events Coordinator, Graphic Designer, Photographer and Videographer

Ally has been working with EDA since December 2004 where she created and introduced the quarterly magazine, 'Divers for the Environment' and is the magazine's Editor. She is in-charge of all the EDA media material including FAM trips, underwater photography and film. She branded and helped foresee the development of Digital Online (The UAE's Only 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 new improvements, and developing EDA's brand. As a qualified PADI Instructor, she utilizes the experience within everyday life at EDA.

REEMA ABBAS | EMIRATES DIVING ASSOCIATION
Projects Manager

Reema is a UAE national who has an insatiable passion for life. She paints, practices yoga and travels extensively in search of adventure. An enthusiastic diver; she quotes, 'Diving gives you a feeling of exhilaration as well as tranquility'. Her work with EDA as Projects Manager gives her a sense of fulfillment, knowing that she's with like-minded people working together for a positive cause.

DIGITAL ONLINE
EMIRATES DIVING ASSOCIATION
PHOTOGRAPHY AND FILM COMPETITION

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Photos Gilles Di Raimondo

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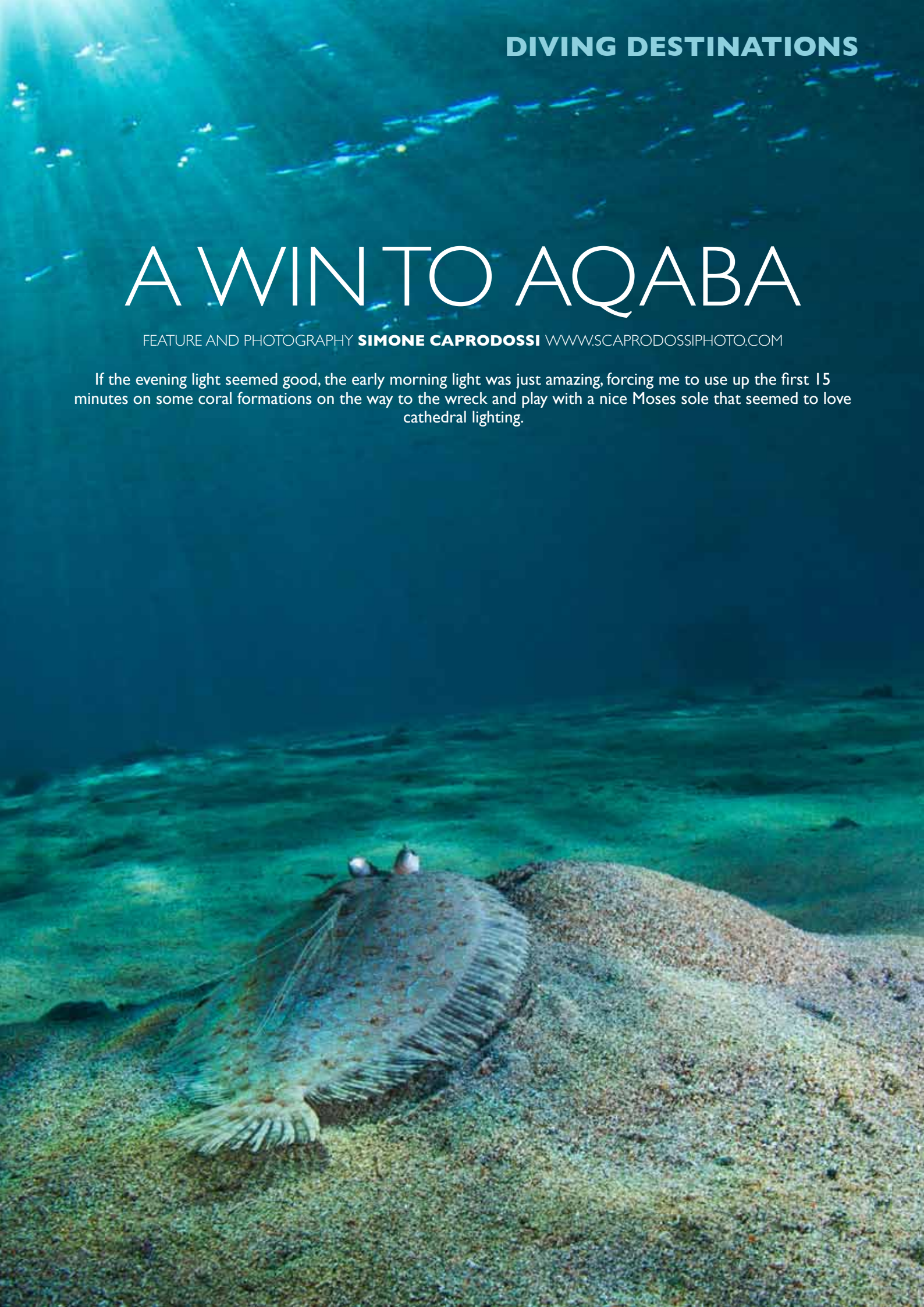
General informations, specifications

- Web : facebook : NS Exploring Sudan
- Mail : contact@divenostress.com

A WIN TO AQABA

FEATURE AND PHOTOGRAPHY **SIMONE CAPRODOSSI** WWW.SCAPRODOSSIPHOTO.COM

If the evening light seemed good, the early morning light was just amazing, forcing me to use up the first 15 minutes on some coral formations on the way to the wreck and play with a nice Moses sole that seemed to love cathedral lighting.



Thanks to two nice turtles from Sipadan, I won last year's second place prize for Digital Online's 2012 photo competition. The prize was a 3 day diving trip in Aqaba. Honestly a destination I had not really considered before as when I think Red Sea diving, I immediately think Egypt.

The prize had to be used by the end of 2012 and I found myself rushing to book a trip to Jordan for the first week of December, a bit worried to end up diving in pretty cold water. The nice prize offered by Discover Orient Holidays entitled me to 3 nights in Aqaba with 2 full days of diving. Fei from DOH cheerfully responded as I approached her to claim the prize and she quickly booked me in to a nice Hilton room in Aqaba's centre and put me in touch with Jordan Dive Center who I would dive with when there.

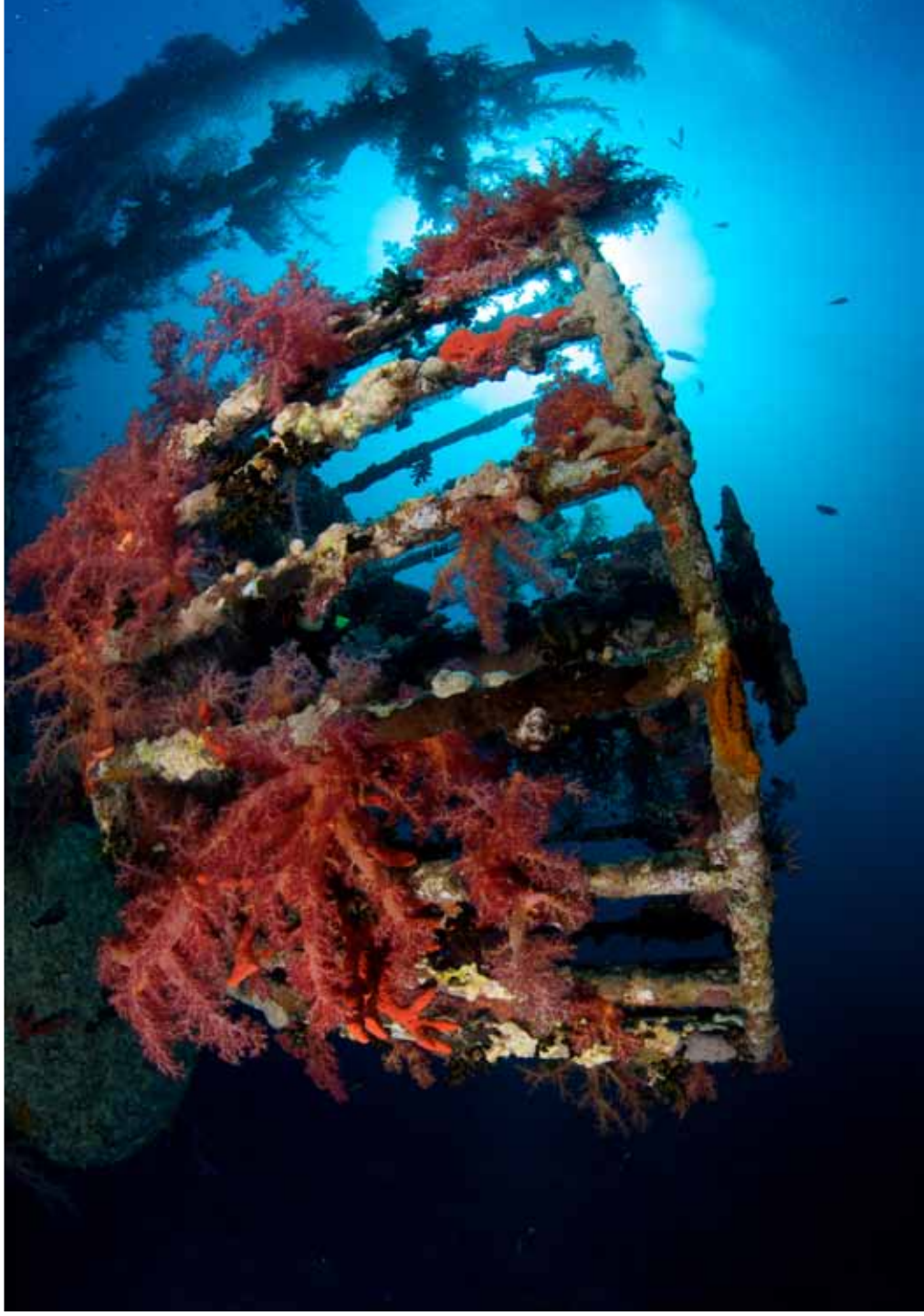
With just 2 diving days on hand, and having promised to try to feature the destination in the magazine, I had to get good advice on what to do and I luckily tapped into the most expert advisor. My good friend Warren Baverstock – outright winner of last year's Digital Online and our judge for this year's competition – he spent a few weeks diving there a few years ago shooting for a book, so I asked him for the best condensed Aqaba experience for photography.

Warren provided me a very detailed recommended 6 dives program that I shyly passed on to the dive centre, honestly not sure they would accommodate my request considering I was also diving alone. Stephanie and Nabeel from Jordan Diving Centre immediately offered to fully tailor the days to my request and dedicated me to Alex, one of their experienced dive masters as my private guide and buddy.

With great expectations for clear water, good visibility and lots of pretty corals, I finally found myself – picked up by Nabeel – driving along the dry coastline of the bay of Aqaba.

The dive centre has just been moved to its new and improved location and lays on a lovely stretch of coast with a beach and a beautiful pool in a resort that would be a pleasurable distraction for non diver partners and friends.

So here is the trademarked diving program, courtesy of Warren in which I followed (almost) to the letter and would highly recommend. In fact, the dive center turned out to be located on the second recommended dive of the day, 'Black Rock', that is actually a house dive, so I started with dive 2 of the program. It is a nice and easy coral dive with pretty pinnacles and nice hard corals in the shallows. The highlight of it was however the underside of the long pier just below the dive centre that was filled with a thick layer of tiny fry with lionfish, trumpet fish and the occasional fast jackfish swimming through on



their hunt. A really amazing densiy of tiny fish that I promised myself to come back to for more photography before leaving.

The next dive in line was one of the well known Aqaba sites, 'The Tank', famous for its small tank wreck. The recommendation was to spend most of the dives around the beautiful coral pinnacles leading to where the tank is, which is actually officially a different dive site called 'Seven Sisters' and then only spend the last 5-10 minutes at the tank that is cool and unusual. After having shot it from every angle possible, it does not offer much more to do.

The last dive of my first day was the originally recommended first dive, 'The Cedar Pride Wreck'. This is THE dive in Aqaba and it is absolutely stunning. We got into the water as the sun was starting to get lower on the horizon and beautiful golden light filtered through. The swim towards the wreck – as all dives are shore dives – is actually a great dive in itself with beautiful coral bommies poking out of the white sand, bustling with life. The wreck rests on its side with the deeper side at about 25 meters and the mast stretches into the blue up towards the surface to about meters. 20 years of coral growth has turned this old sunk boat into an amazing coral garden. On the side facing up, hard corals have started to grow and come out like little floral bushes from the smooth boat side. The mast is just stunning with soft coral growing from everywhere and lionfish swim along as well as scorpion fish, blending into the rusty metal. Large jacks and the odd barracuda appear and disappear into the blue. Needless to say, a full hours dive seemed over in 10 minutes and I came out knowing exactly why Warren had recommended me to repeat the same 'Cedar Pride' dive the next morning and with a fisheye lens.

In bed after a nice dinner on an Aqaba terrace, I could not wait for the next morning to continue exploring the Cedar. We arranged with Alex to be the first ones in the water as the dive gets busy in the day. Alex picked me up at 8 and we basically opened the diving for the day and went straight out back to the Cedar. If the evening light seemed good, the early morning light was just amazing, forcing me to use up the first 15 minutes on some coral formations on the way to the wreck and play with a nice Moses sole that seemed to love cathedral lighting. The wreck was even more beautiful in the brighter morning light and I took a bit of time to explore the sides before being inevitably drawn again to the mast and its animated colors. Visibility was clearer, offering a full view of the wreck and with Alex in the shot to give some proportion.

After this great morning's start, it came time for the next dive at the top of Warren's list. It is found by the Royal Dive Center, the sandy bottom covered in a field of grassy algae for the pleasure of green turtles slopes down, and

as it gets sandier, a gorgeous coral reef takes shape. Its' a series of lush coral formations isolated from each other and just thriving with life. Several lionfish, clown fish and clouds of different species of anthias envelope massive lettuce corals in a swirl of red.

Morays poke out of the corals to then go wander off through the grassy patches and an octopus appeared, seemingly to try and catch a lionfish and then having second thoughts about it not being such a good idea. Just another stunning and lively dive site. I would have loved to have time to repeat it.

With a perfect program so far, there is one site Warren recommended me to do that I would definitely avoid. It was the third dive of the day, 'Gorgone 1'. Nabeel was in fact surprised by the choice and Alex had never dived it so they had to get me another guide to go there as they never take their divers there. I quickly found out why. This dive is very close to the public beach and as we entered the water I could see a formerly outstanding coral reef, now absolutely devastated. We dove along dead coral, reaching what I imagine must have been the beautiful pinnacles that Warren recommended to go and photograph, but sadly dead rocky skeletons seemed to be the only thing left there, with just some residual life at the top. 30 minutes into the shallow dive and with a nearly full tank left, I signaled to the guide to get back as clearly photo opportunities were not going to come. Sadly, a diving highlight 5 years ago had now turned into a dead abandoned site.

It was not just the sadness of dead corals that had me rush back, but actually the crave I had since the previous day to grab a tank and jump back in the 5-10 meter water under the pier of the dive centre to capture the agregation of little fry and maybe catch a lionfish hunt. Whilst I was not lucky with the hunt – probably best shot at night – I witnessed the sun setting through a wall of tiny fish molding around the legs of the pier, forming sinuous shapes. After a long play with the small fish layers, I noticed many upside down jellyfish around the edge of the pier and played with them until the dusk took over and the dive was turning into a night dive. A fantastic end to two exciting and intense diving days.

Aqaba makes for a perfect long weekend diving destination, but it would be ideal with 3 days of diving to do my diving plan in no rush and maybe try a couple of other sites that Nabeel highly recommended too.

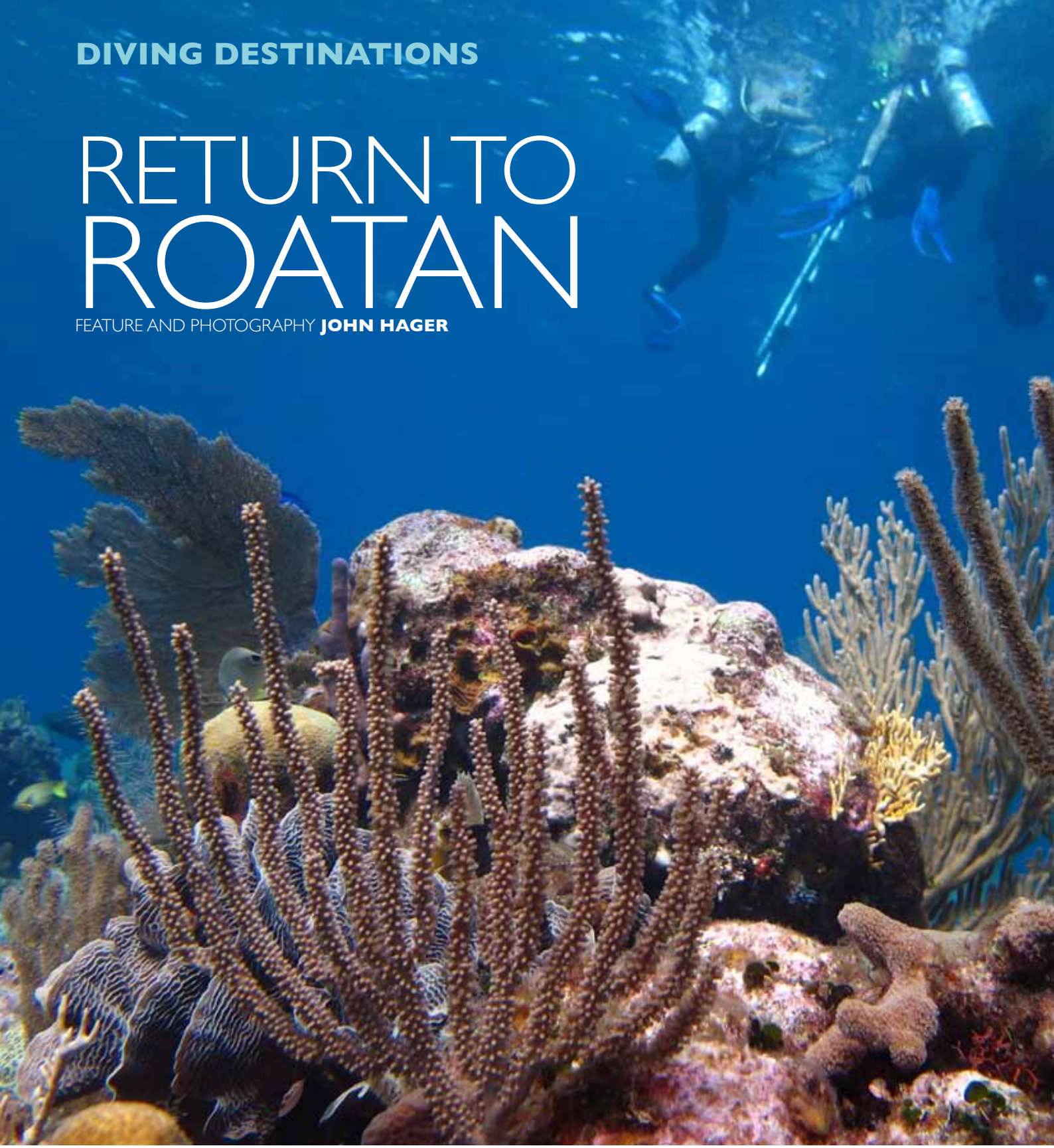
It's a cheap and easy flight to Amman with a quick connection and if one has not visited Jordan before, then it is a must to combine a trip to see the incredible wonders of Petra.

Thanks again to Nabeel and Alex and the rest of the team at Jordan Dive Center and to Fei and Discover Orient Holidays and to EDA for organizing the great Digital Online competition.

Good luck to all the photographers and videographers for this year. Aqaba may be up for grabs again!

RETURN TO ROATAN

FEATURE AND PHOTOGRAPHY **JOHN HAGER**



The tropical island of Roatan is found on the northern coast of Honduras. It is the middle of the three Bay islands, Utila and Guanaja being the other two. Roatan is the biggest of the islands in size and population. While not large at only 60 kilometers long and 8 kilometers wide, it is hugely popular for its incredible diving on the world's second largest barrier reef. It also has an abundance of other options to keep you as busy as you want with adventure activities or just doing nothing and enjoying the laid back attitudes and getting lost in paradise.

It has never been so easy to get to Roatan from the United States. Delta flies direct from Atlanta, United from Houston, and American from Miami. On my return to this paradise, I chose to stay in my favorite family owned hotel, "Lost Paradise" in West End. They have cabins all the way to the water and have great rates for staying on the beach in a private cabin. I was picked up at the airport and taken to my cabin on the beach. As they handed me the key, I was told "Welcome home. Relax".

There are all levels of hotels and resorts on the island for whatever your preference. This is my escape from the world.

On my short walk down to Coconut Tree Divers the next morning, I couldn't quit smiling as I passed amazing bays and beaches, passerby's saying a warm "Good Morning" and I then remember why I love this place so much. West End used to just be a dirt road lined with businesses on one side and beach on the other for many years. Nobody wanted to change the relaxed feeling of it as you walk the road in flipflops, shorts and a t-shirt.

It has been paved recently but it still has the same kicked back feeling as you stroll down it. Shorts, shirt, and sandals will still get you in any restaurant on West End. Relax. Unwind.

On entering the dive shop, I hear "John! Welcome home brother. It has been too long!". Coconut Tree does a 2 dive boat trip every morning on a big boat with lots of room. The boat leaves at 9am, so you can't be late or show up at 9am. If you do, there are always the two single afternoon dives. I love this! We can all remember being on a boat baking in the heat while waiting for the non-punctual divers.

The diving is inexpensive with all the gear provided. Awesome is an understatement for the corals, fish, structure, visibility and the Coconut Tree staff. P.J., Marco, and Tree, run a tight ship. A highly professional shop with great instructors and dive masters that focus on your satisfaction, safety, and vacation fun. They offer everything from DSD to TEC 65 Trimix and Sidemount. They can schedule you for a wreck dive, amazing night dive, or even an unforgettable shark dive on the other side of the island. It is not an accident that the shop is a 5 Star Padi Resort and ranked #1 on Trip Advisor.com You can read hundreds of reviews from customers that think of the shop and its staff as family, like I do.

The success and future of this great dive location has been greatly enhanced by the people of Roatan. In 2005, a group of concerned dive shops and the local businesses joined together to protect the reefs and start the Roatan Marine Park (RMP). They started with patrols to prevent overexploitation of

non-sustainable fisheries. They were able to do this by creating alternative means of livelihood for the people living off of these unsustainable fisheries. The RMP started plastic bottle recycling and 'Bags for Life' and created water run-off policies. While many other islands in the areas have suffered a decline of the reefs, Roatan's are improving. It is the best I have seen yet.

Giant groupers and snappers dive buddying with you. Large beautiful soft corals, spotted eagle rays swimming by one way and a shark the other. Turtles are common and the visibility…WOW! Like they say, a picture is worth a thousand words, so take a look. Some of the best diving in the world.

If you can bring yourself to skip the afternoon dives after two incredible morning dives, or you are a non-diver, not to worry, the island has amazing beaches and loads of other activities.

You can take a water taxi for a couple of dollars to West Bay beach, snorkel in Half Moon Bay, or go zip lining through the jungle and end up at an exotic wildlife park and explore a pirates cave. Rent a scooter at Capt. Vans and tour the island to enjoy awesome views from the hills. Stop in at the butterfly farm, iguana sanctuary, or at one of the great cafes on the top of the hills overlooking the ocean. Speaking of great cafes…Will from Coconut Tree just opened a cool café up on the hill called Roatan Oasis. It is a chilled afternoon lunch with daily specials.

For your evening surface interval, you have to head down to Sundowners and hang out with all the other divers, kick back by the bonfire on the beach lined with tiki torches and enjoy a fantastic Angus Burger and cheap refreshments. All while watching the amazing sunset over the beach, setting down into the ocean. Aaron the owner also has charter fishing and you can get with him to find time to fit it in. He took me out and we had a great afternoon of fishing and caught a tuna. Billfish are common and definitely a possibility. I will have to keep trying though.

6 days, 15 amazing dives, and lots of great times with friends, old and new. It makes it hard to leave and say the goodbyes, but I am already planning my return to Roatan.

Feel free to contact me with any questions you may have and listed below are the links to my favorites.

Email John Hager – Old22bbq@yahoo.com

www.lost-paradise.com
www.coconuttreedivers.com
www.roatanmarinepark.com
www.facebook.com/sundownersbeachbar
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www.tripadvisor.com

DIVING AT ROCKTAIL BAY
(PART OF THE ISIMANGALISO WETLAND PARK)

FEATURE AND PHOTOGRAPHY **SIJMON DE WAAL**

Rocktail beach camp, operated by Wilderness Safaris, is set in and shaded by the sanctuary of the lush Maputaland coastal Forest, covering the ancient dunes that make up the edge of South Africa's KwaZulu-Natal coastline. It is perhaps one of the last few places in the world where you can walk along a pristine beach for several hours and more than likely, not come in contact with any other people.

Rocktail beach camp, operated by Wilderness Safaris, is set in and shaded by the sanctuary of the lush Maputaland coastal Forest, covering the ancient dunes that make up the edge of South Africa's KwaZulu-Natal coastline. It is perhaps one of the last few places in the world where you can walk along a pristine beach for several hours and more than likely, not come in contact with any other people or see any developments along the coastal dune forests.

The offshore structure of the rocky coral reefs do not boast spectacular topography as one would find in the Red Sea with the sheer walls and drop-offs, however the sheer variety and number of different marine fish and mammals in this coastal reserve make the area very special and unique. Added to this, there are no other operators licensed to dive in the area so you can rest assured that you will not run into any other divers underwater – something that is almost guaranteed in the Red Sea.

During the spring and summer months, the water temperatures average approximately 26°C and it is possible to see whale sharks, turtles, dolphins, a variety of rays, reef sharks and of course the ever present potato bass (a large fish from the grouper family that can weigh up to approximately 100kg). Each reef that is dived from Rocktail Bay tends to have its own resident "school" of potato bass, consisting of anything up to 4 individual fish. Darryl, Clive and Michelle (who run Mokarran Dive Charters from the lodge and are responsible for all the marine based tours), have been diving in the area for the last 11 years and have named all these resident characters. As you descend onto any particular reef the potato bass, (Boris being one of them) will be waiting for you and simply slot in as a "dive buddy" for the duration of your dive. Just like humans, these fish have their own characters and some days demand constant attention, wanting to be tickled and scratched

around the lip and gill regions while on other days, they'll simply avoid you – almost as if they are having a grumpy Sunday morning back in the office. During these summer months, it is also possible to see the endangered leatherback and loggerhead turtles laying their eggs on the beach at night and if you're lucky the hatchlings which normally start to come out around March.

The winter months bring cooler water and rougher seas, however this is the period that the humpback whales start their annual migration from Antarctica. From June to November, the whales' first pass northwards through the area on their way up to Madagascar to calve and then return southwards through the area (normally with very young calves) on the way back to their summer feeding grounds in Antarctica. For non-divers this is definitely something that should not be missed and a surface-based viewing opportunity is available from the dive centre.

The lodge itself is five-star with excellent food and levels of service. A large percentage of the staff come from the local surrounding communities and are very friendly and helpful. Should you ever find yourself in this part of the world, I would certainly recommend staying and diving at Rocktail Bay for a few days.

Bookings can be made through Wilderness Safaris or Mokarran Dive Charters (details listed below). More information on the ISimangaliso Wetland Park can be found at www.isimangaliso.com

WILDERNESS SAFARIS
www.wilderness-safaris.com/south_africa_maputaland/rocktail_beach_camp/introduction

MOKARRAN DIVE CHARTERS
www.mokarrandivecharters.com

HYPOTHERMIA

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

Whether you're diving the Antarctic, the chilly U.S. Pacific Northwest or your local lake or quarry, you make temperature one of the components of your dive plan: What's the ambient temperature topside? What's the water temp like? Are there any thermoclines? How deep will I dive and for how long? What exposure protection do I need: Will a quarter-inch wetsuit be enough? In essence, you're asking yourself: How cold am I going to get on this dive?

You're also answering that question with your dive planning. Hypothermia can affect even tropical dives – if you're wearing just a swimsuit or diveskin and you remain immersed for a long time, that is.

So, what is hypothermia, exactly? How do you prevent it? How do you deal with it once you're chilled? Read on.

Taken from the 2006 DAN Dive and Travel Medical Guide

Hypothermia is a condition of reduced body core temperature, defined as a temperature below 95°F (35°C). Exposure to cold results in heat loss at a rate dependent on several variables, including:

- Protective clothing
- The temperature gradient between skin and the environment
- The heat capacity of the environment (much greater for water than air)
- Body structure (lean versus fat fractions and mass-to-surface area)
- Wind or water movement

Water conducts heat 20-27 times faster than air. Sudden exposure to water colder than 59°F (15°C) with no thermal protection results in an involuntary gasping response. This can cause inhalation of water and cardiac dysrhythmias. In such instances, a response usually continues for one to two minutes, with extremely rapid breathing. When this happens, the hypothermic person can experience pain and mental disorientation, leading to fear and panic.

Thermal protection by a wetsuit, drysuit or other survival-type suit dramatically decreases the immediate effects, but heat loss will still occur over time.

Swimming may not help. Heat production is increased by exercise or shivering, but for individuals with little or no thermal protection, swimming increases the exposed surface area and rate of heat transfer to the water. On average, swimming can help maintain core temperature in water warmer than 75°F (24°C): The core temperature of unprotected swimmers drops in colder water, resulting in an inability to continue swimming (known as swimming failure).

WHAT IF YOU'RE IN 'DEEP WATERS'?

Persons who are immersed unprotected in cold water should remain still, holding a

position to minimize exposed surface area. (Note: It's far easier to accomplish with some kind of buoyant support.) Pulling the knees together and up toward the chest – into the heat-escape-lessening position – or the "HELP" or rescue position – provides improved protection of the high heat loss areas of the armpits, groin, anterior chest, abdomen and thighs.

Hypothermia can also occur in relatively warm or even tropical waters as a result of slow body cooling. This may happen in water as warm as 84-91°F (29-33°C) with no thermal protection. You may not be aware of the slow heat drain for some time. Following are the common signs (observable manifestations) and symptoms (subjective, nonobservable manifestations) of hypothermia.

MANAGING HYPOTHERMIA

Hypothermia may be mild, with little risk to the individual, or it may be severe, with the possibility of death. If you suspect you're dealing with a hypothermic individual, you can use a variety of rewarming strategies; they depend on the degree of hypothermic injury, the level of consciousness of the victim, the nature of other injuries and the availability of resources and additional medical aid.

The individual with mild hypothermia will be awake, conversing lucidly, complaining of cold and probably shivering. Assuming that person has no other injuries, you can rewarm a mildly hypothermic person with a variety of passive or active techniques.

Remove wet clothing and replace with dry insulating inner and windproof outer layers, including the head, whenever possible. Shivering at this point will provide effective rewarming. The individual who feels comfortable exercising at this point can increase the rewarming rate by this type of movement. Exercise will transiently increase the afterdrop – a continued decline in core temperature after removal of (or from) the cold stress – but this should not be problematic in most cases of mild hypothermia.

The fully alert and cooperative hypothermic individual can have warm liquids to drink. This delivers negligible amounts of heat but will help to correct the inevitable dehydration and provide a sense of comfort. Most beverages can be used, but avoid alcohol: It can compromise awareness and contribute to dehydration and inappropriate vasodilatation. Light snacks can help, too. Food helps augment the individual's caloric reserves.

The person with moderate hypothermia will be awake but may be confused, apathetic or uncooperative and have difficulty speaking. Moderate hypothermia demands more caution since this injury can lead to cardiac dysrhythmias. If at all possible, use gentle handling and active techniques such as heated

blankets, forced-air rewarming and heated and humidified breathing.

Physical exercise is not recommended with the moderately hypothermic person. Physical coordination is likely compromised, and exercise at this point may increase the potential for afterdrop. When it occurs, afterdrop can increase the risk of physiological collapse sometimes observed during or shortly after rescue from immersion (called circum-rescue or post-immersion collapse).

Handle hypothermic individuals gently, including keeping them supine (at rest, on the back) and completely at rest; this reduces the risk of collapse. Be attentive, and use the most effective alternatives at hand when rewarming. Take care to insulate injured persons from the ground or surroundings, even if they do not communicate the need.

A warm-water bath is another good option for the moderately hypothermic individual. You will need to provide physical support, however, throughout the transfer and immersion. The initial immersion temperature should be lukewarm, definitely not more than 105°F (40°C), to avoid the sensation of burning that the person would likely experience. After immersion, the water temperature can be progressively increased, but to no more than 113°F (45°C) to avoid burns.

If hot water is not available, augment insulated clothing with chemical packs or electric pads. To avoid burns, never apply these directly to the skin.

The person with severe hypothermia may be unconscious, with a slow heart rate and respiration, or may even appear dead, with no detectable heartbeat. Look very carefully for signs of life, such as breathing, movement, or a pulse at the groin or in the neck over the carotid artery. Assess breathing and check the pulse for a period of at least one minute to confirm respiratory arrest or pulseless cardiac arrest, which requires CPR. If there is either breathing or heartbeat, external heart massage (chest compression) is not needed.

If you observe breathing or movement, then the individual's heart is beating, even if it's very slow. Because of this, it's essential to spend sufficient time checking for spontaneous pulse. For the unconscious hypothermic individual, the main goals are to maintain adequate blood pressure and respiration and to prevent further heat loss. If the breathing rate is six breaths or fewer per minute, then start very gentle mouth-to-mouth breathing at a slow rate.

Severe hypothermia leaves the individual susceptible to cardiac arrest. Extremely gentle handling – supine position, fully supported, no physical activity – and aggressive (and often invasive) rewarming strategies are required to save severely hypothermic persons. The heart is especially susceptible in these cases: The severe cold can lead to cardiac arrhythmias, but rewarming too aggressively can also trigger them. In most cases of severe hypothermia, basic life support takes precedence over efforts to rewarm.

Death from cold-water immersion usually results from loss of consciousness and subsequent drowning. If drowning preceded the hypothermia, then successful resuscitation is unlikely. If there are no signs of life, begin CPR and make arrangements for emergency transport to the nearest medical facility.

Complete rewarming of the individual with severe hypothermia is almost impossible to accomplish in the field. Protect against further heat loss, however. If CPR is required, it should be continued, if possible, until medical assistance arrives. There have been successful resuscitations after prolonged CPR, in part, because of the protective effect of hypothermia.

The outlook is poor in adults who have a core temperature below 82°F (28°C), have been immersed more than 50 minutes, have life-threatening injuries or are more than four hours from definitive medical care. Although injured persons can appear to be clinically dead because of marked depression of the brain and cardiovascular function, full resuscitation with intact neurological recovery is possible, if unusual.

WHAT TO DO

In the hypothermic individual, discontinue CPR only if:

- The person is successfully resuscitated.
- Rescuers become too fatigued to continue.
- The person has completely rewarmed and is still unresponsive to properly applie CPR.
- A medically trained and qualified individual arrives at the scene and, after examination, declares the person dead.

INA COLD-WATER IMMERSION INCIDENT DO

- Assess ABCs – the airway, breathing and circulation of the injured person.
- If CPR is required, continue until EMS arrives.
- Give as much oxygen as possible.
- Determine cause for immersion.
- Support and immobilize neck if injury is suspected.
- Arrange transport to a medical facility.
- Prevent further heat loss.
- Rewarm if needed.

DO NOT

- Risk your life in a rescue attempt.
- Interrupt CPR unnecessarily.

PREVENTION

The prevention of hypothermia requires preparation. The diver must understand the use of protective garments to conserve body heat and control heat loss. Most divers will benefit from wearing thermal protection in water cooler than 80°F (27°C). Significant thermal stress can be expected in water colder than 75°F (24°C). Divers should ensure that they have the proper protective equipment and experience to dive safely in cool or cold waters.

Don't let the cold keep you out of the water. Just be prepared when you go.

Signs and Symptoms of Hypothermia

MILD HYPOTHERMIA

(core temperature 90-95°F/32-35°C)

- Increased heart rate
- Impaired coordination
- Uncomfortably cold
- Impaired ability to concentrate
- Shivering
- Introversion/inattentiveness
- Decreased motor activity
- Fatigue

MODERATE HYPOTHERMIA

(core temperature 82-90°F/28-32°C)

- Increasing lack of muscular coordination
- Stumbling gait
- Slurred speech
- Confusion
- Amnesia
- Shivering slows or stops
- Weakness
- Drowsiness
- Hallucinations

SEVERE HYPOTHERMIA

(core temperature below 82°F/28°C)

- Inability to follow commands
- Decreased heart rate
- Inability to walk
- Loss of consciousness
- Decreased respirations
- Absence of shivering
- Dilated pupils
- Decreased blood pressure
- Appearance of death
- Muscle rigidity

DOS AND DON'TS
DEFINING MEDICAL FITNESS TO DIVE

FEATURE **DR. JAKE FREIBERGER**

Determining medical fitness to dive is not an exact science. Like most topics in medicine, opinions about an individual's fitness to dive should be conditional on their personal medical history as well as on the type of diving planned.

For that reason there are few unambiguous criteria, and exhaustive lists of general prohibitions are usually either inadequate or overly restrictive. From a regulatory point of view, North American recreational divers are free to do whatever they desire once they are certified.

However, the actual health status of all divers can change over time, and often divers are not aware of important individual risk factors, especially those that have developed in the years (or decades) following their initial certification. For that reason any fitness to dive evaluation should have an educational as well as an evaluative function. The encounter should serve to inform and assist prospective candidates to become aware of potential health-related dive safety issues.

This two-part article will outline a strategy to determine fitness to dive based on an individual diver's mental and physical strengths and weaknesses in the context of the types of planned dives.

It will also consider the individual candidate as a potential member of a dive team. Part 1 discusses the many existing sources of information about fitness to dive and the problems inherent in their use. Part 2 (in a future issue) creates a strategy for the evaluation of individual divers. It also discusses some of the more problematic topics, including selected specific diseases and medical conditions and their impact on diving fitness.

EXISTING REGULATIONS AND RECOMMENDATIONS

Because each diver is unique, precise lists of exclusionary medical conditions are insufficient to determine general fitness to dive. However, many such lists exist, and it is useful to review the policies of some of these diving organizations. Furthermore, even for commercial and scientific divers, fitness is not regulated by statute but is self-regulated by the different trade organizations. Each organization sets its own medical fitness standards, and they are not all the same. This sometimes causes confusion.

For example, the U.S. Coast Guard and the Occupational Safety and Health Administration have regulatory authority over commercial diving vessels and practices (OSHA 29 CFR 1910 subpart "T", U.S. Coast Guard - 46 CFR 197.200), but OSHA does not regulate who may dive, only where and how you dive and with what support.

On most commercial dives, voice communication with the surface is required by law. If it is lost, the dive is terminated. OSHA mandates that a medical exam be performed, but how it is performed or what the results are is not stipulated.

In commercial diving, the specific medical fitness details are left up to the trade organizations. Each organization has its own set of standards. For example, the Association of Diving Contractors (ADC) requires a medical exam every two years for divers younger than 35 (yearly thereafter) plus after each dive injury requiring hospitalization.

The ADC exam must include an electrocardiogram (EKG), pulmonary function tests (PFTs), audiogram, and bone and joint X-rays. Selected disqualifying conditions for the ADC include seizures (not childhood febrile – i.e., induced by high fever), cavitary pulmonary disease, obstructive or restrictive pulmonary disease, inability to equalize sinuses or ears, significant hemoglobinopathies (blood disorders

such as sickle cell anemia), diabetes, psychiatric disease, alcohol or drug abuse, impaired hearing (35 db < 3000hz) and pregnancy.

The American Academy of Underwater Scientists prohibits its members diving with angina, pregnancy, epilepsy, pulmonary cysts and tympanic membranes with one layer. The National Oceanic and Atmospheric Administration (NOAA) Diving Manual has yet another extensive list that rules out divers with skin, psychiatric, neurological, opthalmological, ENT, oral, pulmonary, cardiovascular, hemotological, gastroenterological, endocrine, musculoskeletal and obstetric problems.

It should be evident that the recommendations presented above are always subject to individual interpretation and may not be useful when evaluating a unique case. To its credit, NOAA recognizes that problem and suggests that if there are questions one can always consult with DAN. DAN, however, can advise only on the known medical facts of diving-related conditions, and the doctors and medics at DAN cannot and do not make individual medical decisions regarding fitness.

SPORT DIVING

Recreational diving is less clearly regulated than commercial or scientific diving. Worldwide, there are many other agencies certifying sport divers and allowing them to request air fills. Some training agencies like the Professional Association of Diving Instructors (PADI), the National Association of Underwater Instructors (NAUI) and Scuba Schools International (SSI) have suggested medical questionnaires that all students must complete prior to participation in training. If any questions are answered "yes," then students are required to receive signed, medical clearance to participate in scuba training.

The Recreational Scuba Training Council (RSTC) was incorporated in the United States in 1986 to establish minimum training standards for recreational scuba diving to promote public safety. Although the RSTC is primarily involved in training, it has a "Medical Statement" in which divers are informed of some potential risks involved in scuba diving. The statement includes a medical questionnaire, the purpose of which is to determine whether a diver should be examined by a doctor before participating in training.

A positive response to a question does not necessarily disqualify divers from diving. However, it means that there is a pre-existing condition that may affect safety while diving, and the advice of a physician prior to engaging in dive activities is required.

Rules are different outside the United States. In the United Kingdom, divers may not be trained without a medical declaration form or an examination. The UK Sport Diving Medical Committee advises the British Sub-Aqua Club, Sub-Aqua Association and Scottish Sub-Aqua Club on diving medicine issues, including assessment of fitness to dive. This is conducted through a national network of medical referees with accredited diving medicine expertise, using a uniform set of medical standards that are continually reviewed as new research is published (www.uksdmc.co.uk/standards/Standards.htm). These standards are reasonable, and because most diving in the United Kingdom is done through the aforementioned clubs, the rules are enforceable.

Despite the apparent confusion, it is possible to appropriately determine whether an individual is medically fit to dive.

ABOUT THE AUTHOR

Dr. Jake Freiberger is board certified in anesthesiology, critical care medicine and undersea and hyperbaric medicine. He holds a master's degree in public health in environmental management and policy. He works as an attending physician at the Duke Center for Hyperbaric Medicine and Environmental Physiology.

WHAT IS A DEVIATED NASAL SEPTUM?

FEATURE **SAŠA JANJANIN**, MD AND **BARBARA KARIN VELA**, MD

Most of you have already heard someone mentioning that he/she or someone that they know has a "deviated nasal septum" or a "crooked septum". People with severely deviated septums may have nasal breathing difficulties or some other problems related to their nose, sinuses, or sometimes even the middle ear. So, what is a deviated nasal septum and how can a deviation affect diving?

The nasal septum is the wall that separates the left and right nasal cavity into halves, dividing the two nostrils. It is composed of a central supporting skeleton of bone and cartilage, which is covered on each side by mucous membranes. The front portion of the nasal septum is a firm but bendable structure made of cartilage and is covered by skin that has a rich supply of blood vessels.

A perfectly aligned nasal septum should be exactly in the midline, separating the left and right sides of the nose into passageways of the exactly same size. So, apart from when someone suffers from a heavy cold or allergy, he or she should experience no breathing or other associated nasal blockage problems. This would be the perfect septum alignment, but in reality some level of misalignment is very common – there are estimates that 70-80 percent of adults have off-centered nasal septums, a condition that is described as a "deviated nasal septum". However, the majority of people with the septum slightly shifted away from the midline, generally do not notice any breathing problems and are completely unaware of the problem.

A symptomatic deviated septum occurs when the septum is severely shifted away from the midline. The most common symptom from a badly deviated nasal septum is difficulty breathing through the nose. There are a number of reasons for a deviated septum to arise. For instance, a deviated septum can be caused by a blunt trauma to the face: if you are hit on the nose, not only can you end up with broken bones, but there is a fair chance the impact will cause damage to the cartilage of the septum. A deviated septum can also occur during childbirth from compression of the baby's nose as the baby passes through the birth canal, during teenage years due to its irregular growth spurt, or be a part of a congenital birth defect such as a cleft palate or a cleft lip. Sometimes the deformity of the septum can be seen on the ridge of the nose or felt, but more frequently the deviation is further back inside the nasal cavities and can't be seen by the patient. Only a complete examination of the nose after spray of a decongestant can determine if the septum is deviated.

The most common symptom from a badly deviated or crooked septum is difficulty breathing through the nose. People with a deviated septum are often noisy breathers. The symptoms are usually worse on one side, and sometimes actually occur on the side opposite the deviation. Restricted airflow through one nostril can cause loud breathing, particularly in children and babies. In adults it can lead to other problems, specifically chronic snoring and development of obstructive sleep apnea.

Congestion and blockage of the nose due to septal deviation can interfere with the drainage of the sinuses and lead to recurrent sinus infections because mucous cannot drain away from sinuses into the nose as would normally happen. This is a particularly important problem in divers as it occurs, the majority will first think it is sinus disease; while sinus cavities can be perfectly healthy, they will repetitively be suffering due to a permanently blocked nose. Therefore, repeated sinus pressure, sinus squeeze incidents, and recurrent sinus infections can be a reflection of a deviated nasal septum. A person with a mildly deviated septum can have symptoms only when he or she also has a "cold". In these people, the respiratory infection causes inflammation and swelling of nasal mucosa that temporarily amplifies any mild airflow problems related to the deviated septum.

A severely deviated septum may sometimes even impair the equalization of the middle ear. In severe deviations when there is almost complete obstruction of the one side of the nose, decreased airflow into the nose can also affect the area behind nasal cavities where Eustachian tubes open. So some scuba divers with a deviated septum may have difficulty equalizing the pressure in their ears when they dive (usually this problem affects just one ear on the side of the deviation).

Finally, it is not uncommon that some people with a deviated septum suffer from infrequent headaches! Blocked sinuses and a blocked nose cause these headaches. The pain may be felt across the forehead and sinuses and around the eye sockets.

When the deviation is heavy, it obstructs breathing and/or causes other related problems, surgical intervention is necessary. A surgical procedure called septoplasty can be performed under local or general anesthesia. With an endoscope, the surgeon makes a small incision inside the nose, lifts up the lining of the septum, and realigns and/or removes the deviated portions of the septal bone and cartilage. The usual goal however, is to leave as much supporting cartilage in the septum as possible. As the whole septoplasty is done through the nostrils, there is no visible scar or change in the outer appearance of the nose following this procedure.

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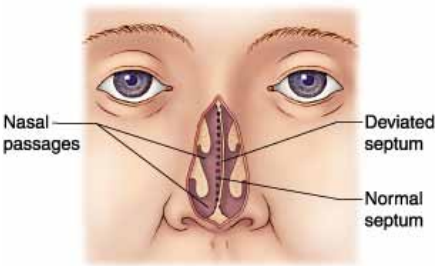

UPCOMING EVENTS

DIVE MIDDLE EAST EXHIBITION (DMEX)

5-9 March at the Dubai International Marine Club, Mina Seyahi

EARTH HOUR

23 March – Lights Off 8:30pm

DIGITAL ONLINE – THE EXHIBITION & AWARD CEREMONY

29 May | 19:00 – 22:00 | Venue TBC

INTERESTING LINKS AND RESOURCES

CORALS

- http://www.habitat.noaa.gov/protection/corals/deepseacorals.html
- http://www.coralwatch.org
- http://www.coralscience.org/main/

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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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5 - 9 MARCH 2013
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PREFERRED HOTEL PARTNER: One&Only Royal Mirage, Dubai