Inspiring People to Care About our Oceans Since 1995

DIVERS FOR THE ENVIRONMENT

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A GUIDE TO SOME OF THE WORLD'S DIVING DESTINATIONS DIVED AND EXPERIENCED BY EDA MEMBERS

YOU CAN MAKE A DIFFERENCE

CLEAN UP ARABIA

CLEAN UP ARABIA 2012

YOU CAN MAKE A DIFFERENCE

Register your friends and families for Clean Up Arabia 2012 on the 23rd and 24th of November and make the difference with us. Clean Up details and locations will become available soon. Become an EDA member today to receive all the EDA event updates!

EDA
جمعية الإمارات للغوص
Emirates Diving Association

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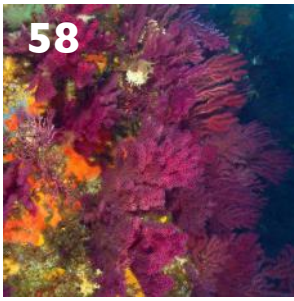

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DIVERS FOR THE ENVIRONMENT

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 December 2012. Send all articles, feedback or comments to: **magazine@emiratesdiving.com**

EDA COVER
PHOTO BY ALASTAIR MCGREGOR

REDUCE REUSE RECYCLE

Please recycle this magazine after you have read it.

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UNDERWATER DESTINATIONS BY EDA AMBASSADORS

IBRAHIM N. AL-ZU'BI
EDA Executive Director

Welcome to our September magazine issue of 'Divers for the Environment.' I hope you all enjoyed the spirit of the holy month of Ramadan and managed to do some diving during your Eid breaks!

From all of the exciting emails we've received, it seems that our members travelled to excellent diving destinations over the summer, including Egypt, Sipadan, Porquerolle and Seychelles amongst other destinations, which you will be reading about in this issue.

Since our establishment in 1995, EDA has been committed to marine conservation and our flagship projects such as Reef Check and the Coral Conservation Project are becoming a platform for scientists, divers and activists to take practical action to protect our coral reefs by studying them, collecting data, raising awareness based on scientific approaches and sharing the results regionally and globally.

Having recently celebrated Shark Week, we have been receiving lots of emails from our members and marine conservation associations asking for our help and support toward Shark Conservation. Proudly, EDA was one of the first organizations in the UAE and the region to promote for the protection of sharks. We've successfully initiated and implemented many campaigns for the protection of sharks, including our campaign for Carrefour to stop selling sharks in their fish section. We fought for sharks to stop being sold there and Carrefour listened; they even went one step further and introduced the reusable bags instead of plastic bags, which do so much damage to our marine life in their stores.

We were pleased to see such a fantastic turnout for the movie 'Requiem' that we showed at VOX cinemas, Mall of the Emirates. The panel discussion we had after the movie screening added more knowledge about just how misunderstood these beautiful creatures are, and what a catastrophe it would be for them to no longer be a part of our oceans; lets keep working together to make sure that never happens!

Word of mouth is gold in the diving world and makes a big difference for eager divers planning to spend some days diving in a place they never dived before. When fellow divers share their amazing underwater photos, recommendations and technical tips, it helps others plan their next diving holiday to unfamiliar territories. Thanks to the subjective and insightful views that we have received from some of our members, the destination section in this issue will help you do just that. By sharing their diving experiences, photos, tips and advice, so many of our members are now officially our Destination Diving EDA Ambassadors! Your insights and articles are imperative in recommending when and where to go diving, as well as what to look out for on trips. We hope your passion and enthusiasm continues and you send us news about your next diving adventures for our future issues!

Although our main focus at EDA is the passion we have for marine conservation, our environmental conscience does not stop in the seas alone, but also for our environment on land. We're happy to report that we planted 30 Ghaf trees outside our EDA offices in the Diving Village. We are so proud of the new residents and we will make sure that they are taken good care of, just as they are taking care of us by surrounding us with nature. Every little bit helps, so as marine conservationists and general environment lovers, please do all you can for our planet.

I would like to take this opportunity to congratulate our member Ahmed Khoori for breaking new UAE records at the Freedive Dahab Mini competition in Egypt, and I would also like to congratulate Paul Sant and Divers Down for their 10 year Anniversary. It is great to see the evolution of the diving industry here in the UAE, and each year it continues to go from strength to strength.

I do hope you enjoy reading our issue of 'Divers for the Environment'. The EDA team is working tirelessly to have another successful year and we're looking forward to seeing you all in our upcoming EDA events.

Happy reading and safe Eco Diving!

Ibrahim Al-Zubi

DUBAI AQUARIUM & UNDERWATER ZOO AND EMIRATES DIVING ASSOCIATION

CELEBRATE WORLD OCEANS DAY 2012

PHOTOGRAPHY **EDA**

World Oceans Day June 8th 2012

YOUTH: the next wave for change

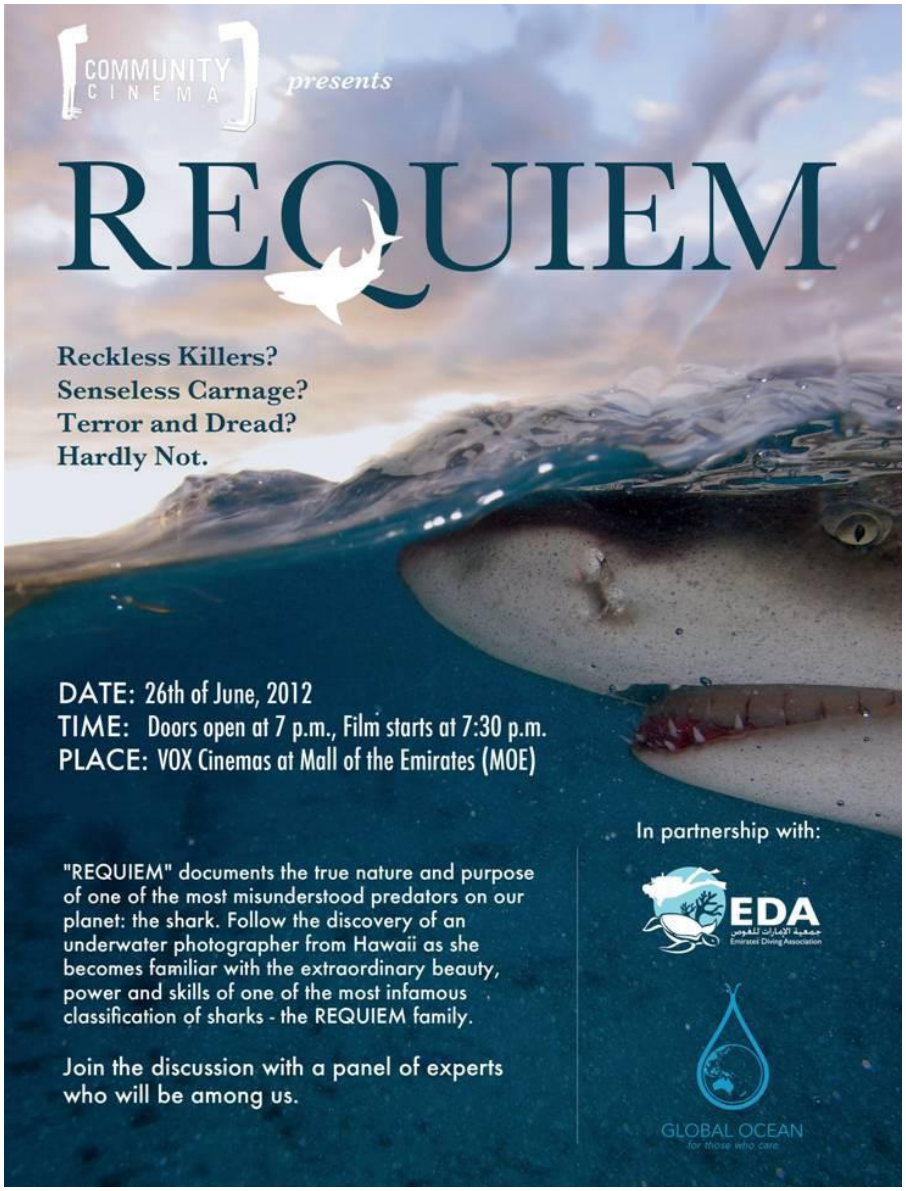
DUBAI, UAE – JUNE 12th, 2012 | Dubai Aquarium & Underwater Zoo, one of the world's largest indoor aquariums, managed by Emaar Retail LLC, partnered with Emirates Diving Association (EDA) and marked World Oceans Day last June 8th, 2012 to raise awareness for the need to protect seas and oceans worldwide.

To celebrate the global initiative, Dubai Aquarium & Underwater Zoo organised an array of activities including an underwater dive with EDA participants displaying an underwater banner that highlighted the theme of this year's celebration, "Youth, the next wave for change."

A range of activities were organised for young visitiors to Dubai Aquarium & Underwater Zoo, such as bead making from recycled materials. Special themed colouring books were donated by EDA for the children and story-telling sessions were held that described the ocean's bounty and reasons why it is important to protect it.

The world-renowned attraction took the opportunity to educate the young generation on the importance of conservation of our waters and to further mobilise a generation of youngsters who are aware of the environment and the need to protect it.

MOVIE SCREENING: REQUIEM



EDA along with Global Oceans, Community Cinemas and VOX Cinemas held a movie screening of the documentary 'REQUIEM' on Tuesday the 26th of June at 7pm at VOX Cinemas in Mall of the Emirates.

A Q&A was held at the end of the 40 minute screening with award-winning local film maker, Jonathan Ali Khan who screened two of his short films. He was joined by Lead Scientist for the Gulf Elasmo Project, Rima Jabado to also answer viewer questions on the problems facing the region's sharks.

JONATHAN ALI KHAN 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.

RIMA JABADO is a marine ecologist with over ten years of experience in marine research, wildlife monitoring and conservation projects from around the world focusing on behaviour, feeding ecology, migration patterns, habitat use, population genetics and rehabilitation of various species. She has been living in the UAE for five years with a goal of developing research programs focusing on the marine environment and its protection. Her PhD research on shark populations in the Arabian Gulf, is the first ever long term research project to be completed on elasmobranchs in the region and will provide much needed scientific data on the species composition, abundance and distribution of sharks in the Arabian Gulf.

MY TIME WITH EDA

My name is George Dale, I am an aspiring Marine Biologist, and hence, back in July I made the decision to get involved with EDA for some "on-topic" work experience. So, I was set to embark on four, three hour days in the office (due to Ramadan timings) and two morning trips to Abu Dhabi to do a dive off the Corniche. The first time I met Rita Bento, Marine Biologist at EDA, I was picked up from Marina Mall at 6 O'clock in the morning to head to Abu Dhabi. We had a bit of a hike to get there but one successful dive as a result. We placed terracotta tiles onto a reef in order to monitor certain factors.

My work experience continued in the office the following week. Rita and two of her colleagues greeted me with big smiles. It was a friendly, yet concentrated working atmosphere. I was set to count the frequency of different species of sea urchins in different areas. This was slightly tedious, but somewhat interesting simultaneously.

I left this brief period of work experience with a firm understanding of what it is to be a marine biologist and knowing, more certainly than before, that I want to be one. This was a fantastic experience because, not only did it make it clear to me that this is what I want to do, but it will also look good on a CV which will help me stand out from other candidates applying for the same course. If you are interested in marine biology, I certainly recommend that you look into enrolling for this experience as well.

Thank you very much Rita, and all at EDA.

THE UAE HAS A NEW NATIONAL FREEDIVING CHAMPION

ABU DHABI , 7 JUNE 2012: Ahmed Abdulla Khoori has broken three of Adel Abu Haliqa's UAE national records at the Freedive Dahab Mini Competition 2012 in Egypt.

Ahmed started Freediving in 2010 with FreedivingUAE and has become increasingly passionate about a sport which "challenges my understanding of what I am capable of " says Ahmed. Ahmed added, "I am honored and proud to be representing the UAE in the completion which has been a great preparation for the 2012 AIDA Team Freediving World Championships to be held in France in September this year".

During the competition Ahmed broke the UAE Static Free Immersion and Constant Weight national records. The records now stand at:

Freediving Discipline	Old Record (meters)	New Record (meters)	Status
Free Immersion	45m	46m	New UAE National Record
Static	3:31 mins	4:02 mins	New UAE National Record
Constant Weight	43m	45m	New UAE National Record

Ahmed explained his performances over the 3 day competition by saying: "I have been training hard for this competition both in the UAE and Thailand and was very pleased with my performance but felt I can go deeper. They were all very relaxing dives because I had done 51m in practice".

Ahmed went on say, "Thanks to Alex Boulting (co-founder of Freediving UAE) for all the support he gave me since I started Freediving and Jonathan Sunnex for the two successful training camps which improved my performance significantly".

It has been a year today (7th June 2012) since Adel Abu Haliqa went missing in Stantorini, Greece. It was always Adel's goal to encourage UAE nationals to compete. As he said in 2010 after breaking his own records in the World Cup, "I would also like to see more UAE nationals competing internationally because it is in our blood".

COMPETITIVE FREEDIVING

Competitive Freediving consists of 8 disciplines which are:

- **Static Apnea (STA)** – The freediver holds their breath, face down with their respiratory tracts immersed in water, generally in a swimming pool. It is essentially a mind game where the freediver is trying to control their urge to breath. The current world record is 11 minutes 35 seconds.
- **Dynamic Apnea with fins (DYN)** – Freedivers compete on how far they can travel horizontally underwater in a swimming pool using fins (usually mono fins) on one breath. The current world record is 250 meters
- **Dynamic Apnea without fins (DNF)** – Freedivers compete on how far they can travel horizontally underwater on one breath in a swimming pool without any propulsion aid i.e. only using their feet and hands in a breaststroke-like movement. The current world record is 213 meters.
- **Constant Weight With Fins (CWT)** – The freediver descends and ascends in open water (usually the sea) with the same amount of weight using fins (usually a monofin) and is only allowed to touch the rope to turn. The current world record is 124 meters
- **Constant Weight Without Fins (CNF)** – The freediver descends and ascends in open water (usually the sea) with the same amount of weight using only his feet and arms as propulsion and is only allowed to touch the rope to turn. The current world record is 94 meters.
- **Free Immersion (FIM)** – Freedivers can only use the rope as a form of propulsion by pulling themselves down on the descent and up on the ascent. The current world record is 120 meters.
- **Variable weight (VWT)** – The freediver descends with the assistance of a ballast and ascends without the weight pulling on the line or using fins as propulsion. The current world record is 142 meters.
- **No limits (NLT)** – The freediver descends with the assistance of a ballast and ascends assisted usually using an inflatable lift bag. This is a pure depth discipline. The current world record is 214 meters.

The majority of Freediving competitions are managed and overseen by AIDA, the Worldwide Federation for breath-hold diving. AIDA was established in 1992 and also sets the standards for freediving education. Since 1993, AIDA International has officiated 228 Official World Records.

http://www.aida-international.org/

FREEDIVINGUAE

Freediving UAE was co-founded by Adel Abu Haliqa and Alex Boulting in 2009. It is a professional community of free divers who have a passion for passively exploring the underwater world. Freediving UAE is the only company in the UAE specializing in courses and training in Freediving. Freediving UAE aims to connect the UAE heritage of pearl diving with the modern world of Freediving. Freediving UAE is currently working to get Freediving recognized in the UAE and create Freediving as a popular sport. In the future we aim to put the UAE on the international Freediving map by organizing a national team and running Freediving competitions.

http://www.freedivinguae.com/index.html

EAD'S INSPECTION CEASES MANGROVE REMOVAL ATTEMPT ON AL REEM ISLAND

INCIDENT WAS DISCOVERED DURING AN AD-HOC VISIT BY EAD INSPECTORS

ABU DHABI, AUGUST 5, 2012 | The Environment Agency – Abu Dhabi (EAD) recently succeeded in protecting approximately 60,000 square metres of mangroves on Al Reem Island after learning of a developer's attempt to clear the area in order to widen the Island's northern channel. The incident was discovered by EAD's inspectors who were making a routine visit to the site.

Reports show that the developer had attempted to initiate a mangrove removal operation in a bid to widen the Island's northern channel by approximately 75 meters in order to improve navigation and landscaping related to the channel.

The mangrove plays an integral role in the marine ecosystem, providing a habitat for aquatic and terrestrial fauna and flora. Although it is one of nature's important species, mangrove ecosystems can easily be adversely affected due to excessive human activities – such as development, dredging and boat activity.

Engineer Faisal Al Hammadi, Deputy Executive Director, Environment Quality Sector, EAD, commented, "Before a company can begin developing or dredging the site of its development, it is required to apply for an environmental permit from EAD. Following a stringent application review process and after a license is granted, EAD inspectors regularly visit the site to ensure that the developer is adhering to the conditions stipulated on the permit.

"This incident – as well as numerous other violations – was discovered when EAD inspectors were making one of their ad-hoc site visits. Working efficiently with the developer, the two teams ceased the mangrove removal operation within a matter of hours. The developer was then asked to submit a mangrove management plan as a mitigation measure, and to provide compensation for the damaged areas which will be used to replant new mangroves in the area," he said.

Environmental regulations exist to help prevent any occurrences of environmental damage. Treating habitat destruction or loss never fully restores it back to its natural state, requires heavy investment and can be time-consuming.

"At EAD, we strive to work with stakeholders on preventing environmental damage, rather than reacting to mitigate any damage caused. For this particular case, the developer took the necessary measures to rectify the situation, submitted an action plan to correct the violations we identified, and has now met our requirements. Upon a follow-up inspection, we can now confirm that it is compliant with our requirements," Al Hammadi concluded.

H.E Razan Khalifa Al Mubarak, Secretary General of EAD, said, "As Abu Dhabi continues to develop, it is critical that the Emirate have a strong and effective environmental regulatory framework, with a clear strategy focused on tackling the big issues in partnership with other relevant organisations. This will help us ensure that strategic economic growth provides the desired benefits – without damaging Abu Dhabi's natural heritage and long-term future prospects."

She added, "Our regulatory framework includes a full range of enforcement tools, including: inspections; prosecution and campaigns; an upgrade of our environmental permitting system in line with global best practice, effective implementation of legislation, standards, policy and procedures; undertaking environmental assessments and; industry audits to ensure compliance with legislation."

"The Emirate of Abu Dhabi is developing at a rapid rate; by complying with the law, developers who are contributing to Abu Dhabi's skyline can help us ensure that our surrounding land and marine habitats are not disrupted as a result. From our side, we will continue to vigorously enforce the laws to protect our Emirate's natural heritage," she concluded.

According to the International Union for Conservation of Nature (IUCN) Red List, the mangrove species is threatened by the loss of habitat throughout its range, primarily due to extraction and coastal development.

Back in the late 1970s, massive mangrove plantation programmes put in place by the late Sheikh Zayed bin Sultan Al Nahyan substantially contributed to the increase of mangrove plantations over the past decades. The Grey mangrove, or Avicennia marina, is the only mangrove species that grows in the UAE, of which 85% are found here in the Emirate of Abu Dhabi.

Presently, EAD is rehabilitating, conserving and protecting mangrove forests in seven main sites across the Emirate of Abu Dhabi: Saadiyat Island, Jubail Island, the Marawah Marine Biosphere Reserve (where the Island of Bu Tinah lies), Bu Syayeef Protected Area, Ras Gharab, the Eastern Mangroves and Ras Ghanada.

MANGROVE FACTS

Mangrove forests grow in areas between the high tide and the low tide mark, and substantially contribute to the preservation of the environment. They prevent coastline erosion caused by waves and ocean currents. In addition to being a major source of food and fuel, mangrove wood was used in the past for building houses and ships because of its rigidity and high resistance to rot and termites.

ABOUT ENVIRONMENT AGENCY – ABU DHABI (EAD)

EAD was established in 1996 to preserve Abu Dhabi's natural heritage, protect our future, and raise awareness about environmental issues. EAD is Abu Dhabi's environmental regulator and advises the government on environmental policy. It works to create sustainable communities, and protect and conserve wildlife and natural resources. EAD also works to ensure integrated and sustainable water resources management, to ensure clean air and minimise climate change and its impacts.

www.ead.ae

AN **INCONVENIENT** TRUTH?

FEATURE **KARIN LUND NIELSEN** (BUSINESS DEVELOPMENT MANAGER, DIVERS DOWN UAE)



Some of my fondest childhood memories were made before my grandparents passed away when I was 7. One of the things I remember clearly, is getting money and a shopping list from my grandmother, who trusted me to cross the road and go to the corner shop where Mr. & Mrs. Jensen would take the list, give me the items and make sure I got the correct change. I felt really important.

Unknown to me, Mr. & Mrs. Jensen were already then struggling financially and had to close down the business a few years later – after 40 years. Like so many others, they were victims of "progress". So-called supermarkets were taking over business, tempting customers with amazing offers and discounts. After half a year, the people in the neighbourhood realised that they missed the corner shop: the prices weren't actually that much better in the new "super-duper" markets, there was no personalized service – and Mr. Jensen's meat department had offered much higher quality. Of course it was too late. For a couple of years, Mr. & Mrs. Jensen had struggled along with a few loyal customers, and otherwise only selling the things customers forgot to buy in the supermarket.

This "progress" has happened in many countries in the dive business as well. Koh Tao in Thailand and Roatan, Honduras, are probably the most (in)famous areas: an excess of dive centres are fighting for the students and divers. At some point the price wars started with Groupon deals and massive discounts, so that the only way to survive in the dive business those places now is by quantity. It has the advantage for the divers that prices are very low – and the disadvantages that the number of course participants is generally very high, standards are often violated, and divers certified in those places are met with suspicion – the dive education is considered inferior by dive professionals world-wide.

To many, it is an uncomfortable conversation, but none-the-less an important one: is the UAE dive business going that way too? Throughout the past 6 months I have had this conversation with many dive centre owners, managers and independent professionals; all of whom have been as alerted as I am by the general development in the UAE dive world. Big or small, we share the concerns.

First of all, let's establish how dive centres earn money: by selling pleasure dives, equipment, diving courses and as booking agents for other boats / overnight trips / live-aboards.

Which costs do dive centres have? Boats, engines, rental equipment, tanks, compressors – all of which must be inspected, serviced and replaced regularly. There's shop rent, staff wages, paid vacations, staff flights home, visa's, sponsor fees, yearly trade license, yearly boat registrations, insurance, fuel, refreshments, furniture, office inventory etc, etc.

When attempting to save costs, it is important that safety isn't compromised, but also to find the balance between guest comfort / wishes / flexibility and efficiency. For instance, you can save money by only going to the closest dive sites – but then you are not flexible. As you get what you pay for, wages need to be competitive in order to attract good and experienced staff.

Looking at the income side, a dive centre cannot survive on the income generated by pleasure dives; the prices are too competitive – especially considering the increased fuel prices. In order to stay afloat, dive centres need to sell courses, equipment, and dive trips.

Several "threats" have appeared in recent years – the corner shops were pushed out by consumers choosing supermarkets; the dive centres are being pushed from three different corners (in no particular order):

1. Internet sales. Big companies with low overhead costs offering dive equipment at reduced prices. These companies sell huge quantities hence getting much lower purchase prices. In addition, some divers will happily use the dive centres for advice or even try on equipment during dives – though planning to order the gear online to save money.
2. Independent instructors undercutting prices: a large number of new instructors have been certified in the UAE the past few years. Some of these offer diving courses at very low prices. They can do this because they don't have the costs of boats, engines, staff, shops etc, etc. In many cases, the instructors have other jobs, and are teaching as a hobby – so they are happy to do a course for the price of the teaching material. They are in their full right to do so (as long as they have a trade license or work permit for that activity – which many of them don't), but they are of course undermining the dive centres.
3. Dive trips. No-brainer really: you can ask your dive shop to organize a trip for you, which takes the hassle and time off your hands. Or you can choose to spend your own time and energy getting all the details sorted. You pay the same price, but with the first option you help keep your local dive shop alive and you can spend your time doing something fun instead. Often you will even realize that it is cheaper to go through your dive shop or it may offer you some additional benefits.

Now, please don't get me wrong: I am not accusing anyone of any wrong-doing at all. There is absolutely nothing wrong with people trying to save a bit of money, helping friends, or earning a little on the side. This is not a complaint. Markets develop and change, that's normal. There will always be different types of competition in every business. This article is just meant to create awareness of the likely consequences of the current trend, before it is too late. The dive business has never been a money-making industry, but it is under increasing pressure, and I believe most divers do not know how serious the situation is for the dive centres.

Some readers will be thinking, "So what? Those are the market forces, and if you are not competitive, you sink. I want to get everything as cheap as I can". Others might think, "what can I do if it's important to me that there will always be professional dive centres who offer boat dives, tank fills, education, advice etc". To the first group I can only say "yes, you are

right". To the second group, my advice would be to stop, think – and then act…

Will I get better education with someone who has logged thousands of dives in different locations and conditions, and taught hundreds of divers within the past several years – or someone who started diving last year, has logged 130 dives, and certified 2 divers? Will my course be better if I have an instructor who uses the facilities of a dive centre (proper classroom, pool, other instructors available) – or someone who does my course off the beach and certifies me when I've never been deeper than 6 meters (yes, we have actually had quite a few of those divers coming to dive with us)? One of the largest scuba training organisations, SSI, has already taken the consequence: according to SSI, the only way to guarantee high-quality education is through an approved dive centre, and thus an independent instructor cannot certify any students.

When it comes to equipment, one could ask: Is saving Dhs 100 on that BCD really such a big deal to me, or do I value that there is someone available for advice, service and repair? And why do I organise a trip myself, when the price is exactly the same if I book through my local dive shop?

For the record: I am not whining. These past months have been the best in the 10-year history of Divers Down, and we are fully booked every weekend. We are doing fine, but we know that we are extremely fortunate to have such loyal guests, who also do what they can to spread the word. We are confident that we'll survive at least another 10 years, but others are not as fortunate, and I believe it is important to keep the variety in the dive market, because it keeps us all alert and intent on improving our services. Competition is healthy and beneficial, but we need to compare dolphins with dolphins, not barracudas.

In other words: divers who want to make sure that there will continue to be dive centres around, places to fill their tanks, companies offering boat rides to the dive sites, experienced people to teach courses, places to gather for club activities, and experienced people to ask for advice on equipment, dive destinations etc, they need to consider these aspects when making their choices before the dive professionals end up like Mr. & Mrs. Jensen.

TEN YEARS,
MANY SMILES AND LOTS OF GREY HAIR.

FEATURE **PAUL SANT**, DIVERS DOWN

Hard to believe that in March I reached a decade of operating and owning Divers Down in the UAE. In that time I have smiled many times and grown a lot of grey hair!

I came to the UAE straight after serving in the Marines (UK) to work for another large dive operator and thanks to them, I had the opportunity to start Divers Down in the Oceanic Hotel.

Why Divers Down? Well, there is a Divers Down in Swanage, England and that was not only the 1st PADI centre there, but also where I completed most of my UK dives. Swanage is one of the classic and most popular destinations for UK diving. I like the name, because it represents what we do; taking "Divers Down" into the ocean!

Divers Down
U.A.E.

The original logo was created by myself and stayed with us for 8 years, until a customer commented that it appeared aggressive and could put the younger generation off diving with us. The second and current logo – also my concept – is far from aggressive and has certainly proved popular with the younger generation.

I always wanted a dive centre that felt like a club; a place where guests would feel at home. It was and still is important that our guests are welcomed into Divers Down as friends rather than just customers.

Throughout the years, high standards and safety have been and are essential to me! All students should receive the best training we can possibly offer, and pleasure divers should be offered CHOICE as to where we take them diving.

During the time we were at the Oceanic, we had 2 cyclones – one of which destroyed the dive centre – and we had a red tide that lasted 7 months! Still we rebuilt and carried on; in fact we opened 3 days after cyclone Gonu left! That was possible because of great staff and understanding guests, who persevered with our minimal facilities, thus enabling us to continue operations and stay in business.

Now we are in the Miramar Al Aqah Resort & Spa, and have just started year 2 in this environment, which is completely different to the Oceanic. We are in Fujairah now, so guests can relax with a cold beverage after diving! Another advantage is that we are now at a bigger facility which has more to offer guests; whether they come for a day of diving or a week of holiday. We are further away from the main sites such as Martini and Shark Island, but the pro's far outweigh the con's. Besides, with our new engines, all dive sites are still reached within 20 minutes.

When asked why I still love running Divers Down, there is only one reply; my guests!

When asked what I hate, there is also just one reply: seeing the marine environment continuously hammered by human actions, such as the red tide, dredging, oil bunkering, break waters and shark fishing (finning).

The future? Well, we are still here! We are surrounded by competition, but that just keeps us on track. We will continue to teach you diving, take you pleasure diving and get you involved with our club days. You are the future; you are keeping Divers Down alive. My team (past and present) and I thank you for the 10 wonderful years you have given us; we hope that we may continue catering to your diving needs for another ten years or more!

FROM STILETTOS TO FINS
AND AN OFFICE WITHOUT WALLS

Call it what you will, the need for adventure, a greater challenge, a career break, or a mid life crisis but teaching in England had lost its appeal. In such a situation what's a girl to do? Clearly pack her bag and head off on a sports themed round the world trip. A world trip that took me from stilettos and business suits to fins and wet suits and saw me switching my confined classroom for one without walls.

As I (Karen) travelled through New Zealand and Australia, I dived but I found myself wanting to do more, so instead of the planned Borneo, Vietnam and Cambodia trip it was off to Koh Tao to become a Dive Master at Crystal Dive Resort, well why not? A great three months followed, learning to be a 'dive professional' in a successfully busy dive school, assisting on courses, supporting instructors and students and completing an intern program working as surface cover and in the end, a fully qualified Dive Master. Mission accomplished? Another tick on the sports' tour list? Yes, but in true me fashion, that wasn't enough.

Clearly if there was an opportunity to unite my love of teaching with my love of diving, surely that was the next step wasn't it? Of course! And so, along with diving buddy Matt, the IDC beckoned. A tough 14 days followed but one that was challenging and rewarding and well worth it.

Now Koh Tao is known for its nights out and on one of ours (surprisingly we were talking about diving) a mutal friend suggested completing the MSDT in Dubai so a few internet searches and emails with Course Director Paul Cunningham later, I was on a flight, destination Dubai.

STILETTOS TO THONGS
…A SCUBA JOURNEY

My (Matt) journey began in the UK where I was fulfilling my life as Teacher in my native Gloucestershire. After a few years of the daily grind, I decided that I would venture beyond English shores and head south. A few hours post decision resignation was submitted and flights were booked. Destination Australia via SE Asia. During my SE Asia exploration, I undertook the standard backpacker scuba experience in the form of the PADI Open Water Course on Koh Phi Phi (Thailand). I eventually crawled into Australia and served 18 months teaching Physical Education in Victoria before it was time to head home via some additional travel experiences. Under the advisement of a beautiful Danish lady, I handed in my running shoes for a pair of thongs (flip-flops to the non-Australian inclined) and headed for Koh Tao to become a Rescue Diver & Divemaster (cue Super Hero Music!). Crystal Dive Resort was my Dive Centre of choice and on Day 1 of the Rescue Course, I was introduced to my cohort including an English Lady by the name of Karen.

After 2 months of Divemaster training and completing an internship with Crystal, it seemed that becoming an Instructor was a natural choice and putting off going home for a little longer seemed a good idea. Karen had also decided to continue on to the Instructor Development Course.

After 2 weeks of the IDC and the nervous 3 day IE (Instructor Exam), I was given a certificate and a hand shake and told to go forth and teach the Scuba Gospel. My peers, whom I had shared so much with, presented me with their ideas of how to do this, some would return home to start out as OWSI's (Open Water Scuba Instructors), many would stay and complete the MSDT (Master Scuba Diver Trainer), both of which sounded valid, but after 3 months of being on a small island, I needed a new challenge and a fresh face on diving.

Over dinner many discussions pursued as always, until one young face declared he was returning home to Dubai and would probably complete his MSDT there. My ears picked up, a new challenge and the road less travelled. It seemed my partner in scuba crime also picked up on said conversation. Minutes later, the WIFI password had been gained from the waitress and research had begun, within a few minutes an email had been sent to a Paul Cunningham. Emails flew back and forth and before I knew it, I was a plane to Dubai!

So our (Matt and Karen's) UAE journey began in Dubai, like many stories before.

Under the wing of Course Director Paul and his wife Phalla, we were initiated into the Dubai world. A course program was created and we were dispatched to Divers Down Fujairah and to another Paul and his wife Karin (another Danish lady).

Master Instructor and owner Paul Sant was there to receive us and instantly informed us of our primary duties; speciality training by week days, dive crew by weekend, subtly dropping into conversation that he and his wife were going on holiday in 5 days for 10 days. A little overwhelming for day 1, but in those famous words…Challenge Accepted!

We were taught our Scuba ropes over those 5 days by Paul C and nervously waved good bye to Paul S and Karin (the Danish one). Karin had handed the DD phone (similar to the Bat Phone but with customers attached to the other end) to English Karen (who had taken over as office manager) and Instructors Matt and Mike would act much like Paul S as possible. Confused yet?

10 days later, the Dive Shop was still standing and we had completed our speciality instructor courses with Paul C. It was an amazing experience for us as we were able to fully immerse ourselves in the daily operations and management of a dive centre, providing us with a true experience of the industry as Paul S promised. Throughout we have not been limited to instructing or filling tanks (although we do this as well). Management, scheduling, retail and maintenance to name a few areas have been part of the experience. Combine this with diving the amazing local sites with its abundant marine life from the variety of Nudibranchs at Inchcape II to the tiny sea horses, mating cuttlefish and black tip reef sharks all of which we never saw in Thailand.

It seems the road less travelled was an excellent choice and following a few more internet searches and flight changes, the original one month stay has been extended and we're still here. It seems like ditching the stilettos and adopting the thongs and neoprene suits fits the 2 PE teachers from England rather well.

ANCHOR BARGE

FEATURE **ANDREW ROUGHTON**

The West Coast of the United Arab Emirates gets more than its fair share of criticism amongst pleasure divers and, to be honest, more often than not I can sympathise. The visibility is often poor, the marine life can be scarce, and the cost is usually high when compared to the East Coast. However, if you dive regularly or you're just lucky enough to get some good visibility, the West Coast does have some real gems. Most notably, there is the M.V. Dara, the Zainab, the Ludwig and Lion City.

However, a less notable, but equally rewarding dive is the Anchor Barge. Found at N25° 30'47.6" E55° 04'35.7," the Anchor Barge is a twenty-five metre deep shipwreck off the coast of Dubai. With several safe penetration points, abundant marine life, and all the mystery and charm of any good shipwreck, Anchor Barge has an enormous appeal to any admirer of the Persian Gulf's vast and varied marine life.

Here you can find Barracuda hovering above the deck of the ship, Cuttlefish fanning above the ocean floor, and Angelfish gliding in and out of the ship's manifold port holes. Moreover, if you look a little closer you will find colourful Nudibranchs slowly climbing across the ship's stern, vigilant Blennies guarding their holes on the sea floor, and elusive Ribbontailed Stingrays nestling in the sand beneath the wreck. Anchor Barge thus provides a wonderful vantage-point to appreciate the majority of the region's species.

Additionally, with the Neptune as a good neighbouring dive site, the Anchor Barge provides a good two-dive daytrip that is serviced by most of Dubai dive clubs including The Pavilion Dive Centre, Al Boom Diving, and Atlantis Dive Centre.

Therefore, if, like me, you find yourself tired of getting up at ridiculous o'clock on a Friday or Saturday morning to drive across to the East Coast or if you're just looking for an alternative to Martini Rock, Snoopy Island, or Dibba Rock, the West Coast can occasionally provide a decent substitute for all pleasure divers seeking the best of the region's aquatic flora and fauna.

BUBBLE N SQUEAK DIVING REVIEWS

THE NEW AQUALUNG LEGEND LX REGULATOR

FEATURE **JOHN HOWARD AKA BUBBLE N SQUEAK DIVING**

Hats off to Legend – Or should I say caps on!

Having been a fan and constant user of the previous Legend regulator, I was keen to see how they could improve my favourite reg and how it performed in different diving situations.

The immediately noticeable physical changes are that it is lighter with a smaller 1st stage, new style lightweight flexi hoses and a redesigned second stage. Yes, it is certainly better looking with a less clunky feel than my old reg, but for me it is performance that matters, not looks. I have always taken the view that the regulator, especially the first stage, is the singular most important piece of my kit. I can cope and self-rescue with equipment failures with every other piece of equipment, but I need to know that the first stage is going to do what it is designed to do all the time, every time. I enjoy 30m+ dives and being an inquisitive photographer I need the regulator to deliver air effortlessly in all situations including being upside down and being on my back, face up at 30m+. As an instructor, I want to have full confidence in my set up so that there is minimal risk of me being dependant on a student to help me or having to cut short a dive due to equipment failure.

The claim is that the new 1st stage is set in such a way that it provides no additional breathing resistance at depth and I am pleased to report, it does everything it claims. I tested the regulator in a variety of situations, depths and angles and it is just perfect. The redesigned 2nd stage is simpler to use than its predecessor in that there is one integrated adjuster. To use the regulator correctly you increase the resistance of the 2nd stage on entry so that you do not lose air through free-flow then reduce the resistance to the desired level once you are below the surface. From then on, no further adjustment is required as I found that the delivery mechanism provided low resistance air without free flow at all depths. Something most other regulators do not achieve to this extent. They have also fitted a redesigned mouthpiece to the 2nd stage which I initially though would irritate me. The mouthpiece covers the lips and was designed as a lip warmer for use in colder water. It is also useful in a strong current as it reduces the possibility of water entering your mouth while facing into the current. After 2 dives I was satisfied that it was doing the job and not annoying me in the least. In fact, the design of the mouthpiece is very comfortable. I lent the reg to another diver who often had jaw ache after diving and the result after two dives with the Legend was no jaw ache.

And now for the final trump card. The ACD. (Auto Closure Device) This little piece of magic may just save a diver from an expensive additional service at the very least. The ACD 'closes' the 1st stage inlet once it has been removed from the tank valve, thus preventing contaminates from entering. So in the event that you inadvertently leave the dust cap off before rinsing the reg (No student of mine please!) you are protected. Seriously though, accidents can happen. Just imagine if your reg falls into the sand or water whilst you are changing tanks. With this reg, there is no need for concern. Just rinse with fresh water and carry on.

This regulator is aimed at the regular diver who does not mind spending a few extra AEDs for comfort, quality performance backed by one of the best brand names in the market.

Overall, I was highly impressed with this redesigned regulator. So much so that I bought it!

BACK TO THE FUTURE?
THE NEW AQUALUNG AXIOM BCD

FEATURE **STEVE WOOD**, PADI STAFF INSTRUCTOR | WWW.SCUBASTEVE.AE

Spot the difference? The Axiom looks almost identical to the Dimension.

Last year I tested the Aqualung Dimension BCD (EDA June 2011). It sat nicely in the middle of the range of jackets between the super lightweight travel option (Zuma) and the heavyweight jackets (Pro QD).

Never a company to sit still, Aqualung have recently launched the new AXIOM i3. As always Colin at Al Boom asked me to take one away with me on my next weekend trip and see what I thought.

Initially, I was not sure why Aqualung wanted a jacket that looks very similar to the Dimension. After all, it's hardly been around that long and sells very well. So it was with a somewhat critical view I set up my kit for the first dive and connected the AXIOM to my tank.

The AXIOM comes with the option of the standard low pressure inflator or the i3 auto inflate system. I decided on the i3 version for my trip. The i3 has been around for a few years now and I have yet to meet a diver who doesn't love it. A simple lever inflates the jacket and when you want to deflate just press the lever the opposite way and all the dump valves are opened so air vents quickly from whatever valve is in the best position. It really is a dream to use but I am still not convinced it's worth the additional cost for what it brings to the party. But then I am old school and am happy to tuck my inflator hose behind my chest strap to keep it out of the way.

So what do we get on the new AXIOM that's different? Well, the tank strap is the GripLock™ tank band plus set and forget tank buckle system which does add some weight. The main setting is made once with any fine tuning done using a micro adjuster next to the buckle to ensure a tight and secure fitting. A safety feature has been integrated to prevent injury to fingers when tightening the clamp. Your tank is not going to slip and it holds it nice and snug to the jacket. The new integrated Wrapture harness system provides better stability and support with swiveling quick release shoulder straps which are secured closer towards the back to provide a more open but more secure fit, helping to prevent the BCD from rolling and sliding on the body. The fit is possibly the best I have experienced.

Aqualung have really listened to what divers had commented on about previous jackets so we get 2 trim pouches on the tank band, an extra large pocket on one side plus a further smaller pocket and lots of stainless steel d-rings.

The bladder construction has been upgraded so it's even tougher than before. The jacket really does feel bomb proof so instructors and those of us who like our wreck diving are going to feel confident that we are not going to damage it.

Comfort is a big factor on the jacket as well. Even with just a rash vest for protection the jacket felt comfortable at all times. Nicely padded inside and with a rolled neck collar I never felt any rubbing or sharp digs to my torso on the seven dives I used it.

There is a good hose routing system and an octo-pocket to keep things tidy.

There are a couple of grumbles however. I found the large fold down pocket they have added, just too big. It felt as though it was constantly flapping around and became annoying after the first dive. I ended up folding it back up using the Velcro fastening. I still managed to get my finger reel, DSMB and torch into the pocket so I am not sure why they have made it quite so large.

My main issue however is the SureLock II weight pouches system. Integrated weights are a must for any jacket these days and the lock systems have improved over the years. Aqualung have upgraded their locking mechanism and the pouches clip in very easily. However, the new system has a quick release that lifts the lock when you pull the plastic grip handle. They slide out very easily but on 2 occasions I lost a weight pouch as a result of them not being locked in properly. The cause of this was my testing that they were locked before I dived. Unwittingly I had actually released the lock. Another diver had the same problem so it's not just me! Once you know this, you avoid pulling on the grips and trust the locks when you hear the very clear click. But be warned. Almost a case of the manufacturer getting too smart!!!

SURELOCK II WEIGHT POUCHES AND THE I3 INFLATOR SYSTEM

So who will buy this jacket? It's certainly lighter than the Pro QD and similar options so the diver who wants to travel light will be happy. It's also very strong and robust so it will appeal to the instructor. The main market will be for the larger divers amongst us who need to wear a lot of lead. We tested the jacket with 6kg in each pouch plus 2kg in the trim pouches at the back. It handled this amount of weight with no problems whereas I wouldn't trust the Zuma to be secure with that much lead in the pockets. So if you need a tough, durable jacket that still offers the lightweight travel option, then the AXIOM is a great choice.

Thanks to Colin at Al Boom for loaning me the AXIOM for testing.

AL BOOM DIVING'S SCHOOL COORDINATOR

In June this year, I was privileged to be given the opportunity to join the Al Boom Family as their School's Coordinator. It was a position I was very excited about and I knew I could make a huge success of our developing 'schools program'. I've always been passionate about the environment and it was my recreational diving experiences that led me to a degree in Animal Behaviour over Business or Law. I relish teaching others about the natural world; I've been involved in environmental charities since I started university in 2006, either as an active volunteer or being one of the lucky few to land a paying job.

This year Al Boom Diving has big, exciting plans for children. We'll be running after-school clubs and dive trips for children throughout the year. At Al Boom, we all believe that educating children about conservation and environmental issues is the key to protecting our natural world for the future. Courses we'll be running include Seal Team, Master Seal Team, Open Water Diver, Advanced Open Water Diver and Rescue Diver. Furthermore, we'll be hosting special conservation-themed dives, talking about sharks and conducting "Dive Against Debris" dives.

If you're interested in getting your school or club involved, please email **Leanne@alboomdiving.ae**

ATLANTIS THE PALM, DUBAI

Al Boom Diving is excited to officially announce our partnership with Atlantis The Palm, Dubai giving us the fantatstic opportunity to run the dive centre. With two indoor, salt-water training pools, including an in-house wreck and two house dive-sites accessible from the Aquaventure Beach, the dive centre's facilities are a diver's dream.

Diving is offered 365 days of the year and students can complete their PADI Open Water and Advanced certifications at the centre. Having opened our first dive centre 25 years ago, Al Boom brings a wealth of experience in the industry; two PADI Course Directors; the largest team of instructors in the UAE; a fleet of purpose built dive boats and a vast selection of diving equipment from many of scuba's top brands such as Aqualung, Apeks, Cressi-Sub and more. We look forward to welcoming our new guests, be they experienced divers or those wanting to try diving for the very first time. If you would like to come and check out some underwater action then call us on +971 4 342 2993.

DRY EARS OR RADIO TWO

FEATURE **GORDON T SMITH**

During the past year I have had more than my fair share of ear problems resulting in dive trips being cut short due to infections and a perforation of the eardrum. A major problem especially having flown thousands of miles to exotic dive locations, not to mention the expense!
I have to admit that I am no longer young anymore but because of my love of scuba diving I persevere and always look for ways to avoid such problems.

Medically I have tried to be proactive, using a mixture of 50% acetic acid (white vinegar)/ alcohol mix for rinsing my ears post diving at the end of the day, 5 minutes in each ear, but it did not prevent a problem last April and a subsequent infection, leading to another six weeks out of the water.

A friend of mine, Leon, who was on the same trip had similar issues but was on a two-week trip whereas mine was only one week. After I had left, he had managed to procure a new

mask with ear covers that kept the ears dry and used it successfully on the second week of diving at Puerto Galera, Philippines.

When renewing my DAN membership, I noticed the same mask for sale on their website for €85 and I thought, well why not give it a try.

So how can the ears be kept dry and at the same ambient pressure of the diving depth?

Although the ears are sealed, the cover is connected via a tube to the mask, equalization is the same as normal, no difference at all.

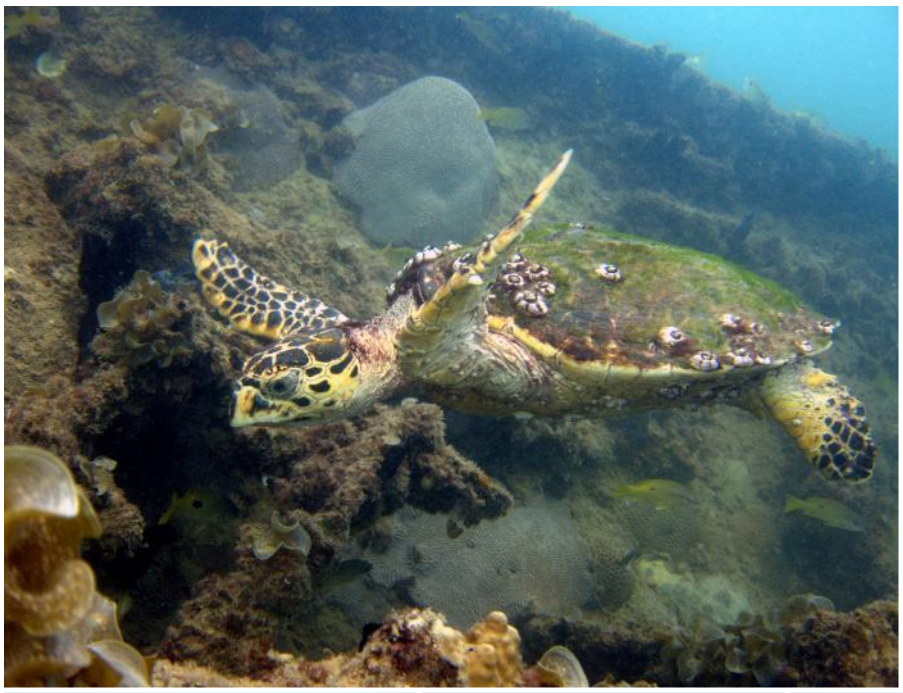
As for keeping my ears dry, well all I can say after over 20 dives, is that sometimes it works and sometimes it doesn't. It all depends when I had my last haircut!

Either I shave my head to allow a good seal around the ears or go to Kim Jung Un's barber.

So far anyway I have not done more than two consecutive days diving without any issues, not even an itchy ear despite the slight dampness at times. The proof of the pudding so to speak, will be on my next dive trip to the Philippines in late October for a full week of diving.

MY WEEK WITH A TURTLE

FEATURE AND PHOTOGRAPHY **DAVID PETERS**, ARABIAN DIVER, RAS AL KHAIMAH



MONDAY

She's a temperamental little thing. I try and make arrangements to meet her today, we are coming to the end of dive number one, she appears from within the wreck and skims her algae covered shell straight over Stu's head.

TUESDAY

Today we saw her scratching away at those itchy barnacles and all the algae on her shell. We're all enjoying this unique glimpse into the ocean world. She doesn't actually know how special and rare she is, endangered in fact. Or maybe she does because she gets a lot of attention, and seems to love it.

WEDNESDAY

Today she's chewing down on the wreck at small crustaceans and sponges, her powerful bill chewing away at her little snack, yum yum.

THURSDAY

She's nowhere to be seen. There is a broken fishing line on one corner of the wreck. As we circle the wreck there is more fishing line covering the Eastern corner. Has she been caught by the fisherman trawling along the bottom and catching everything in their path? Almost every night they are out here catching everything in a kilometer wide radius of net. Would they even throw her back if they found her with her shiny, valuable shell?

FRIDAY

Phew, she's spotted, she approached the group, slapped her flipper into my regulator and swam off to have another scratch. Not sure whether this was a greeting, or a threat. Regardless I am so happy to see her safe and well. The fishing nets the day before were a reminder of how fragile her existence is, in the Gulf, and the wider ocean.

SATURDAY

Still scratching away this morning, the crusty barnacles won't budge, she even tries to slide up against our anchor, but the little critters are clinging on. She gets a little hungry and starts to nibble on my fins! They aren't to her liking though so she sidles off to find another sponge.

SUNDAY

I look forward to my next week of diving. Hoping I can see Ibn Abdulla, witness her swim around the small wreck, feeding, itching, scratching, and entertaining us all. She is a truly charismatic and entertaining turtle. Every time I see her I get a taste of her unique personality. She is as inquisitive of people as we are of her. I hope she stays with us in the weeks and months to come, so I can get to know her better.

As we return to the marina, I look along the coastline at the beaches of Ras Al Khaimah and Um Al Quwain and I see countless construction projects, new resorts and apartments being built on the Hawksbills beaches. If they were born along these beaches, they need to return to them to nest, but now there are numerous resorts in the way!

Hawksbill turtles are critically endangered. Their numbers have diminished 80% in the last generation as they have been caught for their decorative shells, as by-catch in commercial fishing and their nesting beaches are destroyed. I hope Ibn Abdullah is able to steer clear of all the hazards humans are bringing to her ocean environment. Hopefully she will survive against the odds, and keep the Hawksbill turtle population of the Arabian Gulf alive and well so that the next generation can experience and get to know these amazing, charismatic and truly unique creatures like Arabian Diver has for the last few months.

Email: david@arabiandiver.com

FSDC'S 2nd SCUBA OLYMPICS

In the spirit of the Olympics and in true sportsmanship style, the Filipino Scuba Divers Club – UAE (FSDC) held its 2nd Scuba Olympics in Jumeirah for its avid members and supporters.

The Scuba Olympics is a friendly and competitive event that aims to foster camaraderie while engaging the participants in a test of diving skills against other certified scuba divers.

In this year's competition, nine pairs of divers flexed their muscles and knowhow in five challenges, including the fundamentals in gear assembly, buddy checks, water entries, buoyancy control, as well as in an exciting navigation and search and rescue. Points were given for speed and accuracy and corresponding demerits slapped for any safety risks.

Underwater challenges consisted of the Ping-pong Relay which tested control, stability and teamwork of the participants, the Mask Swap involving quickly changing masks with their buddies and clearing them of water, and the Search and Recovery using their navigation skills. Underwater visibility that day was very poor and this made matters more grueling for the competitors. Final challenge was a race finning to shore while doing the Tired Diver Tow.

The event was a resounding success, with all the participants enjoying the adrenaline rush and the spectators having a jolly good time.

The winners of the 2nd Scuba Olympics were:
1st place – Red Vargas and Tim Soliman
2nd place – Joel Acosta and Joy Acosta
3rd place – Tarek Siksek and Michael Redfern

Best in Costume were Gigit Vargas and Mitch Cantillana as Wonder Women. Other participants were Matt Bayer and Kyle Carr, Kiko Castro and Precious Azul, Ronald Pinto and Florante Sario, Ros Ruiz and Manuel Douglas Loleng, and Rylan Lee and Mario Elmenzo.

This event was organized by the FSDC officers led by Tina Vitug, and conducted by game marshals headed by Allan Dy Co and Edu Alivio. Safety Officers were Joe Acosta and Amir Hajilo. Dubai Police provided rescue patrol on standby to ensure the safety of the participants and the general public.

Sponsors were Al Boom Diving, Sekonda Watches, Johnson Controls and TDIC.

With this annual event, FSDC aims to promote scuba diving as a fun and safe sport within the community and for its dive enthusiasts to continue enhancing their diving skills.

Watch the video of FSDC's 1st and 2nd Scuba Olympics in FSDC's Vimeo account **http://vimeo.com/46511942**

THE ROLE OF SHARKS IN OUR OCEAN'S ECOSYSTEM


Photo by Rishi Avala

"We must not only defend sharks because they are useful and beautiful, but we must protect the sea that feeds them. And also restore the balance of the great ocean's ecosystem, of which sharks form an important link and on which we ultimately depend."
JACQUES COUSTEAU

Sharks and rays play an extremely important role in maintaining the balance and stability of our ocean's ecosystems. They serve as the apex predators of the ecosystem and the entire balance of the ecosystem relies on the presence of sharks and rays. The primary problem we face is the lack of information of these elasmobranch species on a national, regional and global level. The research has shown us that so far there has been an immense decline in populations of elasmobranch species around the world decimating them and driving them into extinction.

Sharks and rays are targeted for their meat, fins and gills. The high demand and prices paid for shark fins in particular have resulted in a well enforced global black market. As the economies in Asian countries are advancing, more and more people are able to afford the shark fin soup escalating the demand for fins. The data recorded so far shows that 80-100 million sharks are killed per annum to satisfy the needs for the growing middle class population of Asian countries but these numbers are only the recorded estimates and are not completely accurate. The UAE is the 5th largest export hub of shark fins to Hong Kong and China.

There are several factors excluding the human exploitation of shark species that make them extremely vulnerable:

1. A lot of sharks and rays are merely caught accidently as bycatch and their lifeless bodies are then dumped back into the ocean. This often occurs when fisherman use longlines.
2. Sharks attain sexual maturity at a late age.
3. Sharks have low fecundity: Female sharks give birth to very few pups at a time.
4. Long Gestation Periods: Embryos take 7 months to 2 years to develop depending on the species.

What can we as the consumers and the public do to help protect the sharks?

- Discourage restaurants from serving shark fin soup by boycotting soup. Stop patronizing restaurants and shops that sell shark products. Remember when the buying stops, killing stops too!
- Support international shark fisheries' management and conservation efforts.
- Contact your local government. Demand that shark management and conservation efforts become a priority.
- Help educate fishermen that sharks are a valuable natural history and a vital part of the culture. Shark fishing should be performed at a sustainable level.
- Help conserve shark populations by promoting sustainable Shark Fisheries and outreach programs.
- Raise awareness on the pressing issue and highlight the importance sharks play in the underwater ecosystem as apex predators.
- Help implement a "National Plan for the Management and Conservation of Sharks"
- Encourage more marine protected areas as sanctuaries for shark populations to recuperate.

Sharks have survived for 400 million years, but may be gone within 10 years if the current rate of fishing practices continues. Sharks have evolved in a tight inter-dependency with their ecosystem. They tend to eat very efficiently, going after the old, sick, or slower fish in a population that they prey upon, keeping that population healthier. Sharks groom many populations of marine life to the right size so that those prey species don't cause harm to the ecosystem by becoming too populous. Humans are the real threat to sharks.

Is this the legacy we want to bestow upon our children?

All of nature's bounty are not nature's resources .We need to rethink our relationship with nature.

LINKS OF REFERENCE:
http://saveourseas.com/blog/shark_and_ray_conservation_status_revealed_in_new_expert_report
http://www.supergreenme.com/go-green-environment-eco:How-to-Protect-Sharks---Stop-Shark-Finning
http://www.mesa.edu.au/seaweek2005/pdf_senior/is04.pdf
https://www.facebook.com/EPGUAE

BEUCHAT

BEUCHAT INTERNATIONAL is organizing a technical seminar in DUBAI on the 11th of October 2012 from 9:30am till 4:00pm.

Should you wish to attend this event, please contact Sylvie Cannelle by email to get more information at: **sylvie.beuchat@gmail.com**

On the same day, Philippe Murat, our technician from France and Sylvie Cannelle will be available at the Barracuda Fishing Equipment shop in Dubai from 5:00pm till 8:00pm to answer all your technical questions or product inquiries. They are also organizing a prize raffle, so please come on by and drop your business card off on this day to get a chance to win.

Barracuda Fishing Equipment Location: On Sheikh Zayed Road, Abu Dhabi bound, after the Safa Park Exit

Tel: +971 4 346 6558
www.barracudadubai.com

AL MAHARA DIVING CENTER AT EMIRATES PALACE MARINA

Emirates Palace Marina gives divers and adventure seekers the chance to explore the beautiful underwater world of Abu Dhabi.

From July PADI accredited Al Mahara Diving Center, a prominent PADI 5 Star Instructor Development diving center at Emirates Palace Marina invites you to experience night and wreck dives, group trips and courses, one-on-one tuition, VIP diving and other wonderful and memorable diving adventures available in Abu Dhabi.

Al Mahara also takes a strong stance on protecting and preserving the environment by being active in the community in beach and underwater clean ups under the umbrella of Emirates Diving Association and organising marine presentations and movie screenings.

For more information, contact **info@divemahara.com** or visit **www.divemahara.com**

INSTRUCTOR EXAMINATION IN MUSCAT, OMAN

PHOTOGRAPHY **KATHLEEN RUSSELL**

Al Mahara Diving Center would like to congratulate all the successful PADI Open Water Scuba Instructor candidates on passing their two-day PADI Instructor Examination during July in Muscat, Oman.

Candidates came from all over the region to take part in the examination to further their professional career as a PADI Open Water Scuba Instructor. Al Mahara Diving Center is a PADI 5 Star Instructor Development Center in Abu Dhabi dedicated to developing PADI professional level divers.

For more information, please email us at **info@divemahara.com**

SHARKWATCH ARABIA UPDATE
A GOOD SEASON FOR WHALE SHARKS!

FEATURE **DAVID P. ROBINSON, JONATHAN ALI KHAN & WARREN BAVERSTOCK**

This quarter has seen a marked increase in whale shark activity in all areas of the region, in particular Qatar, Musandam and Damaniyat Islands in Oman. There was a very slow start to the season with a few sharks being sighted in April, particularly in Fujairah and then they quickly disappeared again; that is until July…

Since the start of the project, July has been an average month for whale shark occurrence, but this year, we have had many sharks reported from hotspots in Oman, and a few repeat sightings too. One shark seen by Kirsty Kavanagh at the end of July in the Musandam was also seen three years ago by Khaled Sultani in the Damaniyat islands, which is our longest match to date! Unfortunately during this time the shark had sustained propeller damage to the dorsal fin but it seems to be healing very well.

Fig. 1. The same whale shark after three years identified through spot pattern analysis.

Another match was made between a shark seen feeding in Qatari waters by myself in July 2011 and, this same shark was seen by Julian Palmer on the 20th of July in the Musandam. As the database grows, these movements and re-sights using simple spot pattern analysis are helping to create a picture of the Arabian whale shark story.

Please remember to send in your whale shark sightings to Sharkwatch Arabia, even if you don't have a photo. If you do try to take an image, please make sure you photograph or video the flank of the animal behind the gills for spot ID analysis (as seen in Fig 2.). Preferably both sides if possible, but if that's not possible then one side is fine. If you are diving with buddies (which we hope you are), try to make sure one of you takes a good look underneath the shark to see what sex it is (as seen in Fig. 3).

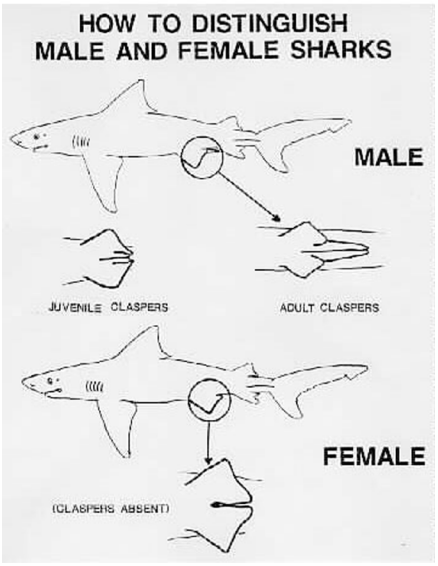


Fig. 3. How to identify the gender of a shark

MANY THANKS

We would like to take this opportunity to thank the following for their support and for sending in sightings to Sharkwatch Arabia: Christophe Chellerpermal, Nomad Ocean Adventures, Kirsty Kavanagh, Michael Etter, Daniele Frederico, Ali Mac, Nasser Khanjari, Khaled Sultani, Julian Palmer, Steve Lockie, Claire Barker, Steven Board, Nicola Bush, Roustem Khamitov, Stephanie Hanley, Jonathan Rhind and Rémi Predal.

If you encounter a whale shark in this region, please visit **www.sharkwatcharabia.com** and report your sighting or upload it onto our Sharkwatch Arabia Facebook page.

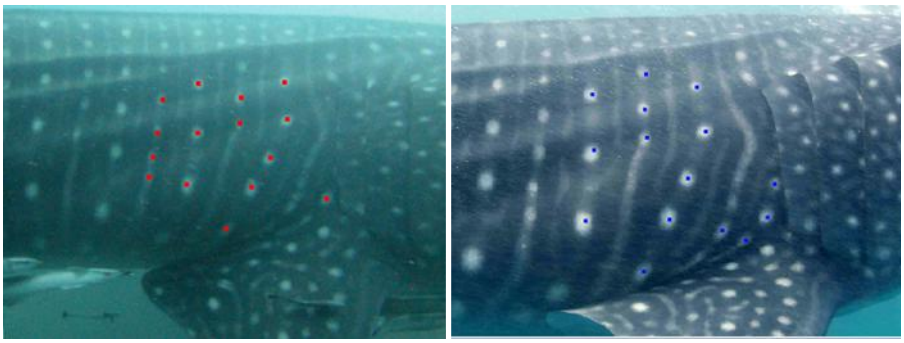


Fig. 2. A spot pattern match between the Musandam and Qatar and the area used to identify the whale shark.

HOW DO GULF TURTLES SURVIVE THE HEAT?

FEATURE **DAVID ROBINSON & WARREN BAVERSTOCK**

The Gulf experiences extreme fluctuations in temperature throughout the year with surface water well in excess of 36°C in the summer and as low as 16°C degrees or less in the winter. This makes the Gulf one of the most extreme marine habitats on earth, yet sea turtles occur here throughout the entire year, experiencing both the highs and the lows. How do they cope with the summer extremes and winter lows? Do the different species have different tolerances and strategies for survival? At the Dubai Turtle Rehabilitation Project (DTRP), we are trying to shed some light on the secrets of the Gulf turtles.

Releasing six turtles, belonging to three different species (loggerhead, green and hawksbill) and differing life stages (adult, sub-adult and juvenile), with satellite tags is allowing us to investigate not only the movements of the sea turtles, but also the exact temperatures they choose to experience. These turtles were each sponsored by a different Jumeirah property and make up the contestants in the 'Jumeirah Sea Turtle Race', a fun initiative to directly compare the movements of sea turtles from different species. The graph below shows the average temperatures experienced by each individual turtle in the month of July.

THE JUMEIRAH SEA TURTLE RACE CONTESTANTS: STORM (100kg adult loggerhead) sponsored by Burj Al Arab, KRUNELONI (35kg sub-adult loggerhead) sponsored by Madinat Jumeirah, BOB (60kg adult green) sponsored by Wild Wadi, BAHAR (40kg sub-adult green) sponsored by Jumeirah Beach Hotel, TORPEDO (18kg juvenile hawksbill) sponsored by Jumeirah Living, JUZASU (15kg juvenile hawksbill) sponsored by Jumeirah Zabeel Saray.

The sat tagged turtles were released on June 29th from Madinat Jumeirah beach alongside 150 juvenile hawksbill turtles that had been treated for various illnesses at the DTRP during the winter months. This is the first time loggerheads and juvenile hawksbills have been satellite tagged in the Gulf. The DTRP have been satellite tagging and tracking green turtles since 2005 and the data collected from the tagged greens will help to build on what has already been discovered.

Our clever little satellite tags (weighing only 110g!) are chosen because of their relatively small size and advanced capability to not only collect location data but also to log temperature data. The small size of the tags is important to us as we wish to minimise our impact on the natural behaviour of the sea turtle. These small tags are so clever that they are able to tell us at what temperatures the turtles experience throughout the day and at night when they are resting, truly amazing technology.

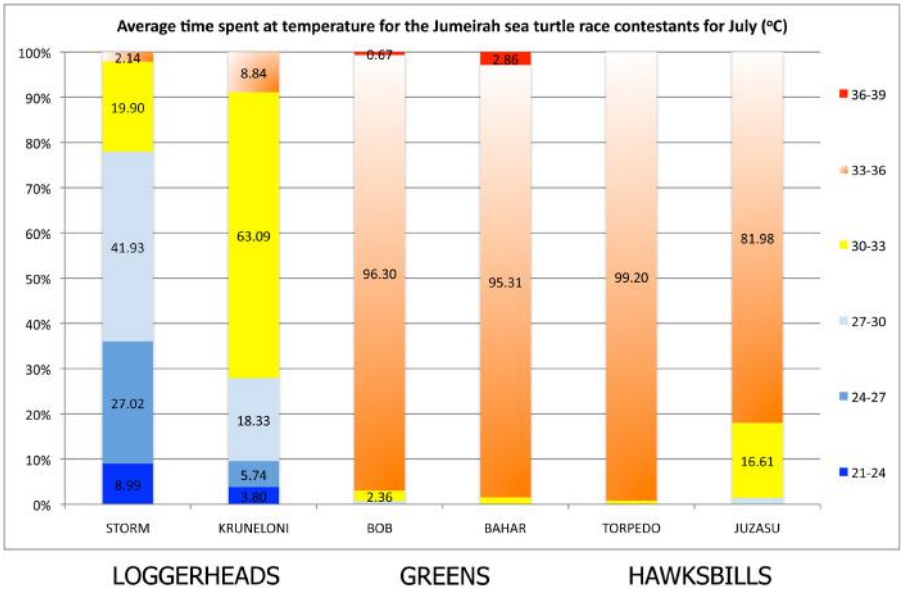
You can see from the graph below that there is a distinct difference between the loggerheads and the other species. Few people know this, but the Gulf waters are layered and it has cool water all year round in the deep that stay as low as 19°C throughout the summer.

As the summer progresses, I think we will see movements from the hawksbills too into cooler offshore waters, but only time will tell. The greens seem more tolerant of the heat, this is probably due to the shallow, warm, sea grass habitat they hang out in to feed. Temperature tolerance would certainly be an evolutionary advantage to green turtles in the Gulf!

As the profiles develop and we gain more information, we will keep you informed of these amazing insights into the secrets of the Gulf turtles. It is our goal at the DTRP to not only actively conserve our regional sea turtles but also to educate in the process.

For further information on the DTRP or the Jumeirah Sea Turtle Race please visit our facebook page at **www.facebook.com/turtle.rehabilitation**. If you find a sick or injured sea turtle please call the DTRP on **+971 4 301 7198**.

You can also track our turtles online at **www.seaturtle.org**



Loggerhead turtles STORM and KRUNELONI making their way back into the wild with their new tiny satellite tags
Photo by Simone Caprodossi

STOP THE OCEAN'S SILENT KILLER

SCUBA DIVERS FIGHT BACK AGAINST MARINE DEBRIS

FEATURE **DOMINO ALBERT** PROJECT AWARE PR & COMMUNICATIONS COORDINATOR

Scuba divers across the globe will take action this September to stop the ocean's silent killer – marine debris. Every year tens of thousands of marine creatures, mammals and birds die because of the litter we drop or the fishing nets that are abandoned or lost at sea.

But divers are fighting back. Debris Month of Action runs throughout the month of September, mobilizing divers to rally against the growing tide of rubbish. Communities everywhere organize events from educational talks on marine debris to Dive Against Debris surveys. Divers will highlight the marine debris issue and deliver data on the rubbish which lies beneath our ocean.

Project AWARE Foundation asks divers to use the power of social media to share what they see beneath the ocean's surface. As well as plastic bottles, bags and cigarettes, divers regularly find unusual toys, hundreds of shoes and even underwear. Divers are encouraged to take a photo of their underwater haul showcasing any unusual items and the amount of rubbish collected and upload these images to social networking sites to give a world view of serious litter problems.

Marine creatures such as seals, dolphins and sea turtles can fall victim to the onslaught of rubbish. It kills ocean life and threatens nearly every marine environment. And it's not just the animals at risk. Plastics break down slowly into plastic dust which enters the food chain.

JOIN THE FIGHT AGAINST MARINE DEBRIS:
To stop the ocean's silent killer visit www.projectaware.org, download the Debris Month of Action Kit or dive in to an event near you. All you need to you is:

- Grab all your tools including our Stop the Ocean's Silent Killer Sign at http://www.projectaware.org/project/debris-month-action-kit
- Add the weight of your debris to your sign
- Take a group shot with your sign
- Post your sign to www.facebook.com/ProjectAWAREFoundation; Tweet your pic #DebrisMonthofAction @projectaware.org; upload to My Ocean or add it to our FlickR Group: http://www.flickr.com/groups/debris-month-action/
- Return your data by completing the Dive Against Debris online survey form

Source: Carpenter, K.E., Craig, M.T., Pratchett, M., Pyle, R. & Rocha, L.A. 2010. *Heniochus acuminatus*. www.iucnredlist.org

FEATURE CREATURE
BANNERFISH *(HENIOCHUS ACUMINATUS)*

FEATURE **IUCN RED LIST 2011 BY IUCN** PHOTOGRAPHY **GORDON T SMITH**

Local Species in the IUCN Red List 2011

RED LIST CATEGORY & CRITERIA: LEAST CONCERN
Scientific Name: *Heniochus acuminatus*
Common Name: Bannerfish

Justification: Listed as Least Concern in view of its wide distribution and large global population. It occurs in a number of marine protected areas.

Range Description: This species is widely distributed throughout much of the tropical Indo-Pacific region. It ranges from the East African coast and the Arabian Gulf in the west to the Society Islands (French Polynesia) in the east, and from southern Japan and the island of Taiwan in the north to Lord Howe Island (Australia) in the south. It is not known from Hawaii (USA) and the Marquesas Islands (French Polynesia). It ranges in depth from 2-75m, usually being found below 10m.

Native: (American Samoa); Australia; Bahrain; Bangladesh; British Indian Ocean Territory; Brunei Darussalam; Cambodia; China; Christmas Island; Cocos (Keeling) Islands; Comoros; Cook Islands; Djibouti; Fiji; French Polynesia; Guam; (Andaman Is., Nicobar Is.); Indonesia; Iran, Islamic Republic of; Iraq; Japan; Kenya; (Kiribati Line Is., Phoenix Is.); Korea, Republic of; Kuwait; Madagascar; Malaysia; Maldives; Marshall Islands; Mauritius; Mayotte; Mozambique; Myanmar; Nauru; New Caledonia; Niue; Northern Mariana Islands; Oman; Pakistan; Palau; Papua New Guinea; Philippines; Qatar; Réunion; Samoa; Saudi Arabia; Seychelles; Singapore; Solomon Islands; Somalia; South Africa; Sri Lanka; Sudan; Taiwan, Province of China; Tanzania, United Republic of; Thailand; Tokelau; Tonga; Tuvalu; United Arab Emirates; (Wake Is.); Vanuatu; Vietnam; Wallis and Futuna; Yemen

Population: It is generally common (G.R. Allen pers. comm. 2006) and the most common species of the genus. There are believed to have been some localized declines in the Philippines, mostly due to aquarium collectors.

Population Trend: Stable

Habitat and Ecology: This species is associated with coral and rocky reefs, and is often found in deep lagoon areas and outer reef slopes, although animals may inhabit shallower water in protected reef areas. Adults occur alone, in pairs or sometimes in small groups, almost always swimming close to the reef substrate. The species feeds mostly on plankton, but supplements this diet with benthic invertebrates. Juveniles are solitary and have been observed picking parasites from other fish.

Major Threat(s): This species is intensively harvested for the aquarium industry within the Philippines, however there appear to be no overall major threats to this widespread species.

Conservation Actions: There appear to be no species-specific conservation measures in place. This species is present within many marine protected areas. Monitoring of the population and collection levels are recommended (such as in the Philippines).

STEREO-VIDEO BETTER FOR REEF FISH SURVEYS

FEATURE **DR CAINE DELACY,** UNIVERSITY OF WESTERN AUSTRALIA

The use of stereo-video surveys to monitor reef fish communities can vastly reduce the errors that plague more traditional survey techniques.

Monitoring of reef fish communities, particularly those in marine protected areas, is hampered by the high errors associated with diver based visual census. Using this technique, the effectiveness of monitoring programmes to detect change relies entirely on the skill of the individual observer in identifying species, counting individuals, and estimating length of fish and the boundaries of the survey area. For monitoring programmes the same single observer is unlikely to be used from year to year which further compounds the error as differences in species identification and length/dimension estimates between observers is difficult to standardise and control for.

STEREO-VIDEO ELIMINATING ERRORS

Stereo-video eliminates these errors and solves the concern of managing differences between observers.

Firstly, when using cameras in stereo, individual fish can be measured to within less than 5% error of their true length.

Secondly, complementary to obtaining the length measurement, the position of the individual fish relative to the centre of the cameras is obtained, thus the boundaries of the agreed survey area can be adhered to (and any individuals outside this boundary would not impact the data).

Thirdly, the problem of species misidentification (particularly prevalent in novice observers) is eliminated as identification sources can be consulted, therefore allowing novice observers to identify all species that are recorded on the video.

These benefits allow managers to use volunteers and novice observers to collect the required data without compromising data quality.

STEREO-VIDEO IN MOZAMBIQUE

In southern Mozambique, stereo-video has been used for two years to build baseline data for reef fish communities around Ponta Malongane. Here, volunteers have built baseline data from over 15,000 observations of individual fish to include over 180 species across 35 reef fish families. The same sites were surveyed in 2009 and 2010, and will be surveyed again in 2011, across depths from 10m to 24m.

MONITORING WITH OPERATION WALLACEA

The technique will also be used as part of Operation Wallacea monitoring programmes in Indonesia, Honduras, and Cuba in 2011. These surveys in time will provide invaluable data for comparisons of the trajectory of reef fish communities in terms of diversity, abundance and length metrics across oceanic basins.

Original Publishers – Biodiversity Science
www.biodiversityscience.com

CORAL REEF RESILIENCE ENHANCED BY ADAPTING QUALITIES OF FISH

FEATURE **JOCELYN CURTIS-QUICK**, UNIVERSITY OF ESSEX

A study into coral reef resilience and the ability of specialist reef species to adapt has found that fish can change their feeding behaviour depending on habitat quality within the Wakatobi Marine Park, Indonesia.

Coral reefs are degrading worldwide, and the reefs within the Wakatobi Marine Park are no exception. Ecological monitoring data of these reefs over a 10 year period, between 2002 and 2011, showed a marked decline in habitat quality together with declining fish abundance.

IMPORTANCE OF FISH

Reef fish play important ecosystem functional roles, and the importance of one such role, herbivory, is well documented as essential in the removal of algae to allow coral to recruit and grow. The assessment of reef health, vulnerability and resilience is mostly achieved by estimates of the total biomass held within specific functional guilds and the number of species that contribute to this biomass.

The relationship between species richness and functional biomass is crucial in assessing the levels of redundancy common in reef systems. Redundancy levels refer to the number of species performing similar roles within the system; high levels of redundancy equates to a more resilient system. It is particularly important to understand how changing environments influence levels of redundancy and to identify ecological tipping points for the systems' vulnerability to large scale ecological change.

Accurately assessing functional biomass depends largely on our ability to define, with known degrees of certainty, the fundamental niche of a species. Importantly, predicting functionality also heavily depends on an understanding of how the fundamental and realised niche of key species varies across environments, termed as niche plasticity.

FISH BEHAVIOUR

This study collected feeding behaviour data on two reef fish species. The aim was to enhance our understanding of the levels of variability that exist within the realised niche of fish species present on reefs of varying habitat quality. The species studied were specialised in their feeding guild, and were therefore thought

to lack the capability to successfully adapt to changes in resource availability and reef quality.

SPECIALISTS CAN BECOME GENERALISTS

The Jewel Damsel (*Plectroglyphidodon lacrymatus*) is conventionally classed as a territorial herbivore and the Eastern Triangular Butterfly fish (*Chaetodon baronessa*) as a specialised corallivore. It was hypothesised that the degree to which the two species depend on herbivory and corallivory, respectively, varies across habitat quality gradients.

Research was conducted on three reef sites of varying quality within the Wakatobi Marine Park. The results were surprising: the Jewel Damsel switched to planktivorous feeding at two of the reefs. The expansion in the realised niche occurred on the same two reefs where: higher frequencies and durations of aggressive behaviours were recorded; territory volume was significantly smaller; and the abundance of competitors was higher. The results suggest that competition was the driver for niche expansion.

The behavioural and isotope data for the Eastern Triangular Butterfly fish found the fish fed on a broad range of coral genera on sites where its preferred coral, *Acropora sp*., was less abundant. The species was also found to feed on algae at the site with the lowest coral cover. In conclusion niche expansion for this species seemed to be driven by resource availability.

The ability of these two specialist reef species to adapt to reef quality and perform various functional roles will add to the reef resilience that previously has not been taken into account. Determining all fish species' responses to habitat change, and the relative importance of resource availability or competition across species, is the key to understanding reef resilience and the future successful conservation management of these systems.

Original Publishers – Biodiversity Science
www.biodiversityscience.com

CONSERVATION EFFORTS
TO RESTRICT OVER-FISHING IN WAKATOBI

FEATURE **DANIEL EXTON**, ESSEX UNIVERSITY

Action is being taken on an Indonesian island to tackle over-fishing caused by the increasing use of fish fences – an unsustainable fishing technique.

Monitoring of fishery landings on the island of Kaledupa in the Wakatobi Marine National Park has shown that while fish fences in the area increased from 37 in 2002 to over 200 in 2009, there was an island-wide decline in catch per unit effort by over a half in many areas, combined with a large increase in the proportion of juveniles in the total catch.

UNDER PRESSURE

The diverse and productive fisheries associated with coral reefs play a vital role in both food security and the economics of many tropical nations. But this important natural resource is under immense pressure from a range of threats, particularly overfishing. This has made a move to sustainable exploitation of reef fisheries a priority for conservation bodies.

In Indonesia, fish fences are one of the most widely used fishing techniques. Positioned on intertidal flats adjacent to coral reefs, they are stationary structures shaped in a funnel design. They are designed to exploit the natural movements of fish stocks into deeper water as the tide recedes, and are highly unselective. This has serious implications for important diurnal and seasonal migrations undertaken by many reef fish species, greatly increasing the potential for local extinctions.

INTENSIVE MONITORING

The Wakatobi Marine National Park is Indonesia's second largest marine protected area, and is also the site for a detailed fisheries management programme implemented by Operation Wallacea and the Darwin Initiative. The intensive monitoring of fishery landings on the island of Kaledupa has provided an insight into the unsustainability of fish fence use.

It has demonstrated a significant increase in effort in the fish fence fishery. The number of fish fences in the area increased from 37 in 2002 to over 200 in 2009, whilst the average size of fences increased by 60%, and mesh size halved.

In the same time period, there was an island-wide decline in catch per unit effort by over a half in many areas, combined with an increase in the proportion of juveniles in the total catch from 4% in 2004, to 29% in 2007.

TACKLING THE CRISIS

These patterns are indicative of a fishery in crisis, and have prompted management action to be taken in Kaledupa. This was achieved through the idea of community management, whereby local stakeholders are empowered to participate heavily in the management process, alongside NGOs and government – a process which has been shown to greatly increase compliance and support.

To date, this has culminated in the formation of the Kaledupan Fisheries Forum, which designed a set of bylaws, including a number tailored to address the fish fence fishery. These have since been ratified by local government, and demonstrate the first successful step towards sustainable exploitation of Kaledupan fisheries.

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Deep down

it also makes a difference

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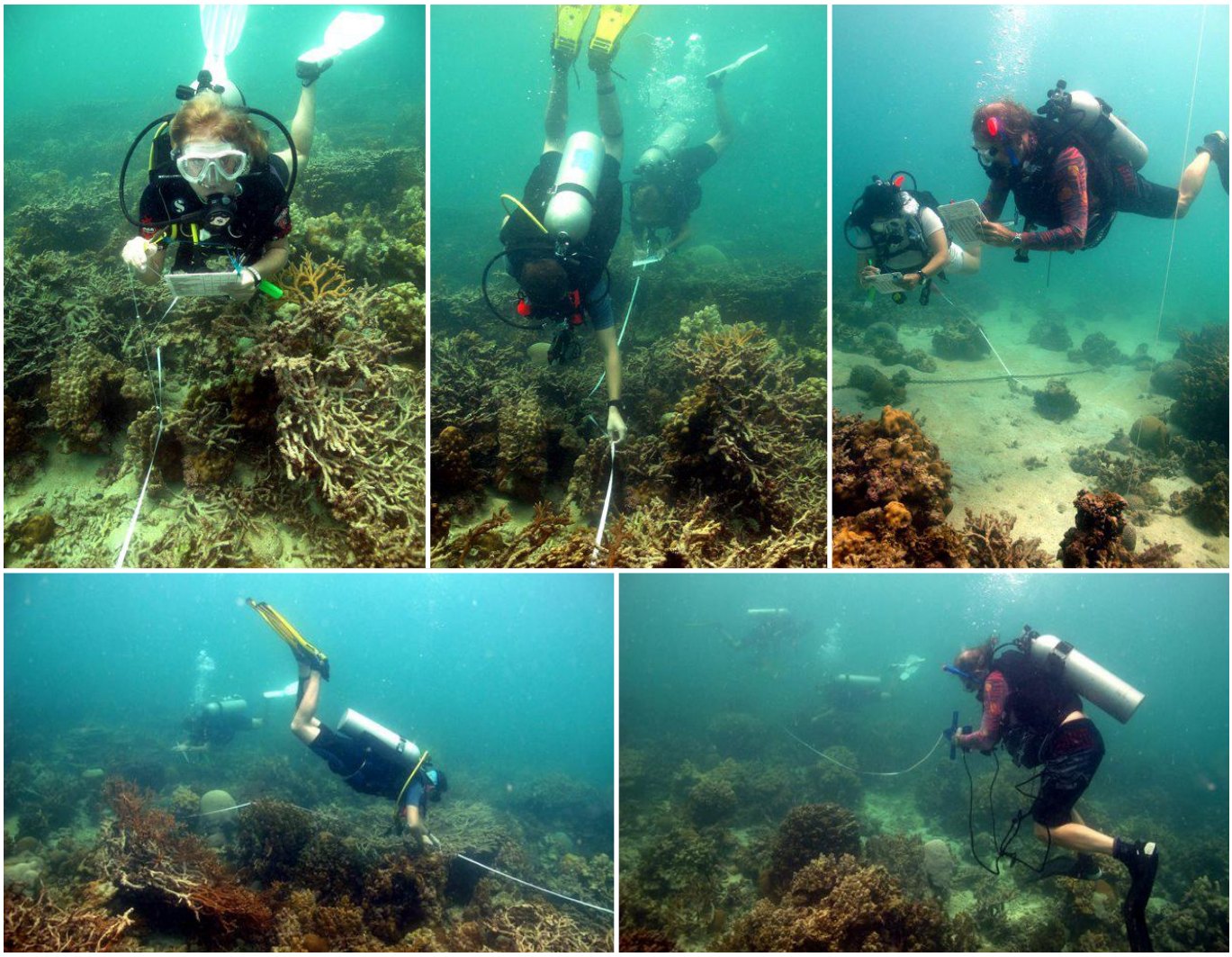
DEDICATED EDA REEF CHECK DIVERS
SURVEY AL DHABIYAH CORAL SITE IN ABU DHABI



Once again committed EDA Reef Check divers took to the waters off Abu Dhabi. It was another scorching July reef monitoring day with air temperatures soaring above 45°C and water temperatures grossly warming to 35°C on the surface and below.

Divers headed out to the regular GPS coral site off Al Dhabiyah, approximately 35km west of Abu Dhabi. This day, the sea was calm and the current was absent. Upon arrival, we were pleasantly surprised by the 10 to 15 meter visibility in the water.

Again, divers were divided into fish survey, invertebrate and environmental impacts and substrate teams. Volunteers had to set up the 100 meter transect line to conduct the surveys. Once setup, the fish survey team went first to ensure there was no interruption of the fish activity. Divers reported a large quantity of snappers but very low numbers of other indicator fish species. Similarly, the invertebrate survey team counted plenty of long spine sea urchins and also observed low occurrence of impacts on the coral population.

The substrate survey team reported plenty of hard coral along the transect line. Upon returning to the Emirates Palace Marina, divers immediately transfered the data onto digital formatted data collection standard spreadsheets. The divers can then see the graphical presentation of all the data that was collected and can compare them to previous data of the same site. The data then gets verified by EDA's Reef Check organizer and Marine Biologist, Rita Bento who then forwards the data to Reef Check worldwide. Divers then get a valuable insight of what is happening to our local coral areas throughtout the years.

In collaboration, Reef Check trained divers use, "globally standardized scientific protocol, to collect valuable data to establish the status of coral reefs worldwide. The data is analysed and used locally by marine park managers, nationally by fisheries and environment managers and internationally by organizations including United Nations agencies to help better track and care for coral reefs" (**www.reefcheck.org**). We are grateful to have our committed divers' efforts count towards the conservation of our coral reefs locally.

If you are passionate about the ocean, the coral reefs and its status, you can join the many certified Reef Check Eco Divers and get certified to make a difference. "The Reef Check Eco Diver program allows anyone with an interest in the ocean – from kids to adults – to learn more about tropical coral reefs. Reef Check combines education with action to give volunteers a unique experience while taking an active role in conserving the world's reefs. The Eco Diver program allows participants the rare opportunity to work with teams of scientists throughout the world to combat the crises affecting our reefs today. The world's reefs are changing fast, and it is up to us to ensure that reefs are around for future generations" (**www.reefcheck.org**).

FOR MORE INFORMATION:
Contact Al Mahara Diving Center at **info@divemahara.com** or
Contact EDA at **research@emiratesdiving.com** or call on **+971 4 393 9390**

REEF CHECK INDONESIA: WHEN ARTIFICIAL BECOMES NATURAL

FEATURE **JENNY WILLIS**, REEF CHECK INDONESIA
PHOTOGRAPHY **REEF CHECK INDONESIA**

West Bali National Park and its famous coral reefs are again the winners! Reef Check Indonesia (RCI), in its latest collaboration with the Odyssey Institute, worked with Aramco School to install a new artificial reef at Gilimanuk in West Bali National Park, on the western tip of Bali near Java.

Using five prefabricated concrete Hexadomes, divers used ropes and levers to launch the permanent structures. Students watched from the surface as the delicate operation was conducted.

Some then free-dived to join the divers underwater, and using buddy breathing (breathing through another diver's spare mouthpiece) the students then tied pieces of pre-prepared coral fragments to the structures. All of these transplanted coral fragments were already broken when they were collected from their home reef.

Derta Purwita from RCI explains that the West Bali National Park site was chosen for a new artificial reef for several reasons:

"Reef Check had already done monitoring in West Bali National Park; we found that this site was degraded, particularly suffering from coral bleaching and climate change impacts. Coral needs something solid to grow on; when reefs are damaged rubble forms, making it hard for new coral to latch onto something to grow. This new artificial reef structure will help form a new solid base for new coral to grow on. With many tourists visiting nearby Menjangan Island, we are concerned that the coral reefs will be pressured. So it's important we rehabilitate alternative locations nearby, so that the tourist visits can be spread over more sites within West Bali National Park, reducing the strain on Menjangan Island. We will continue this work, with proposed installation of more Hexadomes in Gilimanuk Bay soon."

Reef Check Indonesia thanks The Odyssey Institute and Amarco School for their collaboration on this project.

REEF CHECK GOES UP IN LIGHTS WITH THEBLU

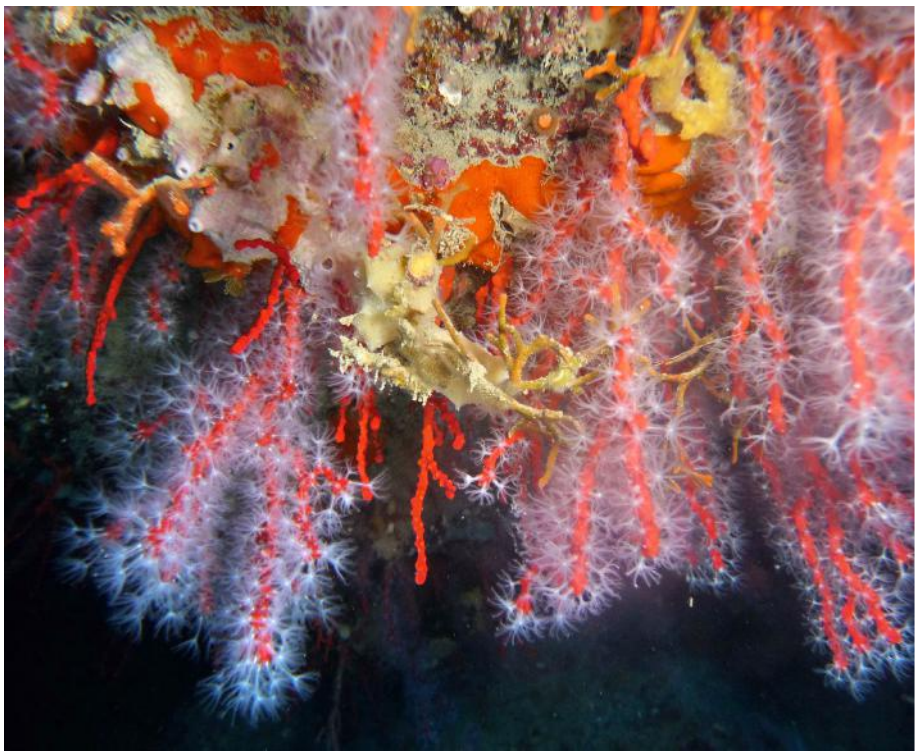
New York's Times Square shone even brighter as Reef Check partnered with theBlu to raise awareness about ocean conservation through technology. TheBlu's kickoff celebration took place in Times Square on May 4th, when video screens showcased theBlu, supporter logos, and "love letters" to the ocean sent in by people around the world.

TheBlu is a web-based interactive app designed to inspire creativity and raise awareness about ocean conservation. Inspired by the world ocean, it is a digital art exhibit of ocean habitats and species, created by artists and developers from all over the world. It's like having an ocean aquarium that you can play with right on your computer screen.

Most importantly though, theBlu experience brings awareness to the sacredness of our oceans and supports oceanic conservation efforts worldwide. Download theBlu at: **http://theblu.com/home**

REEF CHECK SPOTLIGHT:
CORAL – WHAT DOES IT REALLY MEAN?

FEATURE AND PHOTOGRAPHY **REEF CHECK ITALY'S GIANFRANCO ROSSI**



When people use the word "coral", they are generally referring to a group of organisms belonging to the phylum Cnidaria, Class Anthozoa and Order Scleractinia. These are the hard corals that build coral reefs. Although this meaning is widely known all over the world, if we go back in time we can find that the term "coral" comes from the word "korallion", which in ancient Greece was used to describe the precious red coral (*Corallium rubrum* – Linnaeus, 1758), a species found only in the Mediterranean Sea and in some areas of the Atlantic Ocean. Today, you only need to consult the English definition of "coral" on Wikipedia, to find that there is no reference at all to the red coral.

Although both types of coral belong to the same class Anthozoa, the differences between them are remarkable; what is undeniably evident is their incredible diversity. Scleractinian corals, for example, are in the subclass Hexacorallia. Corallium rubrum is instead an Octocoral (subclass Octocorallia), much more related to the sea fans, even though it has a skeleton of calcium carbonate rather than gorgonin (the tissue protein that gives the gorgonians their notable plasticity). Coral reef builders flourish in tropical, shallow, sunlit areas. *C. rubrum* lives instead at greater depths, in sheltered areas or in caves. Furthermore the red coral is also a key component of the Mediterranean "Coralligenous", a complex community where red coral and sea fans coexist. Together, with many other species, they form a habitat that has some of the greatest biodiversity in the entire Mediterranean Sea.

Hard corals have developed a symbiotic relationship with zooxanthellae, which give them a variety of colors. *Corallium rubrum* does not have symbiotic algae and its extraordinary red color is related to pigments inside the limestone skeleton. Since ancient times, coral was well known and used for making jewelry or for decorative purposes. According to Ovid, the famous Roman poet, red coral came from the blood of Medusa, one of the Gorgons beheaded by Perseus. The Gorgons had the ability to petrify with their eyes, and the blood of Medusa, in contact with the foam created by the waves, petrified some algae that became red with blood.

For centuries red coral has been harvested and used for many purposes, but mostly in the creation of jewelry; especially necklaces and bracelets. Because of its great commercial value red coral has been a victim of overfishing. One of the rudimentary techniques involved the use of an "ingegno" or "St. Andrew's Cross", a wooden or metal cross-shaped tool with nets hanging along the four arms and ballasted at the center, which was towed by a boat along the seafloor or dropped on the wall. This technique was banned by the European Union in 1994 because in addition to the depletion of *C. rubrum*, it had also caused enormous damage to the whole coralligenous environment.

Historically, red coral colonies could reach 50cm in height and were quite common. Today, more than 90% of them, in areas under exploitation, can reach a maximum height of 5cm and less than half are old enough to reproduce.

Today red coral is collected by divers through much more selective fishing and with defined quantities regulated by the Ministry of Agriculture. However, other impacts continue to deplete this resource including fishing nets, boat anchors, pollution, sedimentation and climate change. An increase in temperature for too long a period at the end of summer 1999 caused a mass mortality of many sessile organisms, particularly gorgonacea, along the coast of the Mediterranean Sea.

For these reasons Reef Check Italy (RCI) has set up a campaign for the protection of Mediterranean gorgonians and red coral. For several years, reports of volunteer scuba divers have enhanced the RCI database, providing information vital to follow the changes that take place underwater, and to understand where the forest of sea fans and red coral are thinning or even disappearing. This knowledge is crucial to develop strategies and projects to protect these habitats and avoid undesirable cascading effects.

REEF CHECK SPOTLIGHT:

MYSTERY IN THE RED SEA – CIRCULAR FEEDING SCARS OBSERVED ON FIRE CORAL

FEATURE **STEPHAN MOLDZIO**, REEF CHECK ECODIVER COURSE DIRECTOR

During our Reef Check (RC) surveys in February 2012 at Marsa Shagra, Red Sea, Egypt, we observed some strange circular blotches on a fire coral Millepora dichotoma. We sent these pictures to RC and made an inquiry to several experts with no conclusive outcome.

Initially we took the following explanations into consideration:

- Feeding scars by Coralliophila snails
- Feeding scars by juvenile Crown of Thorns seastars (COTS)
- Some kind of coral disease
- Anomaly of Millepora

Coralliophila is frequently observed on Porites corals, where it produces slight feeding scars, whereas the tissue remains mainly alive and intact. But Coralliophila feeds exclusively on Porites and is most unlikely to feed on any other corals, including Millepora. Another point against Coralliophila is that they were obviously absent on Millepora, whereas they are usually observed in close vicinity due to their small feeding territory.

Juvenile COTS are ruled out, because COTS tend to create paths instead of single blotches. We actually have observed a young COTS feeding scar on a Favia coral during our surveys; the tissue was completely removed – in contrast to those circular blotches on Millepora that appeared a bit bleached but not grazed down to the bare skeleton. Later, we found out from Prof. Rupert Ormond that COTS actively avoid Millepora because they are stung by it!

Some kind of coral disease might also have been the cause, but an infection with ciliates or bacteria tends to spread over the whole colony and does not form such equal sized and sharp edged blotches.

At that time, we preferred the explanation of an anomaly of Millepora. I observed in my aquarium that Millepora often forms "tissue bubbles" at branches as well as "bleached" small areas; but not such perfectly round patches.

So we uploaded the pictures to RC Europe´s homepage and posted an inquiry through the "NOAA Coral List Server," from which we received more than 20 emails with possible explanations. These ranged from feeding scars by COTS, Coralliophila, Drupella, parrotfish, damselfish, butterflyfish, filefish, blennies (Exallias brevis), corallivorous flatworms, White Pox disease, a secondary infection of a feeding scar and a special form of bleaching.

Zvuloni et al. (2011) described exactly the same phenomenon in Millepora as "Multifocal Bleaching", but they didn´t determine the reason for these patches. They suggested a form of bleaching, a "new syndrome in Millepora," possibly caused by a microbial infection.

Finally, Dr. Bruce Carlson in Hawaii solved this mystery by uploading a video showing the feeding behaviour of the leopard blenny, *Exallias brevis*, and describing the exact mechanism of how it forms these remarkable feeding scars: *Exallias brevis* is an obligate corallivore that scrapes off the tissue with its upper jaw while anchoring the mouth with its lower jaw, producing sharp edged, circular feeding scars! Indeed, all of those blotches, even those published in Zvuloni´s paper, showed a faint white line under the circular feeding bite! "That line represents the lower jaw that anchors the mouth while the upper jaw sweeps over the coral and removes the tissue," Carlson stated. He also mentioned that on the picture "some of the older scars have regenerated a bit and a newer scar overlaps the older scar. That can only be produced by feeding, i.e., it rules out bleaching or disease." Carlson is submitting a paper to Marine Ecology Progress Series with a complete description of the feeding behavior of *Exalllias brevis*.

Carlson (1992) found out that only the superficial coenosarc tissue was removed while the polyps remained mostly intact within calyces and that these marks regenerated within 50 days. He observed *E. brevis* feeding exclusively on living corals, at rates of 13.9 and 28.4 bites per hour for males and females, respectively. He sized the circular feeding bites on Porites lobata to 2.04 ± 0.42 cm".

Dr. Carlson has observed *E. brevis* feeding on Millepora as well at Enewetak Atoll in the Pacific. Dr. Jürgen Herler stated that *E. brevis* removes coral tissue, at least for breeding, and he sent a photo with the fish and its egg patches on a Millepora in the Red Sea. Finally, Christian von Mach confirmed that he observed *E. brevis* feeding on Millepora in the Gulf of Aqaba/northern Red Sea.

In the following days we had a lively discussion upon this matter…
Why have these circular patches not been reported until now?
Why has it been such a problem (for many experts) to determine these patches as Exallias brevis feeding scars?

We have conducted RC surveys in that area for four years, but this was the first year we observed these circular patches. If *Exallias brevis* is not very abundant, divers would have seen just a minor density of feeding scars. Thus, this phenomenon may not have been obvious, being perceived only by a watchful observer, who knows about coral diseases, coral bleaching and feeding scars. Additionally, *E. brevis* hides deep within Millepora thickets, so any observer would have to come really close and rest for a while to watch *E. brevis* feeding. Such an observer would have to be quite persistent to get an answer about whatever is responsible for these blotches. So we think that this phenomenon has simply not

been recognized and/or been acknowledged to be published so far.

Furthermore, most divers and snorkelers may avoid coming too close to Millepora, because it's also called "fire coral". Also, the preferred habitat of Millepora and *E. brevis* is around the reef crest at shallow depth, whereas most divers are going to 10-30m depth.

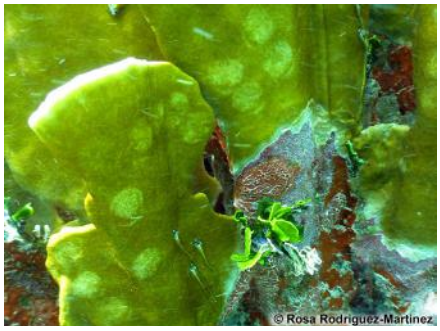
E. brevis may show some ecological differences within its range from the Red Sea, Madagascar and India, to Australia and Hawaii. In the Egyptian Red Sea we've observed E. brevis always within the Millepora thickets at shallow depth around the reef crest. We didn´t observe it on any other corals, e.g. Porites, where it was mainly observed by Dr. Carlson in Hawaii.

It's quite possible that in some cases, disease may in fact simply be some kind of feeding scar.

Stories like this one happen when thousands of Reef Checkers put their eyes on the reef, with a focus on all kinds of human impacts, coral damage, recently killed corals, bleaching, coral diseases, and COTS feeding scars.

But one part of this mystery remains: similar scars on *Millepora complanata* have been observed by scientists from Bermuda, the Florida Keys, the Mexican Caribbean and Pernambuco, Brazil. So far, no one has identified the fish that creates these spots. *Exallias brevis* does not occur in the Caribbean but it has close relatives there. Charles Delbeek mentioned that *Ophioblennius atlanticus* has a very similar mouth structure to *E. brevis* and lives in close proximity to stands of Caribbean fire coral.

There are many secrets on the reef waiting to be uncovered and we are still searching for a corallivore equivalent of *E. brevis* in the Caribbean.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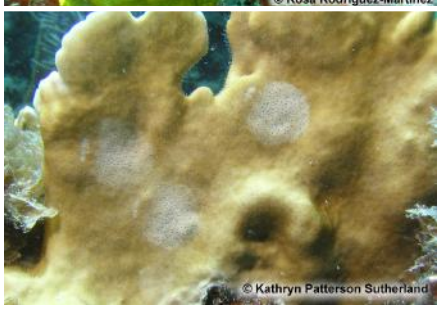
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REEF CHECK ITALIA

CELEBRATES INTERNATIONAL DAY FOR BIOLOGICAL DIVERSITY


Eva Turicchia (Reef Check Italia Onlus) describing how to collect data according to the CEM protocol.

Divers of Subtridente Pesaro, scientists of Reef Check Italia Onlus and public institutions came together in June for the protection and conservation of biodiversity of the northern Adriatic Coastal Marine Environment.

The northern Adriatic Sea gives the Mediterranean basin one of the highest rates of biodiversity on the entire planet. Promoting this fact and involving the public is crucial so that the legacy of this sea will be conserved and protected for our own well-being, and so that future generations can learn that it is a duty of every institution from the highest level to single citizens to keep this ecosystem healthy.

For these reasons Subtridente Pesaro, Province of Pesaro-Urbino, Natural Park of S. Bartolo and Reef Check Italia Onlus organized an event on June 8th and 9th, 2012, included in the activities promoted by the United Nations, to celebrate the International Day for Biological Diversity. During these two days, scientific reports and monitoring activities took place, involving a great number of citizens.

Prof. Roberto Danovaro, Director of the Department of Science of Life and Environment (DiSVA) at the Polytechnic University of Marche (UNIVPM), has summarized the results of more than ten years of research concerning the Census of Marine Life project. This data shows that the number of species present in the Mediterranean basin is about 17,000, but this is surely an incomplete number. The diversity of microbial species is certainly underestimated and the deepest areas of the sea are still unknown.

As a whole, unfortunately, we are witnessing a decrease in biodiversity throughout the area. Nearly all major species belonging to the macrofauna, and best known by people in general, are in progressive decline. On the contrary the number of alien species, coming in particular from the eastern part of the basin, is constantly increasing.

These species are rapidly spreading westward because of the warming of Mediterranean waters and constitute a real threat to the biodiversity throughout the area. Throughout the Mediterranean there are clear and visible signs of overfishing, pollution, loss of habitat and biodiversity, primarily coming from impacts of anthropic origin. Along with climate change, these are the main threats against these unique ecosystems.

Following these assumptions dott. Carlo Cerrano, researcher at DISVA, and president of Reef Check Italia Onlus, has focused his attention on what constitutes a biodiversity "hot spot" inside the main "hot spot" of the entire Mediterranean basin. He has discovered that the northern Adriatic Sea, namely that portion of the northern basin enclosed north of the line joining the cities of Ancona and Zadar, fits within the criteria.

The current knowledge of the biodiversity of the whole Mediterranean region dates back to the distant past, to Greek and Roman times with Aristotle and Pliny. It continues through the findings of Linnaeus to the recent discoveries of J. Jacques Cousteau. Ecological research and the discovery of species in the Adriatic region come from detailed studies by various authors starting from the famous manual of R. Riedl. Several publications in recent years have tried to focus the interest of researchers and people in general on the northern Adriatic Sea. This change has produced very important scientific results because only through a deeper understanding of the biodiversity and dynamics that characterize this particular kind of habitat will it be possible to start the most useful initiatives to increase the value of an environment as precious as it is misunderstood and underestimated. *CON'T ON NEXT PAGE*

The day after this event was the start of the monitoring activities of the sea bottom and the beach in front of the natural park of San Bartolo. With the help of many volunteer scuba divers of Subtridente Pesaro and students at the high school Liceo Scientifico G. Marconi of Pesaro, began the first monitoring activity using the Marine Coastal Environment protocol of Reef Check Italia Onlus.

This activity has been very helpful in designing a map of this area that will be a useful baseline for future monitoring. Increased and regular monitoring in subsequent years will help us to collect a greater number of data. Free access of data on RCI's database for agencies will be a useful tool for conserving and protecting the resources of this area and ultimately of the entire Mediterranean basin.

COUSTEAU VISITS REEF CHECK DOMINICAN REPUBLIC

FEATURE **KAREN PANNOCCHIA**, REEF CHECK DOMINICAN REPUBLIC EXECUTIVE DIRECTOR

Environmental scientist, Pierre-Yves Cousteau, the son of famous oceanographer Jacques Cousteau, visited the Dominican Republic as part of an international court day which seeks to perpetuate and strengthen environmental awareness around the world. The younger Cousteau has been continuing his father's legacy by teaching future generations about environmental conservation. On June 19th 2012 Pierre-Yves Cousteau dove at La Caleta National Underwater Park, an ocean conservation area co-managed by Reef Check Dominican Republic.

While helping the environment, the park also benefits local residents. La Caleta provides an alternative income for the nearby fishing community; many local fishermen have been trained in Reef Check and now manage a small ecotourism business, El Carey Aquatic Center, located at the park. This center now allows fishermen to offer ecotourism activities and dive equipment rentals to support themselves, their families, and La Caleta National Underwater Park.

COMMUNITY CENTRED CONSERVATION (C3) CERTIFIES NEW REEF CHECK TRAINERS

FEATURE AND PHOTOGRAPHY **JIM CATLIN**, REEF CHECK ECODIVER COURSE DIRECTOR

Throughout April and May 2012, recently qualified Reef Check Course Director Jim Catlin trained work colleagues from the NGO Community Centred Conservation (C3) as Reef Check EcoDivers and EcoDiver Trainers. After coordinating training for C3 staff in Madagascar last year, it was the turn of the facilitation team to get involved and swap their desks for the beautiful reefs of Dahab in the Red Sea!

As marine scientists with considerable field experience, training with team C3 focused mainly on the Reef Check methodology and classification of substrate categories. The initial training was carried out in the calm waters of Southern Oasis with a perfect reef slope for practice surveys and identification exercises. This proved to be a lot of fun and included sightings of a beautiful peppered moray and sizeable Red Sea coral grouper.

After successful completion of the EcoDiver course, including some impressive classroom tests, the newly qualified recruits put their skills into practice by carrying out a full Reef Check survey at Lighthouse. This site is one of the most heavily dived in the region and situated in the main bay of the town, making it an interesting and important area to study potential human impacts to the reef. The C3 team surveyed Lighthouse reef at two depths, 4m and 11m. Results indicated a 53% hard coral cover for the shallower depth dropping to 20% cover at 11m. Butterflyfish and Parrotfish were the most common target fish species identified; snappers and groupers were less abundant. Clear waters and high levels of sunlight also meant that plenty of giant clams were recorded, some reaching 30-40cm in size.

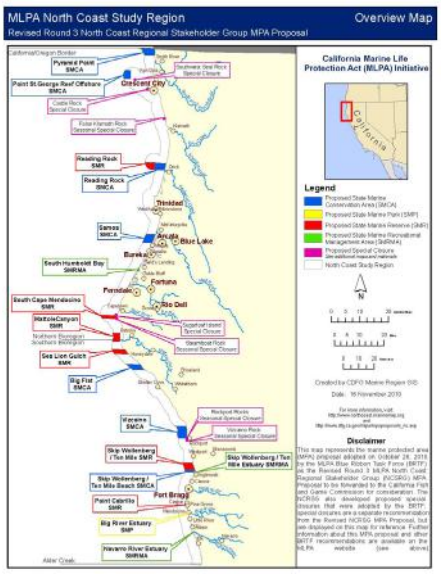
Overall, anthropogenic impact was low with minimal Nutrient Indicator Algae and trash recorded, which, considering the site's proximity to human settlements and the high diver and snorkeler pressure, is encouraging to see. This is most likely due to the fact that the reefs in Egypt, and throughout the Red Sea, boast a high level of legal protection which is enforced not only by the local authorities but by the diving communities that live and work here – an important example of how a national regulatory framework for reef protection can work. cpr certification **http://www.cprcertificationtrainingonline.com/**

C3 was borne out of the aspirations of three young people in Palau, Micronesia in 2002, who were passionate about nature but disillusioned with the approach of large international organizations, particularly the lack of time and funds spent at the grassroots level to truly understand and appreciate communities' needs and fully involve them in the development of conservation strategies. C3 is a truly community-based organization which focuses on a two-way process for conservation; learning from local communities about their knowledge of the environment and at the same time providing them with the information they require from collaborative scientific studies to make their own decisions about sustainable resource management. C3 is currently providing Reef Check training in Madagascar, Fiji and the Philippines.

REEF CHECK SPOTLIGHT:

CALIFORNIA ADOPTS NEW MPAS ALONG NORTHERN COAST

FEATURE **MEGAN WEHRENBERG**, REEF CHECK CALIFORNIA'S NORTH-CENTRAL COAST MANAGER



On June 6, 2012 the California Fish and Game Commission approved and adopted the boundaries and regulations for a new set of Marine Protected Areas (MPAs) in the northern region of the state, an area stretching from Alder Creek near Point Arena to the California/Oregon border. The decision was a major milestone as the planning process for this region began in June 2009 and included numerous public workshops, over 75 days of meetings with public input, and extensive public comment throughout the regulatory and environmental review processes. The plan includes 19 MPAs, a recreational management area, and 7 special closures covering 13% of the region's state waters. The north coast regulations include a unique provision for federally recognized tribal members to continue harvesting and gathering fish, kelp, and shellfish as they have for generations. The provision will allow non-commercial take to continue, in MPAs other than State Marine Reserves, where there is a record of ancestral take by a specific tribe. The north coast MPAs are expected to go into effect in early 2013.

The north coast was the fourth and final region needed to complete California's statewide network of MPAs. The MPAs were developed to fulfill the mission of the Marine Life Protection Act (MLPA), the first statutory mandate of its kind in the nation, requiring that California's MPAs be designed/redesigned based on the best available science, with identified goals and objectives and the advice and input of stakeholders and experts to create a statewide network. The entire network of state MPAs now includes 119 MPAs, 5 recreational management areas, and 15 special closures covering 16% of open coast state waters from Mexico to the Oregon state line. This management measure has not only been groundbreaking in terms of ocean protection but also employed a cutting-edge public process, which greatly improved with each successive region.

Reef Check has been involved in the MLPA process since its onset, providing the Department of Fish and Game with scientifically-rigorous data collected along the California coast since 2006. Many Reef Check survey sites are inside MPA boundaries, or directly outside of them, which will prove to be very useful to managers interested in measuring any changes that occur as a result of the MPAs.

The MLPA process mandates that the MPAs must be adaptively managed, meaning that they will be monitored over time and perhaps amended to maintain efficacy. Therefore, once MPAs are chosen in a region, a thorough, multidisciplinary study of the coast is conducted to create a baseline of conditions for future comparisons. A consortium of researchers is selected to collect and analyze this "before data." Reef Check has been a member of these consortiums collecting baseline data for the Central Coast, North-Central Coast, and the South Coast MPAs. This has been an incredibly important time to be monitoring California's rocky reefs! Our staff and volunteers feel honored to be collecting data that is so critical to the science-based management and conservation of our coasts!

(This article was adapted from the CDFG press release)

SHANGHAI STUDENTS COMPLETE FIVE-YEAR PROJECT IN THAILAND

FEATURE **PAUL ADAMS**, REEF CHECK ECODIVER TRAINER

June 2012 marked the final year of a five-year longitudinal study of the reefs near Phuket, Thailand by students at Concordia International School Shanghai led by Mr. Terry Umphenour.

Each year Concordia students are offered the opportunity to join an ongoing Marine Ecology program at the end of the school year. They learn how to scuba dive (PADI Open Water), continue onto Advanced Open Water, and then move onto the Reef Check EcoDiver course. If they are a returning student, they are offered Dive Specialties and Rescue Diver training along with a Reef Check refresher class. Over the past five years, over 50 students have participated in the program with many returning year after year.

The diving coursework begins 6-8 months prior to the actual study with theory and pool sessions during the evenings and weekends in Shanghai. Although students must finance the courses themselves, they are offered to them at cost about once every week by Joel Klammer and Paul Adams, PADI and Reef Check instructors.

Once the trip starts, students are reminded of the importance of their work to collect valuable information on the marine ecosystem around Racha Yai, a small island frequented by tourists off the coast of Phuket.

The students witnessed firsthand the coral bleaching event that took place in 2010 and the continued decline of the reefs in the area. This year they saw a great recovery of the hard corals; however, they also saw the impacts of careless practices by boats in the area. They witnessed anchor damage on their permanent transect line as a speedboat carrying snorkelers dropped its anchor on the line while the students were taking data!

Concordia students conducted 12 surveys over two days at depths of three and six meters. Most dives were up to 90 minutes in length as the students carefully, but thoroughly, performed the surveys during early morning, midday, and afternoon.

Concordia made a five year commitment in 2008 to the reef at Racha Yai. This year marked the final year for this particular site but not the end of the program. Continued efforts are underway to identify a new area in Southeast Asia to continue the study by students.

REEF MONITORING THRIVES IN THE RED SEA

FEATURE **STEPHAN MOLDZIO**, REEF CHECK TEAM SCIENTIST & ECODIVER TRAINER
PHOTOGRAPHY **STEPHAN MOLDZIO**

Since we started our Reef Monitoring Programme with Red Sea Diving Safari (RSDS) in 2009, we have run four EcoDiver courses with 19 participants from ten different countries. Every participant has successfully been certified as a Reef Check EcoDiver. With this dynamic team we have conducted 20 Reef Check surveys at the ten most important RSDS dive sites. Each location has been surveyed twice along two depth contours (3.5m and 8.5m depth), so all in all we have contributed 40 data sets that have been included in the international database at Reef Check HQ, which currently includes 8,513 surveys in 99 countries and territories.

As in previous years, participants appreciated the opportunity to learn and apply the Reef Check method to monitor the abundance of specific reef organisms, and human impacts that reflect the condition of the coral reef ecosystem. A particular motivation for participating in Reef Check is that volunteers are contributing to real science by collecting valuable data about the health status of coral reefs. The data is an important tool for local reef managers and decision makers, as well as scientific publications such as the "Status of Coral Reefs in the World" report. This year, everyone was very keen to start with the field work, so our group conducted five surveys at Marsa Egla, Elphinstone, Marsa Gabel El Rosas, and two sites at Wadi Lahami.

Within our 40 surveys, we found a total coral coverage (hard and soft corals) of 50.8% ± 4.3% compared with a value of 50.5% ± 3.1% in 2009/2010. At 3.5m depth we found coral cover of 52.2% ± 3.7% and at 8.5m depth 49.7% ± 4.8%. For all non-living substrate categories – rock, rubble, sand, silt, and recently killed coral – we recorded an average percentage cover of 47.6% ± 4.6% for all surveys. In 2009 and 2010 we found 47.7% ± 3.1% non-living cover.

The 2012 fish counts remained relative to those conducted in 2009 and 2010. Again, the most abundant indicator group were butterflyfish with 6.0 ± 1.5 individuals/500m", followed by parrotfish (2.5 ± 0.9 Ind./500m"). The average abundance of groupers was 1.3 ± 0.4 Ind./500m", a slightly increased value with respect to 2009 and 2010 (0.7 ± 0.3 Ind./500m").

With regard to coral cover, our Reef Check surveys indicate that reefs at the ten surveyed sites remain generally healthy. Sewage and other pollution, as well as sedimentation from soil erosion do not seem to be a problem. We did not observe any coral diseases, excessive nutrient indicator algae, or sponges at the surveyed sites. Coral recruitment was good, especially at places with anchor damage where new coral colonies were beginning to grow and build up the next generation.

Perhaps the most striking finding was that the results were quite similar to the previous years' surveys, possibly due to the application of permanent transects.

DATES FOR 2013 EXPEDITIONS HAVE BEEN RELEASED IN MALAYSIA AND HONDURAS!

Join Biosphere Expeditions and Reef Check in Malaysia or Honduras next year! Four trips have recently been announced, each include Reef Check EcoDiver training.

REEF CHECK/BIOSPHERE EXPEDITIONS ECOEXPEDITION: MALAYSIA
March 10-22 or March 24-April 5, 2013

The island of Pulau Tioman is located 40km off the east coast of peninsular Malaysia. It is the Malaysian island named by Time Magazine as one of the world's most beautiful. Tioman has a relaxed, quiet feel with beautiful, sandy beaches and a densely forested interior. The reefs of Pulau Tioman Marine Park are some of the healthiest and most diverse around peninsular Malaysia and lie just inside the 'coral triangle', an area that has been identified as having the highest diversity of coral species anywhere in the world. The reefs in the coral triangle support 600+ genera of reef-building corals, 3000+ species of fish and contain 75% of all coral species known to science. A Marine Parks division of the government is present on the island, however the island's growing tourist trade, crown of thorns population, booms and developments on land are threatening the reefs' health and so data on the current biological status of the reefs and of population levels of key indicator species are crucial for park management and educational efforts.

Working in a very small group of five participants, one scientist and one expedition leader, you will assist the local researcher to study and protect the local Marine Park's beautiful but fragile coral reefs, as well as its marine megafauna such as sharks, dolphins and turtles. For the first five days of training and familiarising yourself with the Reef Check research techniques, you will be based at a beach chalet resort on Tioman island. After this, you will move to a 45ft sloop rig sailing yacht research vessel, which will take you to remote areas of the Marine Park. The expedition includes training as a Reef Check EcoDiver. Please note that you need to be a fully qualified diver to take part in this expedition (minimum PADI Open Water or equivalent).

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

REEF CHECK/BIOSPHERE EXPEDITIONS ECOEXPEDITION: CAYOS COCHINOS, HONDURAS
May 4-11 or May 12-19, 2013

Cayos Cochinos, Honduras is a marine protected area in the Bay Island Archipelago in the Caribbean Sea. The Cayos Cochinos form part of the world's second largest barrier reef systems, known as the Meso-American Barrier Reef, and have been identified as one of the key sections of barrier reef to preserve. The goals of this trip is to conduct a survey of the Cayos Cochinos reefs so that results can be compared to other parts of the Meso-American barrier reef system and worldwide in terms of the abundance and diversity of corals, algae, invertebrates and fish, and to monitor the health of the reef and its fish and invertebrates so that informed management and conservation decisions can be made by the government and NGOs. Reef Check survey protocols will be used and added to Reef Check's global database.

Expedition members must be at least PADI Open Water (or equivalent) scuba certified to take part in this expedition but will be trained in diving and survey techniques. Additional training for Reef Check certification is available for those keen on seizing the opportunity in this great locale. The base is the well-equipped Honduras Coral Reef Foundation scientific station on a small coral cay island accessible only to research personnel; accommodation is in comfortable, spacious wooden bungalow cabins by the beach with a lounge, toilets and showers.

For more information and how to sign up, please visit:
http://www.biosphere-expeditions.org/honduras

NITROGEN NARCOSIS: ALSO TESTED ON DIVERS

FEATURE **PATRICK VAN HOESERLANDE** PHOTOGRAPHY **OLIVIER SIMOENS**

Walking with my briefcase in the empty hallway, I feel the nervousness creeping up on me. Despite the preparations and the laborious planning, I realize that I can do little if something should go wrong. Once we start, I have no possibility to make corrections. It's a one shot activity. A general briefing and dry-run are crucial. No wonder I'm nervous.

In 2004, I conducted an experiment to determine the effect of depth (in fact, pressure) on our ability to function as a diver. I don't have to tell you there is a narcotic effect of nitrogen. Every diving course worthy of the name, mentions nitrogen narcosis. And yet, many divers claim they have barely experienced this effect and thus wrongly assume that it doesn't affect them unless they dive really deep. Perhaps you belong to the group of divers who think it only starts at the depth of 30m? Why?

The effect is difficult to detect by oneself. Only a few will tell you that they are under influence after drinking one pint. And yet everybody is, because you don't possess your full intellectual capacity anymore. Asking your drinking buddies makes little sense because their reference is affected too. Only a comparative, 'before and after' test will uncover your reduced capacities. The same counts for the influence on high partial nitrogen pressure. No wonder this is also known as depth intoxication.

If a buddy team goes diving, then both divers are under the influence. A diver will therefore have great difficulties to perceive the effect of increased nitrogen pressure on his buddy's capability. And again, only a comparative test can clearly demonstrate the effect.

For my first experiment I used the caisson of the naval base of Zeebrugge (Belgium). This had the advantage that the experiment was supervised by a professional team that stayed unaffected. It also put fewer restrictions on the kind of tests I could design. If I could run it in my living room, then it could be done in the caisson. One drawback, however, manifested itself so strongly that I suspected that it heavily influenced the results. In a dry caisson, the test subjects can communicate with each other. The effect can be compared to that of a night at a bar. If you're a bit drunk, many situations and stories seem funny and provoke a lot of laughter. Unfortunately, if this happens during an experiment, the performance of the test subjects drops. So the results are more influenced by the funny communication than by the narcotic effect. Although this state of joyfullness is also sensed in a deep dive, due to the limited communication – try telling a joke under water – it doesn't affect the diver's ability to function.

A few months ago, diver-biologist Kiki Vleeschouwers came to me with a proposal that could eliminate this effect. She had ran through an intelligence test at 3m and 35m. The self-test suggested a clear difference in results. Unfortunately, the result of a pilot test with only 1 person can hardly be called a valid scientific experiment. Increasing the number of participants, would do just that. The idea of a wet experiment for nitrogen narcosis in the world's deepest pool was born.

Together with diver-psychologist Leentje Vervoort, we designed a test set-up whereby 2 groups of divers filled out equivalent intelligence tests at 2m and 35m. With Nemo 33, the world's deepest pool in our country, we had the luck to have easy access to deep, warm and relatively safe water, because in open water other uncontrollable factors such as darkness, dust, cold…would have an effect on the results. Notwithstanding, complicating the whole test and rendering it more dangerous.

It is still a long way from the idea to the implementation. Obtaining the 'go' from the pool owner went smoother than expected. Normally, for safety and hygienic reasons, the pool applies very strict rules. So everybody expected very little leeway from that side, but in the end almost everything we needed was admitted. Almost. The owner was reluctant to allow the use of Nitrox for the support divers and for me, the experiment-leader. Nevertheless, on the day we totaled 16 test divers, 7 support, 2 underwater photographers, 2 underwater cameramen and a camera crew at the surface. In addition to the photo cameras, video cameras, underwater lightning…all divers had their own lamp, a set of test sheets and a writing slate. A lot of material sponsored by ScubaService, a local dive shop, and the Flemish diving federation (Nelos), that is normally forbidden in this deep pool of crystal clear water.

But we hadn't got that far yet. First we had to design the tests. Dexterity tests are difficult to organize underwater, therefore we chose testing intelligence. As we were not 'intelligent'

enough to design objective tests ourselves, we contacted the association for people with high IQ, Mensa, for inspiration. Mensa proposed to use their tests for this experiment and offered their assistance in the analysis of the results. This opened the possibility of discovering the most affected parts of the brain. In the Mensa test, the subject must determine the fifth symbol that flows logically out of a row of 4 given ones. In our setup, the divers had 7 minutes to give as many correct answers as possible.

We added a specially designed memory test in the form of imaginary fish. For this memory test, divers were given the time to study imaginary fish. After the wet time, they had to recall the characteristics of the two fish. This test corresponds to seeing an unknown fish and then to try to identify it after the dive with the aid of a fish book.

To make sure that only depth would come into play, we had to mix the different test sheets so that the 16 sets would be comparable. After that, we had to find a good mix of divers. On our limited call for guinea pigs, we got nearly 60 responses. Much more than we had hoped for, because the candidates had to pay for their participation. Thanks to the many candidates, we had the luxury to be able to select the team members. After much discussion, we decided to limit ourselves into two distinct groups: 'instructors' with lots of diving experience and novice divers who barely touched 30m. We also made for a good mix of men and women. The opportunity to include two older divers, gave our experiment an extra flavour.

So on that particular Friday evening at 7.30, the completed team was ready. After the general briefing followed a dry-run in which everything was rehearsed. This made it possible to implement some minor adjustments and to discuss the set-up in detail. No superfluous luxury, because it would be virtually impossible underwater to influence the procedure. Not only is communication underwater about unforeseen circumstances, the risk was that I would also be under the influence of nitrogen. You can compare it to a contest at the bar in which the referee drinks as much as the contestants.

After the mandatory local safety briefing, we started our compulsory period of acclimatization. The photographers and camera crew were already in stand-by to capture everything. Then we got the go-ahead and the experiment could begin.

I descended together with the team responsible for the right ambient light at 35m. Unfortunately, it took almost 5 minutes before the first test divers took up positions next to me. My first minute of deco time appeared already on my dive computer and the first 7 minutes hadn't yet started. In an attempt to limit my deco time, normally only 'no deco dives' are allowed, I decided to change the protocol by leaving the bottom after giving the start signal and to return in due time to give the stop signal.

Although late, the first group session went smoothly, but due to the early arrival of the second group, the deepest metre of the pool quickly became crowded and the shaft turned into a huge jacuzzi. In this mixture of divers and bubbles, it wasn't easy to distinguish who was who, but the dive leaders were capable enough so that the transition created no problems. After giving the 'go' to the second group, I ascended and gave (earlier than agreed during the dry run), the bag for collecting the tablets to the support divers.

After a few minutes of enjoying the jacuzzi, I noticed that someone was prematurely breaking away from the test. Apparently there was some misunderstanding. Lucky, I directly took notice of the time because I realized that there was little I could do. After wrapping it up, my diving computer informed me of the 25 minutes of decompression time that lay before me.

At 5m, I could only reflect on what went wrong and how we could adjust the test results. Both problems would find a solution after the dive. However, it was already clear to me that part of the problem was due to the influence of the nitrogen at depth. I felt confident that this would probably not have happened at 3m. Once more, it demonstrated that at depth, a simple execution doesn't exist. The experiment was therefore, in my mind, already a success.

After the smooth but not trouble-free one hour test dive, the team was debriefed while enjoying spaghetti. As the evening turned into night and the memory tests were completed, the team exchanged experiences and personal thoughts. Diving logs were filled in and the test team was disbanded.

Now, we had to process the test results. This showed that there was a statistically 'significant' difference between the performance at 2 and at 35 metres. Significant means that the differences have not 'coincidentally' occurred in our experiment, but that it was very likely that they would also be present in 'a real dive'.

Because the dive team was made up by both men and women and both experienced (instructors) and novice divers, we could also consider the factors that were influencing or had an influence on the results. The number of completed questions was significantly smaller at 33m (average of 12 questions) than at 2m (17 questions). These results confirmed that at greater depth, nitrogen narcosis reduces our speed of thinking. The difference in the number of completed questions between 33m and 2m was equally greater for men and women, and for novice divers and instructors. At 2m an average of 10 questions was correctly answered against an average of only 6 at 35m. At depth, a diver thinks less 'precisely'. Again, the difference in correct answers was equally great for men and women. Furthermore, it was found that experience did not protect divers against the effects of the nitrogen.

WHAT DID WE LEARN FROM ALL OF THIS?

FEATURE **LEENTJE VERVOORT** PHOTOGRAPHY **PETER VAN BRAGHT**

Scientific experiments, analyzing statistical data and drawing meaningful conclusions is my profession. I have a PhD degree in psychology and investigate how people process information that comes from their environment. When I learned about Hoesy (Patrick) and Kiki's plan to carry out an experiment on depth intoxication, I immediately offered my collaboration. I would statistically verify that with the differences in performance, we would find that our experiment was 'significant'.

On the first co-ordination meeting I assisted in, it occurred to me that Hoesy and Kiki handled things very professionally. What Hoesy called 'mixing things up so only depth would have an influence on the results', is called 'randomization', an essential feature of sound scientifc research. The use of the Mensa test ensured that we definitely knew what we were measuring, namely the different aspects of intelligence (counting, three-dimensional thinking, etc.).

As a new diver (1*) with barely 30 dives logged, I look with full admiration to my buddies who always seem to know exactly what kind of fish we saw because of some observed detail. All this while I can barely remember that we have seen fish…I figured the present experiment would provide a nice opportunity to test this 'fish memory ability'. So I designed 2 non-existing fish (one for every test depth), of which the divers had to recognize 7 distinct characteristics (number, head, tailfin, dorsal fin, ventral fin, colour and skin pattern). In memory research, this is called "The Magical Number Seven, Plus or Minus Two". This is because people can, on average, put 7 (+ or – 2, so 5 to 9) elements of information in their working memory. So, it should be easy to remember the 7 characteristics…

With a power-analysis that determines how many people you need to find a significant difference in performance between two different situations, I figured that with the already planned 16 participants we would have enough to demonstrate that depth intoxication affects the test results. Unlike the 'normal' life of a scientist, where it's always difficult to find sufficient guinea pigs for research, for this experiment it was no problem getting the participants. Because there were both men and women in the test groups, both experienced (instructors) and less experienced (2* and 3*) divers, we could also investigate whether these characteristics would influence the results.

From articles on nitrogen narcosis, one can find out that not only our intellectual capabilities can be influenced, but that it can also lead to euphoria, exaggerated self-confidence, recklessness, fear…So I wondered what the effect of depth would be on the number of questions on the intelligence test that the divers would fill out: at depth, would they think less quickly and answer fewer questions? Or would they fill out more from an increased reckless and excessive self-confidence?

The number of completed questions was significantly fewer at 35m (12 questions) than at 2m (17 questions). The difference in the number of completed questions between 35m and 2m was equally more for men as for women, and for novice divers as for instructors. This supports the thesis that depth intoxication makes us think less quickly.

By comparing the number of faulty answers, we could find out if a diver at depth also thinks less 'precisely'. Wim Proest of Mensa gave me the corrected copies of the intelligence tests. He told me that someone who has 24 (of 33) questions correct, has a 50% chance to succeed in the full version of the Mensa test. That none of the divers scored this highly was no real surprise given the particular circumstances in which the tests were completed. After all, as Hoesy stated, 'the capabilities of a diver starts to deteriorate from the moment we put our head underwater'. That two divers (no, I'm not saying who because anonymity is very important in scientific research) scored 20 out of 33 questions at 2m, indicating that there were quite a few clever people amongst our test divers. The highest score at 35m was 12.

Not only the highest scores, but also the average scores differed significantly between the two depths. At 2m on average, 10 questions were answered correctly. At 35m on average, only 6. The difference in correct answers between 35 and 2m was equal for men and women. Furthermore, it seemed that experience is not a protection against the effects of depth intoxication.

After the dive, (but before the spaghetti) the fish memory of the divers was put to the test. On a response form, they had to identify what they remembered of the fish that they had seen for approximately 1 minute at 2m and 35m. The results revealed that memorizing the characteristics of a previously unknown fish was a lot harder than expected. On average, the divers remembered only 2 characteristics of the '2m fish', and only 3 of the '33m fish'. In other words, for both depths, the divers remembered less than half a fish. Neither gender, nor experience made any difference. Needless to say that from now on I have less confidence in the 'fish memory' of my diving buddies.

So dear reader, what have we learned today?

1. Depth makes us think slower and makes us more prone to mistakes;
2. Neither experience, nor gender protects us from these effects. Depth has the same negative consequences for novice divers as for instructors, and for women as for men!
3. Never trust the fish memory of your buddy.

We are planning a follow-up experiment where we want to investigate the effect of Nitrox on depth intoxication.

MEMBERS OF THE EXPERIMENTAL DIVE TEAM (*in alphabetical order*)
Benoy Carry – Buytynck Nanou – Cockx Ann – De Loose Nick – De Wit Joeri – Devos Tom – Engels Hans – Hans Theo – Janssen Rudi – Lambrechts Tom – Limpens Jacques – Michiels Harry – Simons Olivier – Smets Peter – Steeno Patrick - Steeno Kristof – Van Bragt Peter – Van den Berghe Jozef – Van den Bleeken Jose – Van Dessel Tine – Van Deuren Walter – van Doorn Roy – Van Hoeserlande Patrick – Van Hooghten Niki – Van Poucke Frederik – Vanderaspoilden Tine – Verhoeven Dora – Vervoort Leentje – Vleeschouwers Kiki

USEFUL WEBSITES:
Nemo 33 – **www.nemo33.com**
Flemish Diving Federation – **www.nelos.be**
Dive Shop Scuba Service – **www.scubaservice.be**
Personal Site – **www.webdiver.be**

EXPEDITION SEYCHELLES

FEATURE AND PHOTOGRAPHY **YANNI C. SMITH**

During June 2012, I participated in an expedition in the Seychelles that was organised by Global Vision International (GVI), who provide support and services to international charities, non-profit and governmental agencies, through volunteering opportunities, internship programs, training and direct funding: **http://www.gvi.co.uk/expeditions/africa/seychelles/marine-conservation-expedition-seychelles/home**

The aims and objectives of the project include learning about and conducting coral reef research, surveys and samplings as well as observations of the marine environment in Seychelles. The marine data that is continually collected is used to show the health of the coral reefs in the Seychelles. This research is part of an ongoing monitoring program that provides a record of the magnitude and frequency of severe bleaching events in the South Indian Ocean and the subsequent recovery or degradation of the reef. In the wider context, this research can benefit in the understanding of global climate change in marine environments around the world.

Before arriving in the Seychelles, each volunteer is assigned to a group of Fish (1&2), Corals or Invertebrates. For each group, there is a list of species for that volunteer to focus on learning so that they can survey them underwater. Group 2 fish were assigned to volunteers who were staying for a longer time than Group 1 fish and therefore had to learn an extra set of fish species to Group 1. We were also given a guide for the expedition but I don't think that anything can really explain the life that you have on base camp apart from actually experiencing it yourself.

When we got to base, we were given a full schedule for the first week with lectures and study sessions to make sure we all knew our fish or coral species. They gave us plenty of time to learn our given species, so when it came to the exams it really wasn't so difficult. We also had to identify the various species underwater correctly three times in a row. Once we passed the exams and in-water identification, we were then qualified to conduct surveys.

The divemasters showed us how to conduct the surveys on land first, just to give us a feel for what we were doing before heading underwater in pairs (usually a Group 1 fish and a Group 2 fish) to try it out. There were different kinds of surveys to conduct; depending on what group you were assigned.

As I was assigned to Fish Group 1, I had to learn to conduct two types of surveys: a stationary point count, and a 50m-belt survey. Before entering the water to do the survey, the skipper of the boat has to first tell you the "centre point" for the survey site, whether you are doing a deep or shallow survey and what your depth ranges are. Once you know this information and whether you are left, right or centre of the centre point, you head down to conduct two surveys. We were either assigned two point counts or a point count and a belt survey.

For a point count, we found a spot within our assigned point of the survey site and laid down the tape measure (attached to a two pound weight) for 7 metres. The length of the tape was a reference for the radius of a circle that we had to count the fish. We then had to hover in the middle of this circle for six minutes and counted our assigned fish that entered the "circle". On the seventh minute, we had to swim around within the circle and look within and under crevices to make sure we didn't miss any fish.

All the data was recorded on our dive slates.

To conduct the 50m-belt, we selected a spot within our given site and laid down the weight for the tape measure. The Group 2 diver then swims in a straight line, parallel to shore, and counts their assigned fish, while the Group 1 diver lays down the tape below them.

Once the tape has reached 50 metres, the Group 1 diver instructs the Group 2 diver to stop and both hover for 1 minute to allow any scared fish to return to their spots. Then, the Group 1 diver follows the tape measure back, while counting fish, to the starting point while the Group 2 diver reels back the tape.

Depending on the current, the belt survey can usually take about 20-30 minutes. After two of the surveys are done, if time and air permits, we are able to explore parts of the reef for the rest of the dive. After the survey, we had to record the information down on data sheets to be entered into the database by the staff members.

A PADI qualification of Coral Reef Research Diver was awarded to all volunteers who successfully passed the examination and completed the surveys according to the criteria set out by GVI. This qualification is only available through GVI.

Also any diver who was not holding an advanced qualification was taken through the PADI course during the first week. As a Rescue Diver I of course did not need to complete this section.

In order to earn the Coral Reef and Research Diver qualification, we not only had to successfully learn our fish and conduct surveys, but we also had to go through a series of lectures about Oceanography and the local marine environment.

Additionally we had to run through certain skills underwater to make sure everyone was comfortable enough with their buoyancy so that nobody harmed the coral and to make sure we could navigate successfully for surveys. Because we dived every day, most people became very comfortable in the water and these skills were very normal for us. We dived every day during the weekdays and we had weekends off, which was Friday and Saturday, something normal for me having been brought up in the UAE, but after two years at university in Scotland it still felt different. The reason for this weekend was because absolutely all the shops in the Seychelles are closed on Sundays.

Diving was generally one dive per day, however two dives was not uncommon depending on the days schedule.

Once a week, depending on the tides, we would go out for turtle dives and a plankton pull.

The plankton pull went out early in the morning with two staff members and five volunteers. Each volunteer gets a chance to reel in the very heavy plankton net, that is placed in a very specific location, and the plankton collected is then analysed and sent to the Marine Conservation Society Seychelles (MCSS).

Two turtle dives are usually assigned for the day with pairs dropped off at certain locations along the reef searching for turtles. Each pair will have a slate and a compass and they swim in a "u-shape" pattern parallel to the shore. One person will navigate this pattern while the other records information on the turtle if one is spotted.

Once a turtle is spotted, the pattern is abandoned and the divers then follow the turtle around until it dives too deep, then the pattern is resumed. We recorded information on the type of turtle (usually green or hawksbill), the sex of the turtle, the tail length (if it was visible), an estimate of the size of its carapace and the behaviour of the turtle while the divers follow it (this included feeding and what it was eating, sleeping and how it slept etc.).

The most exciting part of the trip had to be when the water started to get murky with all the plankton flowing in. Though the visibility was terrible, the excitement at base was high in the hopes of seeing whale sharks! Once the first whale shark at the island was spotted in a bay near ours, we kept our eyes peeled before, during and after each dive.

Doing this paid off though, because after I came up from a practice survey, we scanned the sea around us and suddenly spotted something strange coming up next to the boat. At first sight, it was completely white. Then, suddenly, it tilted its head forward and we started to see its spots and everyone got so excited and started to jump in. However, all the excitement from the divers scared it and it dived too deep for us to follow. Even though it was for less than a minute, seeing this whale shark was for me a definite highlight of the entire trip.

Towards the end of the trip, we were put on more fun dives, which let us explore the reefs without having to worry about counting fish and such. It was great to dive with my new friends from base who I didn't get to dive with before because they were surveying something different. They could point out some interesting things to me and vice versa, and ultimately we all learned more about the coral reefs.

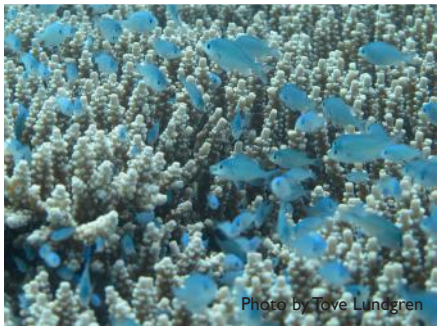


Photo by Tove Lundgren

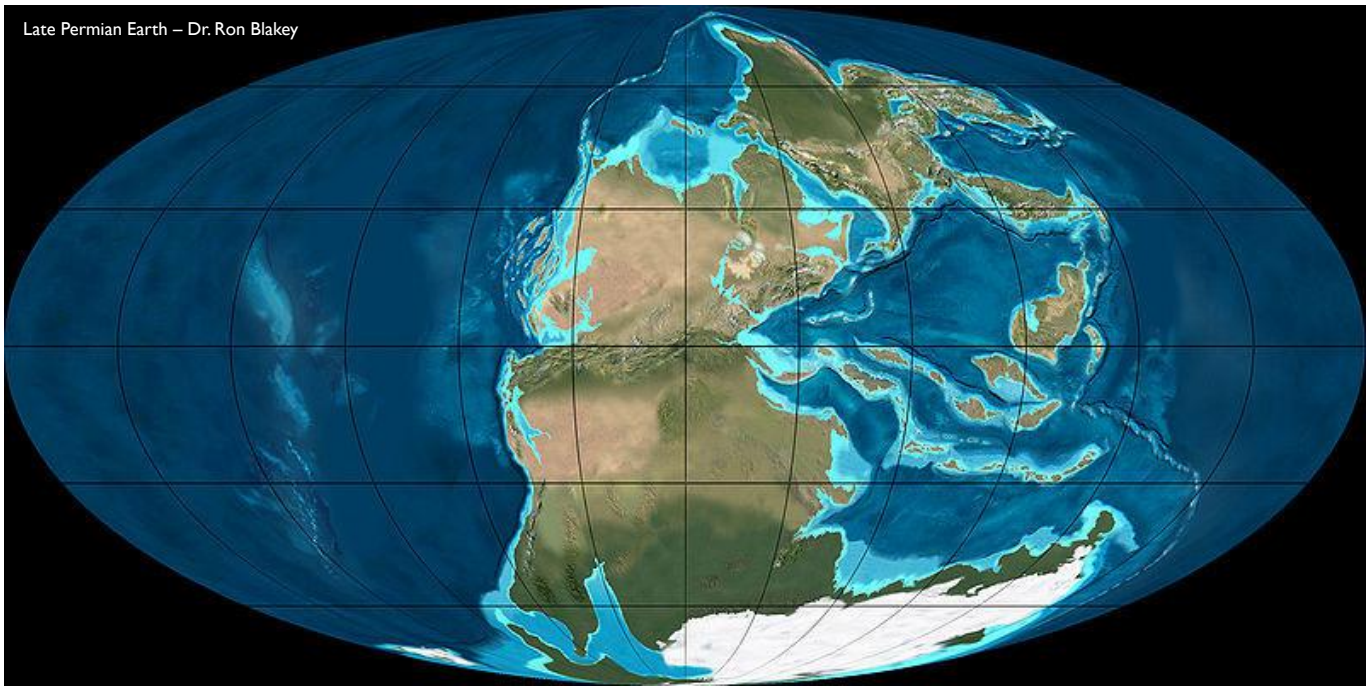
Diving in those beautiful waters was absolutely amazing. Though the visibility deteriorated while I was there, seeing the whale shark definitely overrode any doubts about it.

Since all the volunteers on this trip had a similar interest of diving, we all got along really well and that made the atmosphere a good one to live in for a month, especially as we were sharing accommodation five to a room. If I could do it again, I would, but for longer than a month.

A month is a good time for initial experience, but to really appreciate everything and give more, and getting into the rhythm of conducting surveys, two or three months would be ideal. The GVI Seychelles base also does a six-month dive master internship where you stay on base for three months and then you are allocated to a local dive shop to do the divemaster placement. If I'd had the time and I knew more about GVI and its expeditions, I would definitely have stayed longer.

ARE WE CAUSING THE WORLD'S LARGEST MASS EXTINCTION?

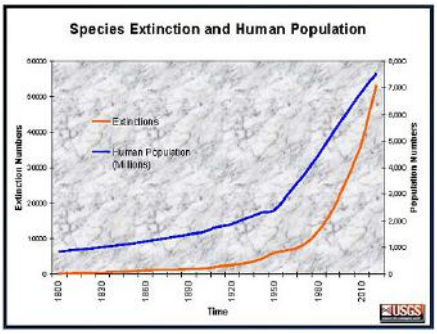
FEATURE **LEANNE KING BSC**


Late Permian Earth – Dr. Ron Blakey

"The worst biodiversity catastrophe in the history of animal life appears to have been associated with environmental changes we anticipate in the coming centuries"
JONATHAN PAYNE, PALEOBIOLOGIST, STANFORD UNIVERSITY

Species and genera are constantly evolving. New species develop while others die out and become extinct. Nothing on this earth is ever constant. Some scientists estimate that up to 98% of species that have ever existed on the earth have already become extinct. At present, biologists have documented and named 1.3 million modern day species, with 15,000 new species being identified every year. Some scientists estimate that there may be up to 8.7 million species existing at present, although others believe 8.7 million to be a very conservative estimate and that the real number is far, far greater than this. Either way, it is pretty much widely accepted that we only know but a small percentage of the life on earth.

Five mass extinctions have been determined and described in the world's natural history, the most well-known being the mass extinction at the end of the Cretaceous period – the one which was responsible for the downfall of the dinosaurs. However, this wasn't the biggest mass extinction in the world's history. At the end of the Permian era, 252 million years ago, there was a mass extinction responsible for the destruction of 83% of the world's genera and has consequently been dubbed the "Great Dying". Approximately 96% of all marine



Extinction and Population Graph

species disappeared and the ones left behind were the ancestral species of the life in our oceans today.

BUT WHY DID IT HAPPEN?

Scientists have pondered the cause of extinctions, especially mass extinctions, since the realisation that they occurred – what could possibly cause such devastation to the planet? What epic force could wipe out so much life right across the world? Almost in an instant, one pulse?

Many theories and hypotheses have been tossed around for the cause of the Permian extinction – Was it meteors? An asteroid, like in the Cretaceous? Volcanic eruption perhaps? Maybe an upwelling of oxygen-poor water from the depths of the ocean? Theories like these are difficult to prove, relying on mathematical models or simulations – and some of them are merely guesses.

An enormous asteroid, one on a much grander scale than that believed to have destroyed the dinosaurs, is believed by geologist Gregory Tallack to be the most likely cause. A collision of this scale would have caused billions of particles to rise into the atmosphere and then raining back down across the planet. After studying quartz crystals from the era in Australia and Antarctica which suffered severe fractures to their structure, Tallack concluded that only a massive impact could have deformed them. In addition, researchers have recently found a crater 120 kilometres wide that would have been caused by a 3-mile wide meteor buried below Australia. A meteor this size would have caused noxious gases as well as clouds of smoke and debris to be released in to the atmosphere. The sun would be blocked out, potentially for months, causing a severe drop in temperatures and acid precipitation, snow and rain, would fall, probably for years to come. The global warming caused from the mass release of carbon dioxide from decaying matter would have continued for millions of years. Even the short-term effects would be enough to kill most plants and photosynthetic plankton – the base of most food webs. Everything above that would have starved.

Some believe the death began in the oceans. The deeper areas of the ocean were almost completely anoxic during the Permian era. However, evidence of oxygen-depletion and extreme anoxia have been found in rocks that were formed in shallow water during the end of the Permian era. Anoxia is evident in certain

Permian mass extinction

areas of the world's oceans today, where pollution builds up and it is known to cause local die-offs of the marine life. However, for such a mass extinction to occur, almost the entire ocean would have had to stagnate, a pandemic which could have been caused by a lack of polar ice caps melting and re-freezing which drives many of the ocean currents. A disturbance of the deep oceans could have caused the stagnate water to have upwelled to the shallows, basically suffocating marine life while increasing carbon dioxide levels and reducing the amount of oxygen released in to the atmosphere.

However, another recent proposal and consequential research study focussed on the effects the extinction had at the cellular level of fossils to try and determine the "killing mechanism". The results of analyses of over 50,000 marine invertebrate specimens from 8,900 collections worldwide, points to a different cause which could have significant crossovers to modern marine life and its future. This study could be the key to describing why so many died, yet others didn't and could guide hypotheses to predictions of the future of our oceans.

Of all the groups affected by the Permian extinction, marine invertebrates suffered the greatest damage to their diversity. The study found that marine animals that relied on calcium carbonate (limestone) to form their skeletons were far more likely to have gone extinct than those that relied on other methods and had ways of protecting their internal chemistry. Those species that had active control of their circulation, sophisticated gas exchange mechanisms and relied less on calcification were more likely to survive to the Triassic period. Up to 99% of plankton species vanished and 96% of all corals, including tabulate and rugose corals, completely died out. Bivalves (snails, clams etc.) and Ostracods (small crustaceans) were the least affected groups, with 41% of genera surviving to the Triassic. The Permian extinction was the end of the road for groups already in decline, such as the blastoids, trilobites and eurypterids ("sea scorpions"). Marine invertebrates that managed to survive the extinction included articulate brachiopods, although they have been steadily declining in diversity since the event; the Ceratitida order of ammonites; and crinoids ("sea lilies") which almost became instinct and hung on by just a few species. These later flourished, becoming very diverse and abundant in the wake of the extinction. After the Permian extinction, gastropods such as snails, clams and scallops became the dominant sea invertebrates.

There was no escape from the "Great Dying" – animals and plants, in both the seas and on land suffered; diet and motility were of little effect. From the fossil analyses in the recent study, the researchers concluded that marine invertebrates suffered from a lack of dissolved oxygen in the water, an excess of carbon dioxide, a reduction in their ability to create shells from calcium carbonate, altered ocean acidity and elevated water temperatures. All of these stressors, each one potentially damaging by itself, happened rapidly and in quick succession, each one exacerbating the effects of the previous event. It caused a complete change in the dominant animals within 200,000 years or less – some suggest it took just 100,000 years. This may seem like a long time, but when you consider that modern man only evolved around 196,000 years ago, it really is a considerably short period of time. But what caused the sudden and significant changes to the atmosphere?

For sure, whatever the cause, it must have been something severely catatstrophic, as it's not easy to cause such a wipeout. Clues from the studies of the geochemistry of rocks and fossils from the time show that a huge infusion of Carbon occurred, flooding the atmosphere and oceans. Even the largest of asteroids or the deepest of ocean upwellings could not account for such widespread yet selective extinction. Instead, many scientists suspect it to have been caused by the largest volcanic event of the last 500 million years, the same one responsible for the formation of the million-square-mile Siberian Traps. The eruption that caused the traps left behind lava flows over 2.5 miles wide, which has since been propagated by vast conifer woodland. So much lava erupted from a chain of numerous open volcanoes that it would have been enough to smother the surface of the earth in a crust up to 20 feet thick. Geologist Paul Renne has determined from rock samples taken from the Siberian Traps compared to rock samples known to be from the Permo-Triassic boundary that the two events – volcanic eruption and extinction – occurred within 100,000 years of each other. Given that it could have taken as little as 100,000 years for the mass extinction and consequent succession to have concerned, it would appear the two were more than just a coincidence.

However, the eruption didn't cause the mass extinction by smothering the world. An eruption of this scale would have sent catastrophic amounts of carbon in to the atmosphere. This carbon would have dissolved in to the oceans, causing long-term acidification, warming the seas and resulting in oxygen-depleted water. When the gases were absorbed in to the atmosphere, acid rain would have fallen, destroying the life it touched. Large clouds of dust and gases would have blocked the skies, causing the earth to cool. This would have increased the amount of ice and glaciers on the earth, reducing the amount of fresh water available, strengthening the concentration of the acidic rain. Water levels in the ocean's would have lowered, potentially disturbing the deep anoxic water, causing it to upwell and further suffocate life in the shallows.

WHY DOES THIS REALISATION HAVE IMPLICATIONS FOR TODAY'S OCEANS?

There is a surprising similarity between the findings of the earth's environment around the time of the "Great Dying" and the state of the planet today. There are already high concentrations of carbon based gases in the environment, causing ocean acidification, warming and ultimately reducing the availability of dissolved oxygen in water bodies. This leads to the creation of dead zones – areas of oceans or lakes where oxygen is low, making it impossible to support marine life. The theoretical patterns of the past run a strikingly similar parallel to the predictions made by scientist of the geological path of the earth over the next two centuries.

Of course, these are just predictions; nobody can really know for sure what happened in the past, just like they can't guarantee the future effects 100%. Furthermore, there are

significant differences between today's earth and the earth of the Permian era. Firstly, in the Permian era, the supercontinent Pangea existed – there were no separate continents. Every land mass on earth was joined as one. This meant that all the world's oceans were one large body – Panthalassa. There were different currents running through the seas and fewer shallower areas of ocean, the most productive areas for marine life. The Permian sea was easier to acidify than that of today. Modern seas have a greater amount of deep sea calcium carbonate, capable of offsetting acidification. The Permian extinction has provided biologists and geologists with an archive of the effects of Carbon emissions on diversity – as carbon emissions increase, diversity decreases, followed by an array of negative physiological effects.

Carbon is currently being injected in to the atmosphere at rates quicker than at any other time in the last 300 million years, due to human-related activities such as burning fossil fuels and deforestation. It doesn't take vast increases in ocean acidification to upset the finite balance of coral reefs. Studies of areas naturally more acidic than the majority of the ocean, have shown that drastic reductions in corals can occur when acidification reaches levels likely to be occurring by the end of this century. Coral reefs provide habitat and shelter for over 25% of the oceans fish and branching corals, which provide shelter for many juvenile fish, are particularly susceptible to acidification.

The International Programme on the State of the Ocean (IPSO) and the International Union for Conservation of Nature (IUCN) identified that marine life is at serious threat from global warming, pollution, overfishing and habitat loss – the combination of which produces a high risk of major extinctions. IPSO warned that current oceanic conditions are similar to those of "previous major extinctions of species in Earth's history" and that we face losing not only marine species, but entire marine ecosystems within a single generation. IPSO also concluded that the current speed of decline in speciation and diversity is occurring at a much faster rate than previously predicted.

Alex Rogers, IPSO's scientific director stated, "The oceans are a common heritage of mankind. The threat we believe is real. The rate of change we are seeing in the quantities of carbon dioxide going in to the atmosphere and then being absorbed in to the oceans is so great that it is difficult to compare what is happening now to what has happened in the past, but we do know that past disturbances in the carbon cycle have been a feature of mass extinction events."

Most, if not all, of the earth's 5 major extinctions have been caused by the "deadly trio" – a lethal mix of global warming, ocean acidification and hypoxia (low oxygen availability). Worryingly, all three factors are present in today's oceans. Dan Laffoley, the senior adviser on marine sciences & conservation to the IUCN noted, "The challenges for the future of the oceans are vast, but unlike previous generations, we know what now needs to happen. The time to protect the blue heart of our planet is now, today and urgent."

Many have described the world's oceans as our planet's circulatory system. The ocean provides numerous vital functions to this planet, essential to its harmony. It is the oceans that make the earth habitable. Oceans are responsible for releasing 50% of the atmospheric oxygen available to life, it drives weather systems, modulating the atmosphere and providing vital resources. Without it, life on earth simply wouldn't exist.

Causing global warming and ocean-acidification to increase are not the only ways humans are causing destruction to the finite balance of the earth's eco-systems. 12,000 years ago our ancestors started killing off all the large animals of the time, either for food, clothing, sport or other reasons. Many scientists believe that species such as the woolly mammoth, sabre-tooth tiger, dire wolves among many, many others, including modern species, have become extinct due to humans – either through hunting the animals, by introducing non-native species to areas with fragile eco-systems or other human activities such as urbanisation and construction. At present, our oceans are under severe pressure from over-fishing for food, whaling, shark-fishing and coral reef destruction while our forests suffer from deforestation and acid rain. We need to stop and consider what we are doing to the planet – not only at a national or international scale, but also on an individual basis. It is not only the responsibility of big businesses and governments to protect the world's resources, but is also down to each person to influence others with the choices they make on a day-to-day basis.

CASE STUDY: THE BLACK TRIANGLE, CZECH REPUBLIC

In the deceptively lively, rolling green hills of the northern Czech Republic, not far from the borders of Poland and Germany, lies an area of land that replicates the devastated land after the Permian extinction event. Decades of acid rain, caused by the coal-burning power plants nearby, has literally killed the wooded hillsides that once dominated the skyline. Hundreds of fallen trees litter the landscape, the trunks of the old spruce trees the only evidence left of the once-living forest. No animals live in this area, no bird dance among the sky. The only life here now are the acid-tolerant weeds that now smother the soil. Only a few decades ago, the hillsides were home to dozens of species of plants and trees. Now only a few hardy grass species grow.

Cindy Looy, a paleobiologist, believes that the situation in the Black Triangle may help to explain the events of the Permian extinction. The theory is that acid rain, a result of a massive release of volcanic gases, is responsible for much of the devastation experienced during the Permian extinction. By collecting pollen samples preserved in the cones of different trees around the area of the Black Triangle and comparing them to fossilised pollen spores from Permian-era rocks, comparisons can be made of the two environments.

CASE STUDY: KAROO – ONE OF THE FEW-AND-FAR-BETWEEN INSIGHTS IN TO THE PERMIAN ERA

One of the reasons why the cause of the Permian extinction isn't as determined as, say, the Cretaceous-Tertiary extinction which killed the dinosaurs, is because there is simply an almost complete lack of testable evidence. Areas of Permian rocks and sediments are not only rare but, even when they are found, they're often in inaccessible areas. However, a scrubland area that lies some hours outside of Cape Town, South Africa is one site that has preserved several specimens from the era. Some believe that The Karoo may be the best area in the world to witness the terrestrial transition from the Permian to the Triassic period. Now treeless and barren, in the Permian era The Karoo was as diverse as the modern day Serengeti. Synapsids ruled the area, including herbivorous dicynodonts and carnivorous gorgonopsians. For more than 60 million years, synapsids ruled the land, in the same way the dinosaurs did later on. At the end of the Permian era, synapsid diversity, along with many other terrestrial groups, went through a savage bottleneck. Species population remained abundant, but diversity dwindled dramatically.

CASE STUDY: BUTTERLOCH GORGE, THE ITALIAN ALPS

Plants are the primary providers for most of life on Earth. Food sources for animal species, especially of higher vertebrates, can be traced back to some kind of plant life. Without plants for energy or to release oxygen in to the atmosphere, animal life simply wouldn't exist. Animals, both terrestrial and marine, were not the only groups significantly impacted by the Permian extinction.

In the Italian Alps, researchers are focussing studies on the fossil beds of Butterloch Gorge in order to determine the effects the extinction event had on the Permian forests. Studies of fossils transitioning from early Permian era to the Permo-Triassic boundary show pollen-filled fossils, typical of a healthy conifer forest, being replaced by fossilised fungi species. Researchers at the site believe the explosion of fungi species was predominantly made up of wood-decaying species, indicative of the death of the forests. This "fungal spike" has been witnessed at Permo-Triassic boundary sites across the world, accompanied by the decrease in pollen species. The conclusion? Almost all the world's trees died en masse.

FISHING IN THE **RAS MOHAMMED NATIONAL PARK**, EGYPT JULY 2012

FEATURE AND PHOTOGRAPHY **SIJMON DE WAAL**

I was very fortunate to have spent 8 months in Egypt in 1996 and have visited the country fairly regularly since then. During the summer months, Shark and Yolanda Reef in the Ras Mohammed National Park attract many thousands of fish which in turn attract scores of divers to witness this amazing spectacle, providing Egypt with much needed tourism revenue.

On our last trip to Ras Mohammed National Park, it was very distressing to see that fishing boats are actively fishing these reefs. Being a longstanding national park, fishing within its borders is supposed to be illegal. My wife and I witnessed fishermen on these spots everyday of our holiday (5-14 July 2012). Once the last dive boats leave, the fishermen would arrive around 17:00, throw anchors onto the reef and I would guess, stay the whole night fishing as there seems to be a complete lack of enforcement from the local authorities.

The numbers of fish at the reef are nowhere near what they used to be, but having witnessed the fishermen targeting the breeding congregations of fish at these reefs, the rapid decline in fish numbers is no surprise.

We took a video of the fishermen from the water (we snorkelled from the shore) and they immediately approached us and threatened us not to take pictures of them. They drove the boat next to us and one of the crew members stood up on the boat with an anchor in his hand. My wife and I were very lucky not to have been run over or assaulted by this particular group of fishermen as they continued to harass us for about 10 minutes before allowing us to swim back to the shore.

With other fishermen being the only witnesses, we felt very unsafe and were perhaps very lucky not to have been harmed in any way.

Normally one is made to feel very welcome and safe in Egypt so this incident was not something that we expected. I can only hope that the pictures we took will find their way to the right people that will be able to take action and prevent the destruction of this world class diving destination.

In the photographs, Shark Reef is in the foreground (with a flag on it) with Yolanda Reef behind it. The underwater photos were taken while free diving around the reefs.

View from Yoland Bay parking lot of fishing boats on Shark and Yolanda Reefs

Fishing boats on Shark and Yoland Reefs

PHOTO TECHNIQUES
FROM DIGITAL ONLINE'S 2012 WINNING IMAGES

SIJMON DE WAAL – 3rd PLACE FISH
SILVERTIP SHARK, MOZAMBIQUE AFRICA: This image of a Silvertip shark was taken in Mozambique which is one of our favourite places to dive. Many different shark species are around if you dive in the right place and the right time of year. However, as always, an element of luck is needed to make the weather play along during your visit. When photographing sharks, it's much easier to get closer free diving as the bubbles from Scuba tanks definitely tend to make the sharks keep their distance. Without the bubbles sharks tend to be much more curious and will approach closer than if you are with a large group of divers. This image was shot on the surface using available light with the strobes turned to low power. I used a Nikon D80, ISO100, f8, 1/80).

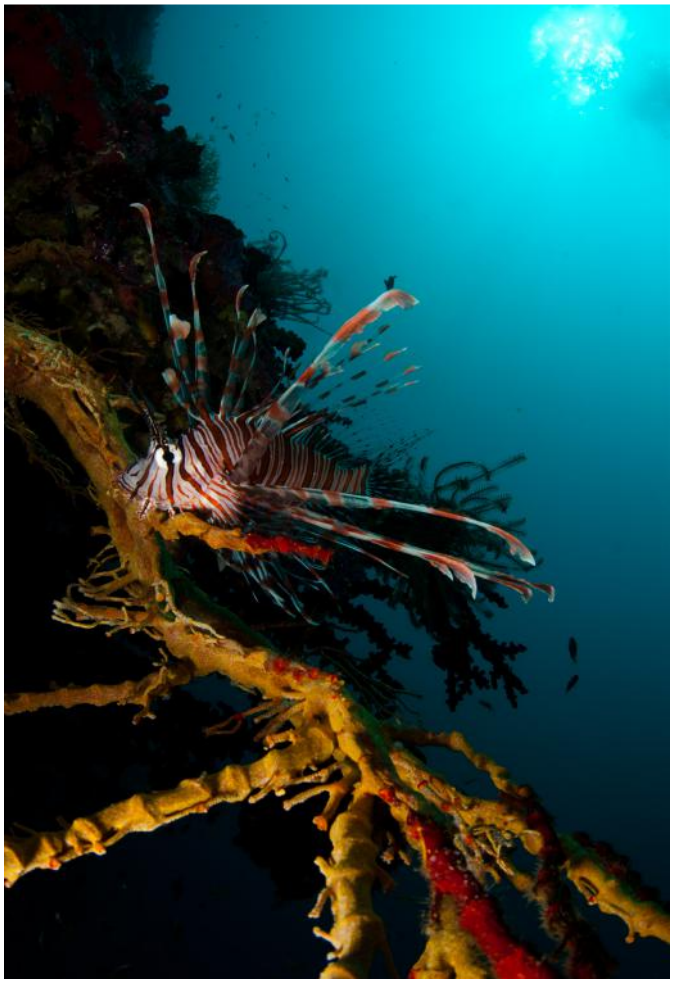
SIMONE CAPRODOSSI – 2nd PLACE WIDE ANGLE
GREEN TURTLES, SIPADAN MALAYSIA: I got the lucky chance to shoot these mating turtles in amazing Sipadan. I followed them shooting from below and approached them from the front and got some good shots, but with a whitish background from the strong midday sunlight that was burning the water surface background. As it was the end of the dive anyhow, I slowly ascended to the surface following them and enjoying the experience and switched off the strobes to work with natural light. I set the camera to shutter priority at 1/125 to not worry too much about exposure metering at every shot but to be sure to avoid motion blur. By this time I was alone with them and wanted to capture the harmony of this incredible encounter. So it was time to break the golden rule of shooting at an upward angle! Turtles are one of the few subjects that work very well shooting downwards, especially with their beautiful shell colors and shooting this angle with sun behind, I knew I could get a beautiful blue background and nicely saturated colors. I used a Canon 5D MarkII in Subal Housing, Canon 17-40 lens at 20mm, F13, 1/125 speed.

ALASTAIR MCGREGOR

PYGMY SEAHORSE, MALAPASCUA PHILIPPINES: I found this little Pygmy Seahorse on a small fan coral at around 24m on the North Point dive site. I took the photo with my Nikon D90 in an Aquatica housing fitted with a flat port and a Nikkor 105mm VR lens, 2 x Z240 Inon Strobes. The camera was set at ISO200 and 1/200 and f20 and I had also fitted a close-up macro lens that allowed me to double the size of the magnification of the lens. When working with an aperture of f20 on a super macro setup, the depth of field is very limited and careful placement of the zone of sharpness is essential. For this shot I waited for the little seahorse to get used to me. When he lent forward to move branch I took the shot placing the focus point between his nose and eye to ensure that they were sharp, my flash was on medium power. The high shutter speed darkened the background as well as shooting up slightly. – **2nd PLACE MACRO**

SQUID, OCTOPUS ROCK, MUSANDAM OMAN: It was a nice clear day underwater and we encountered a family of squid at 15m or so and they were very busy hunting amongst the coral for small crustaceans and took no notice of either my buddy or myself. I was able to get into position and place my camera so that I was shooting up to the surface, my strobes were close to my port and pointing slightly out on a reasonably low setting so that I could take multiple shots without them recycling. In the end, it was patience that rewarded me with a series of shots of the squid glowing in the light of my strobes against a nice black background. Nikon D90, ISO160 f22, 1/200, Nikkor 105mm VR lens, 2x Inon Strobes. – **2nd PLACE FISH**

LIONFISH AND REEF, MALAPASCUA PHILIPPINES: This photo was taken on Callangaman Island about an hours boat ride from Malapascua itself. The reef is a beautiful vibrant reef covered in soft corals, huge sponges and large Gorgonian fans. I took the photo pointing up to the sun with my Nikon D90 fitted with an 8" dome port and the Nikkor 10.5mm Fisheye lens. The Lionfish was away from the reef and hunting amongst the corals. He allowed me to get a close frame of him in various poses against the sponges and then disappeared into the reef. One strobe was on low power and the other on high power. The camera settings were f11, 1/125 and ISO200. – **3rd PLACE WIDE ANGLE**



DIGITAL ONLINE 2012 IMAGES

THE UAE'S ONLY UNDERWATER PHOTOGRAPHY AND FILM COMPETITION

Digital Online 2012 saw 49 participants, inclusive of: 16 professional (SLR), 31 amateur (Point & Shoot), 6 filmers, 233 photographs and 8 videos take part in the 3rd largest competition held by EDA to date. As we received a whopping 233 images in total, it was impossible to print all of them in our last magazine issue released in June, so we leave you now to enjoy the remaining 113 images in this edition of, 'Divers for the Environment'.

We would like to again congratulate all of the winners of Digital Online 2012 and thank all 49 participants for taking part and especially thank all the sponsors who took part in this year's competition prizes. They all helped make Digital Online another great success.

We would also like to give a big thank you to our printing sponsor, Print Works Mediatech that did a superb job and printed all 233 images for the exhibition that was held in The Dubai Community Theatre and Arts Centre (DUCTAC) in the Gallery of Light at Mall of the Emirates on Wednesday, 30th May 2012.

A little heads up for next year's competition. Photographers need to start utilising UAE and Musandam waters more…just saying!

DIGITAL ONLINE
EMIRATES DIVING ASSOCIATION
PHOTOGRAPHY AND FILM COMPETITION

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 and highlight the importance of protecting it for future generations.

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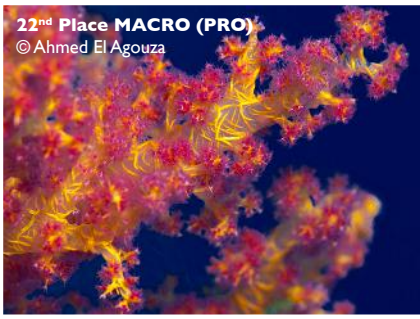
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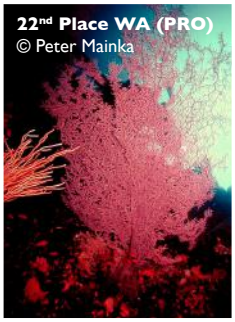
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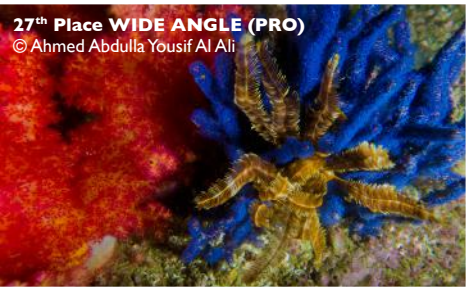
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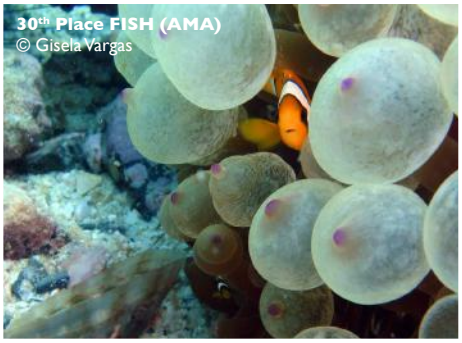
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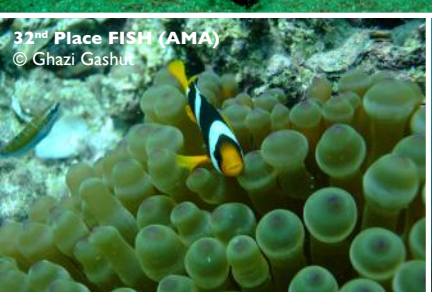
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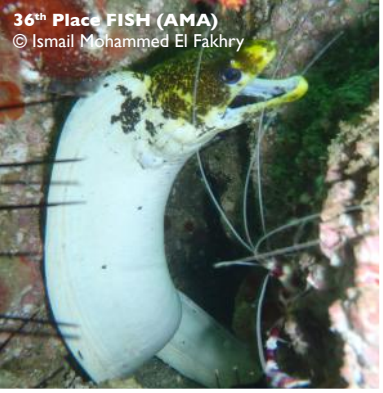
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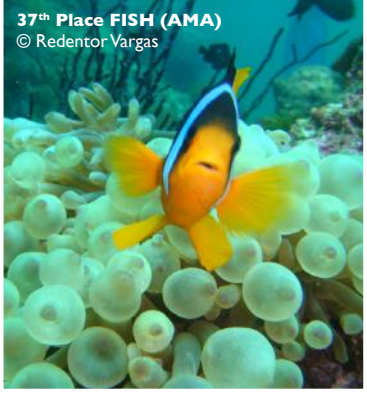
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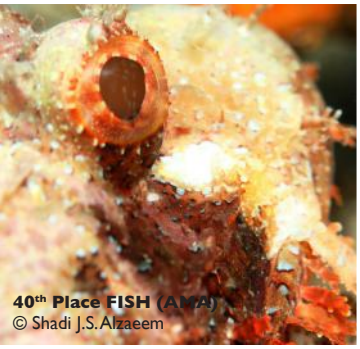
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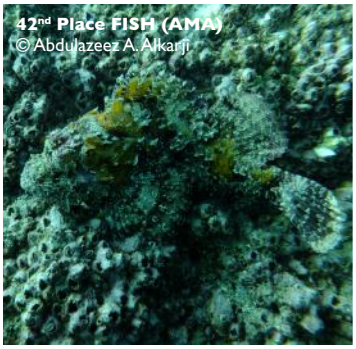
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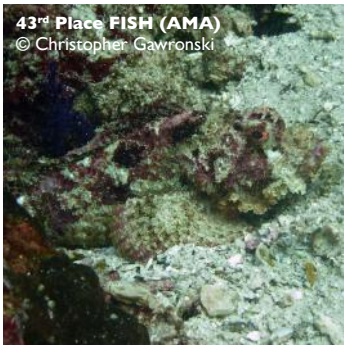
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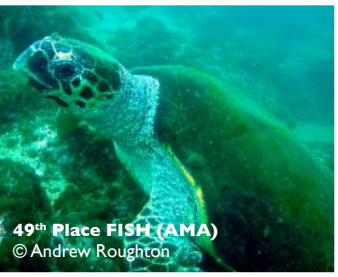
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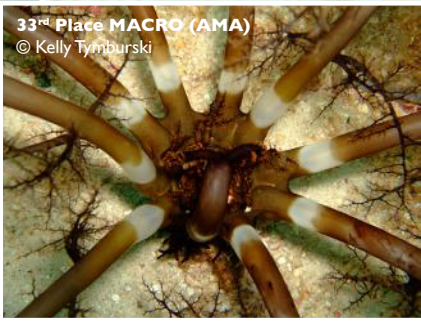
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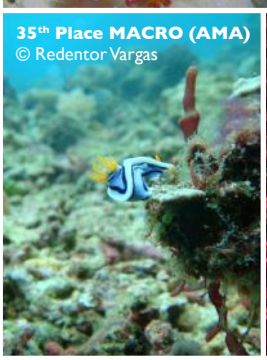
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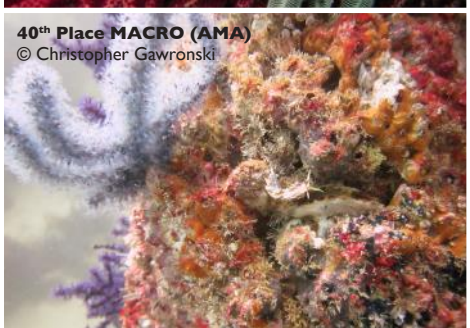
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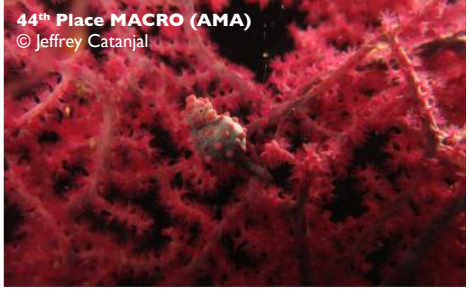
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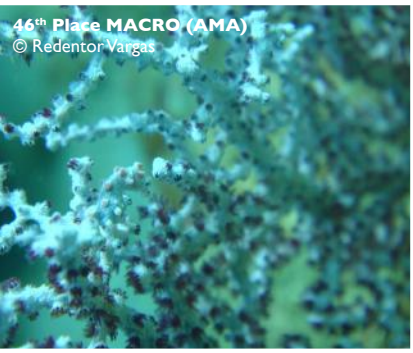
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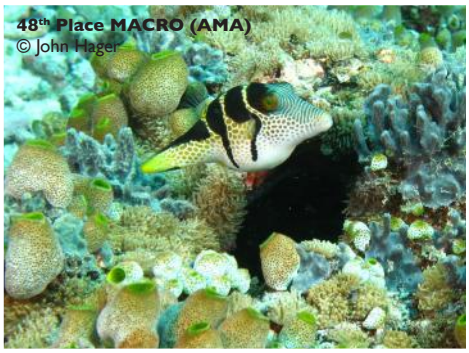
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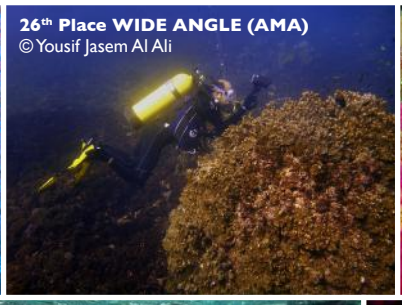
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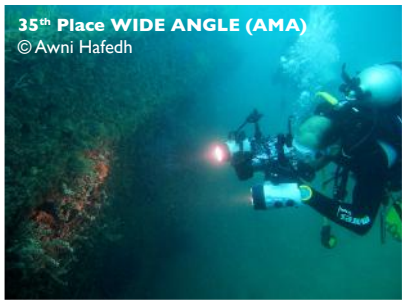
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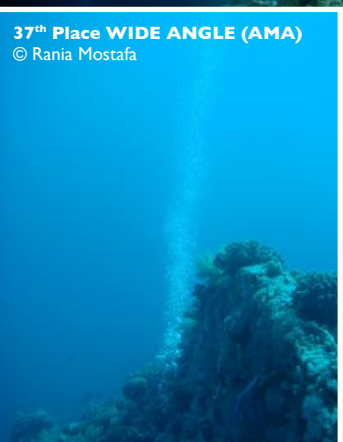
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SILHOUETTE CRUISES

SV Sea Shell – St Pierre

New diving safari offers unparalleled Seychelles underwater experience.

Silhouette Cruises, one of the leading live-aboard operators in the Seychelles islands, has announced the launch of a new diving safari programme that will provide travellers with a unique opportunity to explore the archipelago's underwater world.

This 7-night itinerary, hosted aboard the company's historic century-old schooners – SV Sea Shell and SV Sea Pearl – will bring guests to the best dive spots around the islands, opening up an array of possibilities to see tropical fish, turtles, rays, sharks and other marine life in unique granite reef habitats.

The Seychelles inner-island archipelago rests on a plateau that broke off from the super-continent Gondwanaland millions of years ago, the islands themselves the remnants of a submerged granite mountain range. This unique geological phenomenon has created an underwater landscape unlike any other mid-ocean island destination – with large granite rock formations creating passages, overhangs and caves where marine life flourishes in abundance.

While clients on Silhouette Cruises' weekly departures often enjoy diving as part of the cruise, the new diving safari has been designed to maximise both the variety and quality of the diving experience.

Silhouette Cruises Executive Director Amit Wasserberg said: "Seychelles is a year-round diving destination and our weekly cruises are great options to make the most out of the diving opportunities available for each season," Wasserberg said. "But for our special diving safaris, we've selected only dates that coincide with the very best weather conditions. These periods offer great visibility but even more than that, they allow us to visit open-sea dive sites that are otherwise difficult to reach during other times of the year."

In addition, a specialised diving tender with capacity for 12, accompanies the "mother vessel" throughout the entire cruise, offering a more comfortable experience when venturing to and from the dive sites.

While diving may be the focus of the new cruise, Silhouette Cruises is also marketing the programme as a great option for couples who want to enjoy different things on the same holiday. In other words, a non-diving companion will be able to experience much of what makes Seychelles such an attractive destination – from some of the world's best beaches, to nature walks with unique flora and fauna, and water-sports like snorkelling and kayaking – while their partner is off enjoying their dives, all from the one unique platform of the vessel.

Individual bookings on a cabin basis and charter possibilities are both available. The scheduled dates for the Seychelles Dive Safari programme are as follows:

2012	**2013**
3 Nov to 10 Nov	9 Mar to 16 Mar
10 Nov to 17 Nov	16 Mar to 23 Mar
1 Dec to 8 Dec	20 Apr to 27 Apr
	27 Apr to 4 May
	2 Nov to 9 Nov
	9 Nov to 16 Nov
	30 Nov to 7 Dec

ABOUT SILHOUETTE CRUISES

Silhouette Cruises is a joint venture between Seychelles and international interests, founded in 1997 with a vision to introduce a new tourism concept. This combines the romance of sail with the charm of the world's ultimate tropical islands: Seychelles.

The successful introduction of SV Sea Shell was followed by the arrival of a sister ship, SV Sea Pearl, in 1999. With a desire to introduce the same concept onboard a more comfortable platform, SY Sea Star began operating in 2004, followed by SY Sea Bird in 2007.

The company has recently expanded even further with the addition of a new expedition vessel, the MV Maya's Dugong, which undertakes a variety of oceanographic research and monitoring missions, and is also available for select expeditions.

Silhouette Cruises has established a strong base in the Indian Ocean with years of experience in successfully operating cruises for tourists. The company is committed to build upon this success and provide high standards of service in a responsible and sustainable manner, in co-existence with the natural eco-systems in which it operates.

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Photo by Lionel Baizeau

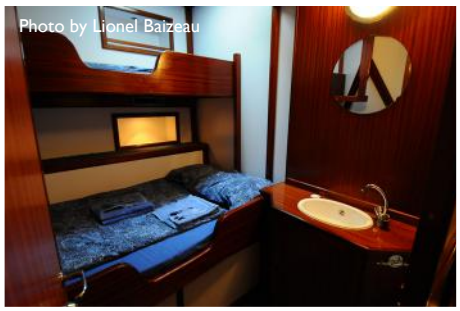


Photo by Lionel Baizeau


SV Sea Shell Salon

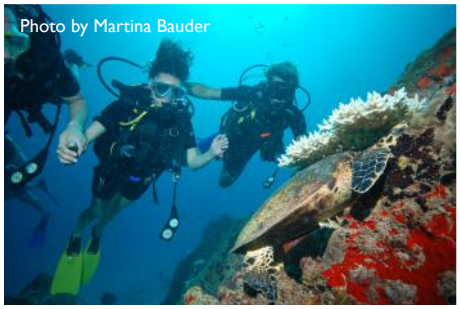


Photo by Martina Bauder


Photo by AMRI


SV Sea Shell – St Pierre

SEYCHELLES DIVE SAFARI – 7 nights aboard SY Sea Shell/SY Sea Pearl
PUBLIC RATES FOR 2012/2013
Rates are quoted in Euro per person per cruise / All cruise rates include Seychelles Government Tax

			CATEGORY A		CATEGORY B			
YEAR	CRUISE WEEK	Cruise Length No. of Nights	Double cabin with double bed per pax	Triple cabin with double bed + single bunk	Twin cabin with 2 single bunks per pax	Triple cabin with 3 single bunks per pax	Dive Package (12 dives)	Conservation Fee
2012	3 Nov to 10 Nov	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125
	10 Nov to 17 Nov	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125
	1 Dec to 8 Dec	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125
2013	9 Mar to 16 Mar	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125
	16 Mar to 23 Mar	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125
	20 Apr to 27 Apr	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125
	27 Apr to 4 May	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125
	2 Nov to 9 Nov	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125
	9 Nov to 16 Nov	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125
	30 Nov to 7 Dec	7	€ 1,569	€ 1,448	€ 1,353	€ 1,135	€ 238	€ 125

Single Supplement – 50% on top of cruise rate
Single Supplement will be waived for any cabin if single guest is willing to share cabin

*Cruise requires a minimum of 8 passengers to go ahead

The Dive Package includes 12 dives and is also inclusive of the special dive tender, driver & dive guide
Non-divers accompanying divers on the cruise do not have to pay for the dive package

The Conservation Fee goes directly to the organisations and agencies managing the islands and marine parks we visit on our itinerary. This also includes the Vallee de Mai excursion incl transfers and guide. Bicycle Rental and Fee for entrance to Union Estate are not included as this is optional for clients during their island visit to La Digue.

ALL RATES ABOVE INCLUDE: the cruise, overnight accommodation and 8x crew complement, full board meals, snorkelling and fishing gear & use of kayaks.

AVAILABLE ON BOARD ARE THE FOLLOWING:
- Full diving equipment rental: Euro 24 per day
- Beverages: A price list is available on request
- Hotel and airport transfer: On request

Photos by Lionel Baizeau

SEYCHELLES SANCTUARY

FEATURE AND PHOTOGRAPHY **RED VARGAS**

It was the last dive of the last day of what had been an extraordinary week. At around 12 meters of clear blue water, Ian forms a fist and taps his forehead signalling, "Bumphead parrotfish"! I see the man-sized fish swim quickly and I give chase while my dive buddy and another pair of divers follow me. I fin frantically to keep up with the big fish as it moves effortlessly through the water. It turns left, around a large rock and momentarily disappears from my sight. I turned the corner and was greeted with an amazing sight: the Bumphead parrotfish on my left and a large Napoleon fish to my right. Both are swimming away from me in different directions! A decision has to be made in seconds! Which fish would you follow?

Before we continue to the aftermath of this dilemma, lets look back on the wonderful journey that has led to this moment of choice. The first hint of this trip was known around February of this year. The Filipino Scuba Divers Club – UAE (FSDC) chose Seychelles as the location for this year's International Dive. 16 divers and 4 snorkelers had an exciting week planned ahead. There were 8 planned dives, 2 for each day. On the very first day after arrival on Mahe Island, while some rested and enjoyed the long beaches, the avid divers among the group, entered the water immediately and began an extra first dive not included in the package.

SURF ENTRY

Each international dive has presented new diving experiences to FSDC. In Jordan, all the dives were beach shore entry. In Maldives, the group experienced a negative buoyancy entry shark dive. For a group of folks who are mainly recreational divers accustomed to boat or dhow dives here in the gulf, these are small things that make the trip more interesting. The Seychelles trip was no exception. For each dive, the divers had to enter the water from the beach, bring their gear to the boat, while the boat was being rocked back and forth by waves. The gear was then pulled onto the boat while the divers had to climb onboard. There was a scary moment when it was so wild that one diver was thrown off the ladder while trying to climb up. A big wave pushed the boat towards the shore and the captain had to throttle up to compensate. Fortunately, the diver was thrown away from the propellers. Once everyone was on board, we proceeded to the dive sites. After each dive, the boat went back and the divers had to jump into the waist deep water, collect their gear, wade back to the beach and into the dive center. It's a different way of diving, a tough one, but one that will not easily be forgotten.

THE USUAL SUSPECTS

The sun was out, but we had some light rain for a couple of dives. Water temperatures were 28 degrees, perfect for shorts and rash guards. Visibility was amazing for most of the dives – anywhere between 20 and 30 meters.

As with any dive trip, there are a lot of sights and stories to tell. Turtles, lionfish, nudibranches, eels and colourful corals are among those that we see in multitudes. However, what's more interesting are those that are not commonly found in our stomping grounds of Musandam and Fujairah, and those that have made the trip memorable.

The first kind of fish that grabbed our attention were the various Leaf fish that can be found at most of the dive sites. These fish were wonderful for picture taking since they stood immobile on rocks or crevices. Because of their motionless state and their rock-like texture, it would be difficult to spot them unless you were on the look-out. Next were the colourful and varied pipe fish and trumpet fish which came in all sizes. At one point, a small curled up pipe fish appeared to look like a sea horse. The tell tale snout was there, but the tail was the giveaway that it was another pipe fish. Amidst all the colourful nudibranches, one was noteworthy to mention due to its enormous body. To give a sense of the size, a D4 dive computer was placed beside it.

NIGHT DIVE

Not all the divers opted to participate in our nocturnal dive. We chose the Bay Ternay Marine Park, which is arguably, the best dive site on our trip so far. At first, the operator was hesitant to let us go night diving, but eventually she allowed us. Our divemaster Ross invited a couple of his friends to join since they had not tried it out. After going down to around 10 meters, we immediately saw lobsters and pipe fish. Several crabs, a huge stone fish and manta shrimps were there to greet us as well. There was even talk of a Spanish dancer sighting, but unfortunately, only the divemaster saw it. The highlight of the night was a guitar shark which swam silently close to the divers, close enough to make you hold your breath, but still too far that the divers had to chase it with cameras on hand.

TIPS AND TRICKS

To get the best value out of the trip, there are a few ways which the frugal diver can extend his travelling money.

Food: there are a few take away joints that offer cheap, tasty local food. In the place where we were staying, Coral Strand Hotel, most of these small take-away shops were within walking distance. This was perfect for the surface interval between dives. The hotel restaurants were there. But why pay four times


Lilot Island


Leaf Fish


Mega Nudi


Leaf Fish


Stone Fish

the price? Around the same area as these restaurants, one can find small supermarkets. This is where one can get water and snacks. By the way, don't forget to buy your favourite drink from Duty free before take-off.

In the afternoon of certain days, quite a few stalls are set up along the beach road. The vendors offer souvenirs, drinks and barbeque food freshly cooked. These can be great alternatives for dinner; barbequed ribs, fish, sausages and other stuff. On the day after the last dive, the group also toured the capital, a great way to spend the 24 hour surface interval before the flight back. Some took the guided tour offered by the travel agency while the more adventurous (and stingy) amongst us took the bus. Victoria is small enough that one can get around on foot. The city was quaint and neat – one thing we noticed was that the place was very clean. We saw the sights and found ourselves at the Botanical Gardens where we saw the main tourist attractions: the tortoises and the uniquely shaped coconuts. Finally, we capped the tour with souvenir shopping in the market area.

THE LAST DAY OF DIVING

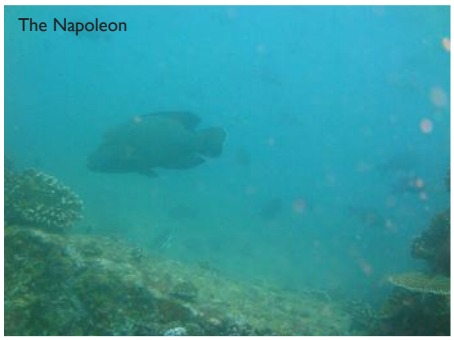
For our last dive, the divemaster asked us where we wanted to go. We told him to take us where we can find BIG fish. The teams were split up and we descended on Grouper Point, but went the opposite direction of the first time we were there. Upon reaching the bottom, I went with Ian – the dive instructor in the group and was rewarded with one of the best finds of the trip: the tiny Ghost Pipe Fish. It was very small and looked like a twig. Only the experienced eyes of Ian were able to detect such a creature. This brings us to the decision point where we left off at the start: Bumphead Parrotfish or Napoleon.

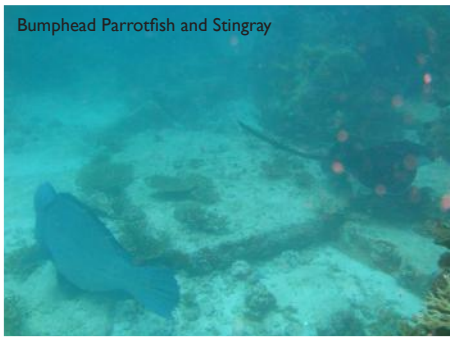
I turned to the other divers who were following me and pointed to the Napoleon. I think I actually spoke underwater "follow that fish!" I went the other way and gave chase to the Bumphead parrotfish. I was busy taking photos when the decision I made paid off. Coming the other way, was a majestic Stingray flying through the water. I was a happy diver. The two big fish seemed to acknowledge the other as they passed close enough for me to catch them both in one photo.

The small and the big fish in the last dive have made this International dive one for the books. The charm of Victoria, the long beaches on the coast and the lovely weather has made Seychelles a place to remember in the hearts of FSDC. Can't wait for next year's international dive.

DIVE SITES

Day 1 Grouper Point & South Concepcion
Day 2 Bay Ternay Marine Park & Horseshoe Rock
Day 3 Twin Barge (Wreck) & Aquarium
Bay Ternay Marine Park (Night Dive)
Day 4 Lilot Island & Grouper Point


The Napoleon


Bumphead Parrotfish and Stingray


Surf Entry

PORQUEROLLES, GIENS AND AROUND

FEATURE AND PHOTOGRAPHY **PHILIPPE LECOMTE**

Two years ago, I went to France for a week after a 7 year stint of not going back to my home in Hyères in the Var in the south east of France. I was looking to dive at least one time when I went back then. I only managed 2 dives at Port Cros (see EDA magazine, September 2010, Volume 6, Issue 3). By that time, I had forgotten how beautiful the Mediterranean Sea was and told myself after those dives that I have to go back longer in order to discover more dive sites.

This year we had decided to go for 3 weeks. Enough time for me to dive more than my last visit. In total, I have done 10 dives in Porquerolles, Giens and Les Embiez.

Porquerolles is the largest, most westerly of the three islands in the Îles d'Hyères. It is about 7km (4.3mi) long by 3km (1.9mi) wide, with five small ranges of hills. The south coast is lined with cliffs, and on the north coast are the port and the beaches of Notre Dame, La Courtade, and Plage d'Argent.

The Mediterannean Sea is amazing and surprises more divers than we think. The biotope of the Mediterranean Sea has a lot of diversity such as sandy bottoms, seaweed fields, rocky bottoms, caves and even big cliffs covered with purple and yellow gorgonias. There are also many wrecks in this area. They will satisfy all wreck lovers. Arroyo, Le Rubis, Le Grec, Le Donator etc. There are 20 wrecks around this area with more than 40 different dives too. The clear blue water of the Mediterranean is perfect and great for wide angle photography. 15 meter visibility is an average condition which during the time that I dived, I was blessed to have most of the time. Thermoclines in this area can be very chilly, even in the summer months. Don't forget your booties, gloves and a 5mm wet suit for the 15 to 24 degree sea temperatures.

For those who like tiny creatures, the Mediterranean sea has a lot of treasures. If you look in any little cave, crack or even under a rock, you will definetly find something to see. Nudibranchs are plentiful and you can find up to about 20 different species there. Boxer shrimps, spiny squad lobsters, slipper lobsters and other crustaceans are everywhere. Rocky bottoms are covered in life and color. You can find some large areas or cliffs covered in purple Gorgonias or orange sponges.

In the last 10 years, we have seen some new species arrive from Africa and the Red Sea, via the Suez Canal. That's why we now find schools of chevron barracudas, especially in the summer as well as sea turtles and the famous Mola mola.

CON'T ON NEXT PAGE












SIPADAN: 'AN UNTOUCHED PIECE OF ART'?

FEATURE **VALÉRIE & GUILLAUME HESS** PHOTOGRAPHY **GUILLAUME HESS**

Jacques Cousteau claimed in 1989 in his film Borneo: The Ghost of the Sea Turtle, "I have seen other places like Sipadan, 45 years ago, but now no more. Now we have found an untouched piece of art." This statement was more than 20 years ago yet remains mostly true for today, as we were lucky to witness with our own masks and regulators a month ago.

The name Sipadan is known to divers as it is one of the most sought-after dive destinations in the world. Located in the Celebes Sea, off the East Coast of Sabah, Borneo, Sipadan lies at the heart of the Indo-Pacific Basin, home to one of the richest marine life on the planet. The territorial dispute over this small island (only 0.13km^2) between its surrounding countries Malaysia, Indonesia and the Philippines, was only resolved in the last ten years. Lost in the middle of the ocean, it is a true gem in terms of its potential for dive tourism.

Since 2005, the Malaysian Government declared Sipadan a protected national marine park. Hence no overnight stay on the island is possible from then onwards. Visitors can only stay in resorts in the neighbouring islands of Mabul or Kapalai, both located between 15 and 30 minutes away by boat depending on the sea conditions. Furthermore, the government grants a total of only 120 daily permits to local dive operators and resorts. During our seven-day stay at the Mabul Water Bungalow Resort, we managed to go twice to Sipadan. As divers and lovers of the oceans, this is probably one of the best initiatives ever taken by a government, to protect its rich marine environment. This system is also an efficient solution to the overcrowding of dive destinations such as the Red Sea for example, where 'queueing' underwater before penetrating into the famous wreck of Thistlegorm is not unusual.

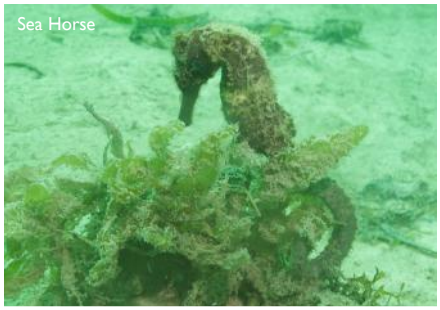
Although most resorts and guides suggest that the optimal dive season is from April to October, with the best visibility being in July and August, we unfortunately did not get to dive in pristine clear blue water in Sipadan. The visibility was significantly reduced due to the rough sea caused by the typhoon raging through the Philippines. Locals told us that August was always like that and the best time to come to Sipadan was actually January and February… Nonetheless, diving in Sipadan was indeed fantastic as we saw countless Hawksbill turtles and several black-tip reef sharks per dive. Diving amidst the schools of barracudas, big-eyed trevally or bumphead parrotfish was equally very impressive. Out of the dive sites we did in Sipadan (Mid Reef, Whitetip Avenue, Coral Gardens, Drop Off and twice Barracuda Point, which are all mostly along the south coast), Barracuda Point is definitively the best, where in the first or last five metres, you find yourself dazed in the middle of a school of trevally, swirling around you.

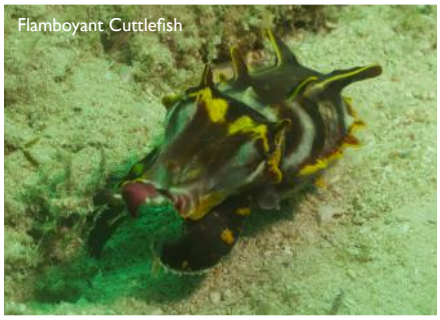
Saying this, the coral diversity and colours were not as impressive as other places we had been to, in the Red Sea and in Indonesia near Komodo Island. This may be explained by the rough seas that unavoidably brought a lot of 'depot' on the corals themselves. However, the corals off the south-west coast of Mabul Island, where we were staying, remedied to our disappointment and the best dive sites we did for 'muck' or 'macro' diving was in that area, namely the dive sites called Lobster Wall, Nudibranch Centre and Ray Point. Not only did we see some of the most beautiful corals, but also a wide variety of nudibranches, leaf fish, scorpion and stone fish, turtles, a diverse range of crabs and shrimps, and even a flamboyant cuttlefish, an extraordinary creature. Adding to this, the current was quite strong making it a fun drift dive.

Other dive sites we did in the area of Mabul and Kapalai Islands include their respective house reefs. Both are artificial and prove to be a huge success as they have attracted a lot of marine life. Hopefully the resorts along the house reefs and their customers will learn to not throw trash in the sea, so that corals and marine life can continue to grow. Resorts should also perhaps communicate between themselves to check where each is diving as Kapalai turned out to be very busy. In a macro dive site, the last thing you want is twenty other divers kicking in the sand and in your regulator, traumatising all the small living creatures there.

Although we agree with Cousteau's initial statement and it is easily understood how 'muck' diving was born off the coasts of Mabul and Kapalai, Sipadan would not be the dive destination we go back to first. We admire Malaysia's initiatives in attempting to protect Sipadan's marine life, but perhaps they will very soon find themselves left with no other choice than to also limit the number of divers in Mabul and Kapalai. Ironically, although it seems that Sabah planned to ban shark finning in 2012 (we could not find on the internet whether this had been implemented yet or not), most restaurants in Kuala Lumpur serve shark fin soup…but that battle will have to be fought another day, hopefully in the very near future.


Ghost Pipefish


Sea Horse


Flamboyant Cuttlefish


Scorpionfish


Sea Worm

MARSA ALAM, BRAYKA BAY EGYPT – EXTRA DIVERS

FEATURE AND PHOTOGRAPHY **ALASTAIR MCGREGOR**

Red Anemone and Anemone Fish, Gabal El Rosa

When I won the Digital Online 2nd place category Fish photo and heard that the prize was a trip to Marsa Alam I was delighted as Marsa Alam has been on my list of places I wanted to dive and photograph. I managed to find a quiet spot in my work calendar and I booked to go at the end of July. It was going to be warm but cooler than here in Dubai!

Marsa Alam is famous for its access to Elphinstone Reef, Dolphin House Reef and the Abu Ghusan Wreck. It is supposed to be quieter than Sharm Al Sheikh with fewer Divers making the journey to the south. Unspoilt reefs and plentiful fish waiting? The trip was organized by Discover Orient Holidays and the organization and planning was superb. I would be flying to Cairo and then transferring to Marsa Alam via Egypt Air Express and then a short car journey to the Brayka Bay Resort. With diving booked the first day, this gave me 5 diving days.

My journey to Marsa Alam went as planned with the agent there to meet me and help me get from the international terminal to the new national terminal, it had changed in the 5 years since my previous trip to Dahab and it was a definite improvement; very modern with a good selection of cafés and restaurants. The flight to Marsa Alam was equally painless. I was collected from the airport and arrived at the resort where I was checked in, shown around the facilities and then to my room. The rooms and the resort are clean and it has good amenities. I believe that it is around a three star resort, it is comfortable, the staff were polite and helpful, the food was tasty and the drink plentiful.

First thing in the morning I assembled my camera and went down to the dive centre. My room was some distance from the dive centre but I am sure you could request one right next to the centre. The dive shop is large and well equipped; everyone gets a box and locker for their equipment as well as a dedicated hanger for drying equipment overnight. Once I had filled in all my paperwork, I was then shown around and told how the dive booking wall works and signed up for dives a few days in advance. My one disappointment was that due to fuel rationing we could only do one trip a day to Elphinstone which was going to limit my chances to get the shark photos that I wanted. Three types of diving were available; shore diving on the house reef, minibus trips, and RIB. I only night dived on the house reef and did most of my trips by RIB as the visibility was better off the beaches – although even there it was good and certainly did not hinder UW photos. The seas were a little rough and this meant that the RIB rides were a little bit exciting. The boat captains appeared to have very little mechanical sympathy for their engines and even less for a housed DSLR camera system as we bounced from wave to wave, unnecessarily in my opinion. The minibus rides were far more relaxing!

My first dive was a minibus ride to Marsa Abu Dabab where we would have a relaxing dive over the sea grass areas and some of the outlying coral areas. This dive area was very popular with snorkelers as green turtle, blue spotted ray and Guitar shark sightings are common. Within 5 minutes we were at six metres and we saw our first turtle. He was large and unafraid of anybody while he happily munched away at the sea grass. A few minutes later we encountered another, and another. I also managed to spot a few blue rays that came close to divers but were more skittish than the turtles. I also found a Dwarf Zebra Lionfish on the bottom and a few other critters that might have made it worthwhile to take a macro lens down for. My second dive was on Shaab Lulu and here we had hard corals everywhere with clouds of Anthias that you see in every picture of the red sea. We had a Mobula Ray fly by and a turtle also cruised by. We had no current and were picked up by the RIB, getting back onto a RIB is definitely something that requires practice or help!

My second day of diving started rather early with a trip to Elphinstone. This dive site has been near the top of my must dive locations and we weren't disappointed. We got kitted up

Salad Corals, Abu Nawas

and had the briefing in the dive centre and discussed the contingencies depending on which way the current was blowing. We then went out to the boat at around 0600 and sped out to the reef which is about 20 minutes from the dive centre. When we got there, we were the only people on site. We picked up our tanks, put them on and sat ready while the guide did a current check. Everybody rolled in together with deflated BC's and we ascended straight down to 25m – 30m. We could see the reef just below us and the vis was so good you could follow it all the way back up to a few metres to the surface. The water was blue, sounds strange I know but to me the water in the red sea is really Blue, it has a particular shade that when it is recorded by a camera I just love it. As a photographer, the background is just as important as the subject, so I had a lovely canvas and now I just needed something big to swim into it. So we were moving around slowly looking for and hoping to see any or all of Elphinstone's regulars; Hammerheads, Oceanic White Tips, or Grey Reef Sharks. We were only ten minutes into the dive when about 20m below us we saw a school of Hammerheads. I dipped down below 30m hoping to get close enough for a shot but they were moving away. A few minutes later, what looked like Grey Reef Sharks swam below us, but again they stayed deep. We then moved back up to the reef itself as our deco tie was running low and below us two Napoleon Wrasse swam by. I have since been told by a regular Elphinstone diver that you need to be there around eleven in the morning to see the sharks. We completed our dive against the reef but no oceanics came up to investigate, but still, it is always a pleasure to see sharks during the dive even without a shot!

My second dive of the day was on Abu Nawas and this was again a lively red sea coral garden covered in schooling Anthias and large healthy hard corals. I saw some of the largest Salad corals that I have ever seen – truly amazing formations. For the final dive of my second day, I did a night dive on the house reef and this should not be missed as the house reef came alive at night. I found an amazing variety of critters large and small and wished that I had bought my longer macro lens and close-up diopters, but I had been paranoid about the weight of my luggage. I found a lot of reef Cuttlefish – I even managed to capture one eating a small shrimp – and there were the hunting Lionfish. Care had to be taken when ascending as they had a habit as most red sea Lionfish do, of using the diver's lights to assist them find a tasty snack. There were a lot of small timid shrimp around as well a Spanish Dancers.

On day 3, my morning dive was on the beautiful Gabal El Rosas where we ascended onto another wonderful hard coral site except this one is different as it has a large anemone city. We were fortunate with our timing and the anemone's were slightly balled and as luck would have it, they were all of the red variety. These look black underwater at 22m but when hit with the light from my strobes or a flashlight they turn an amazing red which contrasts so well with blue water. For the second dive of the day, we went by mini bus to Marsa Eaglah and here we had the briefing onshore, kitted up and then waded out to where we could put our fins on and started our dive. The reef is shallow to start with and the visibility is not great, but as it deepens the water clears of sediment, letting you see yet more hard and soft corals with schooling Glassfish and Anthias everywhere and of course, well camouflaged Scorpionfish waiting for an unsuspecting fish to come close. We had a max depth of around 16m before we started our leisurely cruise back up the reef and climbed out and back to the mat to take our kit off and stow it in our boxes for the drive back to the dive centre.

For the fourth day I was concerned that I wasn't getting the images that I wanted so I opted to do three dives that day and I decided to revisit Elphinstone, Marsa Abu Dabab and finish off with Marsa Assalaya. I always find that when I repeat a dive site, I see more the second time although in the case of Elphinstone, we saw only one shark on the dive and it was too fast and too far away. There were two live-aboards tied up and two groups of RIB divers in the water, so to a shark we must have sounded horrendous. But in this case, we spent more time against the reef and the abundance of life here was amazing, although by this time I was thinking that if ever I was to return to the red sea looking

Cave, Dolphin House

Turtle and Divers, Marsa Abu Dabab


Butterflyfish, Shaab Lulu


Diver and Hard coral, Dolphin House


Coral head and Anthias, Shaab Lulu

for pelagic fish, I would do it as a live-aboard diver. I will say that most of the time we were by ourselves on the reefs around Marsa Alam in nice small groups.

My last day of diving was on a day trip where we went to Marsa Alam itself by mini bus and boarded a day vessel for two dives at the Dolphin House Reef. The cruise out was about an hour or so and we had a small pod of Dolphins playing in the bow wave of the boat. Then a quick nap and we were pulling up at the reef. The water was crystal clear and although there were a few other boats there, we didn't see anyone else apart from our group underwater. The dolphins were there but we could only get near them snorkeling and unfortunately for that, you have to wear a bulky life jacket so camera and life jacket just don't go together. A few people tried to dive down from other groups, but after flapping their legs around in the air furiously for a while, they soon gave up. The first dive was around the shallow wall and then pinnacles scattered around the reef which was an amazing coral garden with a lot of soft corals. Sadly, no dolphins underwater while diving. The second dive was through the cave system which was amazing. The cave ran under the entire reef with an opening to the surface allowing sunlight to pour in, illuminating the cave. I managed to get some of my favourite shots of the trip from the cave dive. As you enter the cave, the area is covered with different anemones with their attendant Clown Fish. Once you enter through the portal, you are in a winding cave system with the light rays coming down onto the floor and it really is such an amazing experience that I wish we had done both dives in the cave. Once you exit the cave, you then have more healthy corals and clouds of reef fish. A truly memorable day out.

I wish that I had an additional day and could have dived the Abu Ghusan Wreck site as it, from the stories other people were telling me was a rather special dive.

Overall, I really enjoyed my trip to Marsa Alam and I obtained a lot of the shots that I wanted to get. I feel that I missed out on the sharks, but hopefully the fuel rationing will get better and allow more trips to Elphinstone if I visit again, as it really is an amazing site. Extra Divers and the crew were excellent, polite and informative and, most importantly, very well organized. The staff really knew their dive sites and the briefings were thorough and detailed. The dive shop was well equipped and had nice rinsing, drying and storage facilities. As a photographer, I felt a little rushed on some sites where we had to go from A to B in a set time, a bit of a race on one or two locations. But on others, I was diving with another DM which were much more relaxing dives, and as my buddy had a camera, we had time to look for those photo opportunities. Although as I shot Wide Angle on most dives I could afford to be a little quicker than if I was shooting macro or super macro. I think I would have been pressured had I been shooting macro, although there is always the solo diver option if you are qualified and also hiring a private guide. It was a good week and I was left feeling that I could stay for a few more days just to get one more dive in, hoping for that shark shot that I didn't get, which is a good reason to go back.

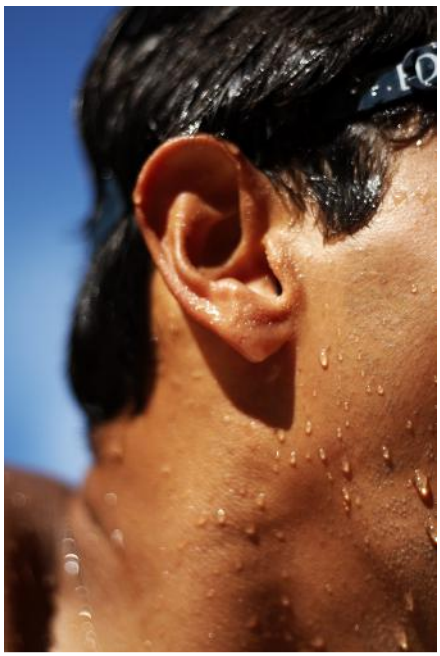

Hard Corals, Marsa Assalaya

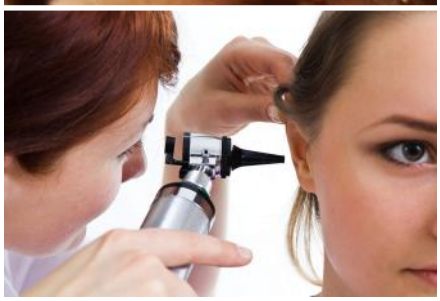
Scorpion fish, Ras Eaglah

KEEPING IT CLEAN

DAN REMINDS DIVERS OF THE REASONS FOR GOOD AURAL HYGIENE

FEATURE **CAMERON A. GILLESPIE. M.D.**





We can all agree that, before a dive, clean ear canals with normally equalizing middle ears is ideal.

But what about the ears that need cleaning? They can give a diver grief.

EARDRUM RUPTURE

A wax plug can trap air between itself and the tympanic membrane (eardrum). This in turn can cause an impossible-to-equalize situation, whether the diver is descending or coming up from a dive. This air trapping can cause a possible subsequent "explosive" tympanic membrane perforation, one that tears outward instead of the more common inward perforation with the in-pouring of water.

VERTIGO

Also, a wax plug could prevent water from chilling one ear, while the other is naturally chilled by water filling the ear canal. This causes caloric vertigo, or dizziness, from temperature change from unequal chilling of the two ears. Finally, infection will more likely result if wax retains moisture and causes maceration, or softening of the skin, of the ear canal.

So, how should you clean your ears?

THE WRONG WAYS

Let's start with how NOT to clean your ears. Avoid cotton-tipped swabs. I have often found the ends from cotton tip applicators in patients' ear canals, the tip having separated from the shaft without the person knowing it. In a few days, this usually results in a severe ear canal infection; the cotton retains moisture and bacteria grow between the fibers.

No amount of oral or topical antibiotic will help with this: only removal of the cotton helps. The cotton should be identified and removed with a small right-angle pick or Shea forceps by a qualified physician, preferably using an operating microscope, which is designed for use with small tissue such as the inner ear. Do not ever attempt to do this yourself: those who do try this often force the cotton in farther, lacerating or tearing the ear canal or eardrum.

The cotton-tip applicators also bear a remarkable functional resemblance to the ramrod used in the 19th Century to push the ball and patch (bullet and accompanying lubricant) down a rifle barrel. The ramrod effect of a swab pushes wax deeper into the ear. This usually makes wax removal more difficult.

Think you'll use a cotton-tipped applicator to clean your ears ever again? Of course not. If you feel you must, however, don't do it behind a door that could be opened, around small children (who like to jump) or on a pitching boat: it could be suddenly jammed into the eardrum. Oh, yes, don't answer the telephone with the applicator in your ear! The only ringing you may hear after that is your own. As a physician, I've seen all this and more.

How about the eraser end of a pencil? Again, not a good idea, since frequently the eraser is pulled from its brass casing and remains in the ear canal. (The manufacturer expects you to press the eraser downward on paper, not pull it upward from its base as it is withdrawn from the ear canal.)

Just today, I removed a portion of a round, wooden toothpick from a patient's ear canal; the sharp end pointed to the eardrum. The patient did not realize it was there. Inserting a cotton tip at this time would have pushed the wood particle through the eardrum. Fortunately, the audiologist saw this before it could happen.

HANDLING INSECT INFECTIONS OR, WHAT'S THAT BUZZING SOUND?

Occasionally, people who sleep outdoors or who live in warm areas can get insects in their ears. I have seen small ticks, snails and, more commonly, flying insects in the day and roaches at night – roaches tend to run for cover in small openings. This can mean that sometimes they take up residence in ears. An insect in the ear can be an alarming experience. For removal, you'll need a cool head, especially if the insect is still moving or stinging.

The first priority is to stop the movement. In the hospital, I use a spray local anesthetic to stun the insect. In the field, you can use rubbing alcohol, rapidly drowning the insect and cleansing the ear canal.

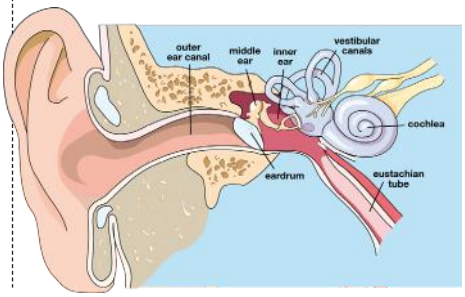
Since most other efforts besides flooding or irrigating the ear canal are quite dangerous, use great care to remove the insect. Again, the preferred method is removal by a qualified physician with special instruments and a microscope. Remember, in most cases, the insect is facing the eardrum, and its legs prevent easy backward removal.

In the field, an acceptable way to remove the insect is to use a bulb syringe, filled with warm soapy water (baby shampoo) and hydrogen peroxide solution. This flushes out the insect. If this is unsuccessful, infection can result, making removal much more difficult. If this happens to you, a family member or a friend, get medical help right away. I have never had a patient disagree that the bug should come out at once.

THE RIGHT WAY

So, how should you clean your ears? When you bathe, occasionally wash with a bulb syringe, warm soapy water and hydrogen peroxide solution. On a diving trip, use a mixture of half white vinegar and half rubbing alcohol after a day's diving: this serves to cleanse and dry the ear canal, acidifying or changing the pH balance to make the area less prone to bacterial infection. This can also help prevent otitis externa (swimmer's ear).

If you have a hard time getting water out of your ears, try a hair dryer. It's a good idea to lift the ear upward and back to straighten the ear canal and then to blow warm dry air into the ear canal for five minutes. Just remember that ear care is as basic and important as the care of any of your other diving equipment.



15 BASIC RULES FOR SAFER FREE DIVING

USEFUL TIPS FROM DAN'S EXPERTS FOR NEW AND EXPERIENCED FREE DIVERS

DAN® DIVERS ALERT NETWORK EUROPE

1. Always free dive in pairs.
2. Do not ever hyperventilate.
3. Always take your signal buoy with you (with the appropriate flag).
4. Never keep the snorkel in your mouth while diving.
5. Do not ever force equalizing.
6. Take time to rest between dives.
7. Use a buoy weight ballast which does not weigh you down too much (positive buoyancy in the last 10 metres.)
8. Be careful not to get dehydrated, drink little and often even if you don't feel you need it.
9. Do not free dive on an empty stomach or after heavy meals.
10. Always do some warm up dives, but not beyond 5 metres.
11. Listen to your body and its needs.
12. Follow a free diving course with qualified instructors.
13. Carry out a medical check at least once a year.
14. Respect environmental rules (natural park restrictions etc).
15. Always have a means of communicating with you (a cell phone, Vhf radio etc).

DETAILS ABOUT THE "15 RULES"

1. The most common and feared accident in free diving is loss of consciousness (black out) and the best way to prevent it is to be aware of basic rules of free diving, constant respect of your own limits and knowledge about yourself. Almost all black outs can be resolved without serious consequences if you have a diving partner by your side able to help you by taking your face out of the water and providing assistance up until when the body does not regain consciousness.
2. Hyperventilating is carrying out a regular series of breaths in order to reduce the quantity of carbon dioxide present in our blood. It is very important for a free diver to be aware of this, because he/she must always listen to and have respect for responses to breathing stimuli. Furthermore, hyperventilating does not increase the quantity of oxygen present in the blood and therefore it is not advantageous for free diving. It only takes a few forced breaths (even only 6 or 7) to have the effects of hyperventilating, effects which we do not see if we breathe normally (using the whole diaphram and respecting a natural rhythm. If during breathing, you experience tingling of hands and face or other signs of hyperventilating, stop the dive preparation and wait a few minutes before free diving again.
3. It seems incredible but getting hit by a boat is the most likely risk for free divers as unlike scuba divers with the re-breather device, they spend a lot of time at the surface preparing the dive. Even if they are often ignored, the signal buoys are the only means of indicating our presence. If there is also a boat with a flag indicating that there are divers present in the area, the risk of such accidents is significantly reduced.
4. With the snorkel in one's mouth at the end of the free dive when we really need to fill the lungs with oxygen, we are obliged to breathe out right at the moment in which we really need to re-fill the lungs with oxygen. To empty the snorkel, the only option is to carry out intensive exhalation. Recent scientific studies carried out on free divers during cardiac nuclear magnetic resonance (NMR) showed that there are

important physiological basics to advise in order to avoid this effort at the end of a free dive. Furthermore, should a black out occur, the snorkel allows water to get into the airways.

5. Equalizing should be a simple gesture which takes place without too much effort, and if not, then its likely that acute or chronic problems stop the opening of the Eustachian tube, through which air must pass to reach the middle ear area. Excessive equalising efforts can cause barotrauma in the ear with potential breakage of the tympanic membrane or in more serious cases irreversible damage to the internal ear with permanent hearing problems.
6. Remaining at the surface for twice as long compared with the duration of the dive (or three times as much for deeper dives) allows the organism full recovery before more dives preventing very particular conditions like "Taravana." We don't know how much this is linked to the recovery of a correct oxygenisation or elimination of toxic substances or nitrogen accumulated in tissues at depth, but the double/triple recovery seems to be a good cure.
7. The last few metres up to the surface are the most difficult if they are not well ballasted. You will climb up easily with positive buoyancy.
8. Immersing the body in water determines the liberation of the heart of the natriuretic hormone which causes urination and problems with thirst. Especially during long spearfishing sessions we have to drink even if we don't feel the need, as dehydration reduces our capability making it difficult to reach the depth we are used to.
9. Free diving consumes a large quantity of energy and a lot of protein, especially for long fishing sessions for which it is advised to stop for a few minutes to rest and give energy back to our bodies…A small meal full of carbohydrates (or more specifically foods derived from cereals before a free diving activity, and usually rich in nutrients to ensure energy for our bodies. If the activity takes longer than 2 hours it is necessary to have further support from the same type of nutrients, in small doses. However, digestion requires a lot of blood in the digestive tract and this reduces the safety of our dives.
10. As with every sporting activity, it is important to do a warm up to allow the body to prepare for movement, and for free diving, this can allow gradual adaptation to pressure. For example,you just have to do a few dives (3 to 4 at most) carried out at 5 metres depth to allow the lungs the opportunity to adapt to the blood flow during a free dive (called blood shift). Small exercises like this are very useful for reducing problems with hemoptysis for free divers.
11. If you are tired, if you have a problem with your equipment, if you have cramps, stop the free dive or fishing session immediately…At sea, it is very relaxing and you can usuaully sunbathe a little.
12. At a free diving course, you will learn the basic rules for safe free diving and you will meet lots of friends to go free diving with.
13. Respecting environmental rules is very important especially for those who would like to experience underwater nature.
14. A detailed medical check ensures you have no heart or respiratory or metabolism problems which might be dangerous for free diving. Furthermore, a medical visit will also check your ears, a part of the body which is placed under stress during diving activities and the ears must be in perfect health to be able to dive safely.
15. Should there be an accident, it is important to be able to communicate quickly with emergency services, but be careful, as out at sea, mobile phones do not always have a signal. The best way to communicate is via Vhf radio. Remember to note down the most important phone numbers for water sports (for example, the coastguard, the DAN helpline, Vhf frequency etc.)

SWIMMER'S EAR IN DIVING

FEATURE **BARBARA KARIN VELA, MD**

Photo © Kalim (Shutterstock), courtesy of DAN

Many divers experience ear pain a few hours or a day after SCUBA diving.

The ear canal has a skin layer, which produces a yellow substance like wax. This wax is acidic, and it is protecting the external ear from infections. With the repetitive immersion of the head into the water, the wax dissolves and is consequently not able to protect the skin of the external ear any more. The disappearance of the protective waxy layer coupled with the moisture from the water, allows the skin of the external ear to easily break, enabling the infective agents to penetrate the skin and cause the infection. The symptoms are a gradual onset of pain over a day or two. The pain is usually present only in one ear, and it gets worse if the ear is touched or pulled. There may be itchiness in the affected ear, as well as discharge. The external ear becomes red and swollen, and the swelling is sometimes so severe that the ear canal closes, causing hearing loss on the affected side.

Once the infection is developed, it has to be medically treated. Over the counter remedies such as drops to dry out water and dissolve the wax are not strong enough to treat the infection. It is necessary to visit an adequately trained health care provider, because the ear has to be cleaned in case there is a lot of discharge and debris in the external ear canal. Medications given are generally aimed to relieve the symptoms and cure the infection. In case there is only mild swelling and redness of the external ear canal, antibiotics and anti-inflammatory agents in the form of drops are usually enough. If there is a more severe infection with swelling, which means closing of the external ear canal and painful swelling of the lymph nodes, it should be treated with oral antibiotics.

A patient suffering from external ear infection, or swimmer's ear should keep ears out of water until symptoms resolve and the treatment is completed, usually 7-10 days.

For people that do a lot of water sports, such as swimming and diving, it is better to be more active in prevention of the external ear infections. Since the wax is flushed out of the ear due to repetitive head immersion in the water, and the protective acidic layer is gone, it is important to add acid to the ear. Saturation divers, who spend weeks in the chambers and under water, use acidic drops twice a day to prevent the development of infection. There are different combinations available in pharmacies which have acidic, or boric acid and isopropyl alcohol. A home brew can also be made with white wine vinegar and isopropyl alcohol: 1/3 of the solution should be white wine vinegar and 2/3 of the solution isopropyl alcohol. White wine vinegar has pH of 3.0 (acidic) and can kill bacteria normally found in the external ear, and isopropyl alcohol dries out the moisture. The solution should be used twice daily when ears are frequently exposed to water. It is important that the solution stays in each ear for a full five minutes.

The head is tilted to one side and the external ear canal gently filled with the solution, which must remain in the canal for five minutes. The head is then tilted to the other side, the solution allowed to run out, and the procedure repeated for the other ear. The five-minute duration must be timed with a watch. If the solution does not remain in the ear for a full five minutes, the effectiveness of the procedure is greatly reduced. From the U.S. Navy Diving Manual

Whichever solution is used, either home brew or over the counter preparation, it is important to stress out that it can only be used in the "healthy ear", meaning that the ear drum is intact, and there is no infection in the external ear canal. Once infection starts to develop, these preparations are not strong enough to clear it. Also, the effectiveness of the solution is drastically reduced unless it remains in the ear canal for a full five minutes.

Dr. Karin Vela is a Diving Medicine Physician EDTC/ECHM IIa and is working in the Dubai London Speciality Hospital.

UPCOMING **EVENTS**

EDA MARKET DAY

Dates and Location TBC

EDA MOVIE SCREENING

September TBC

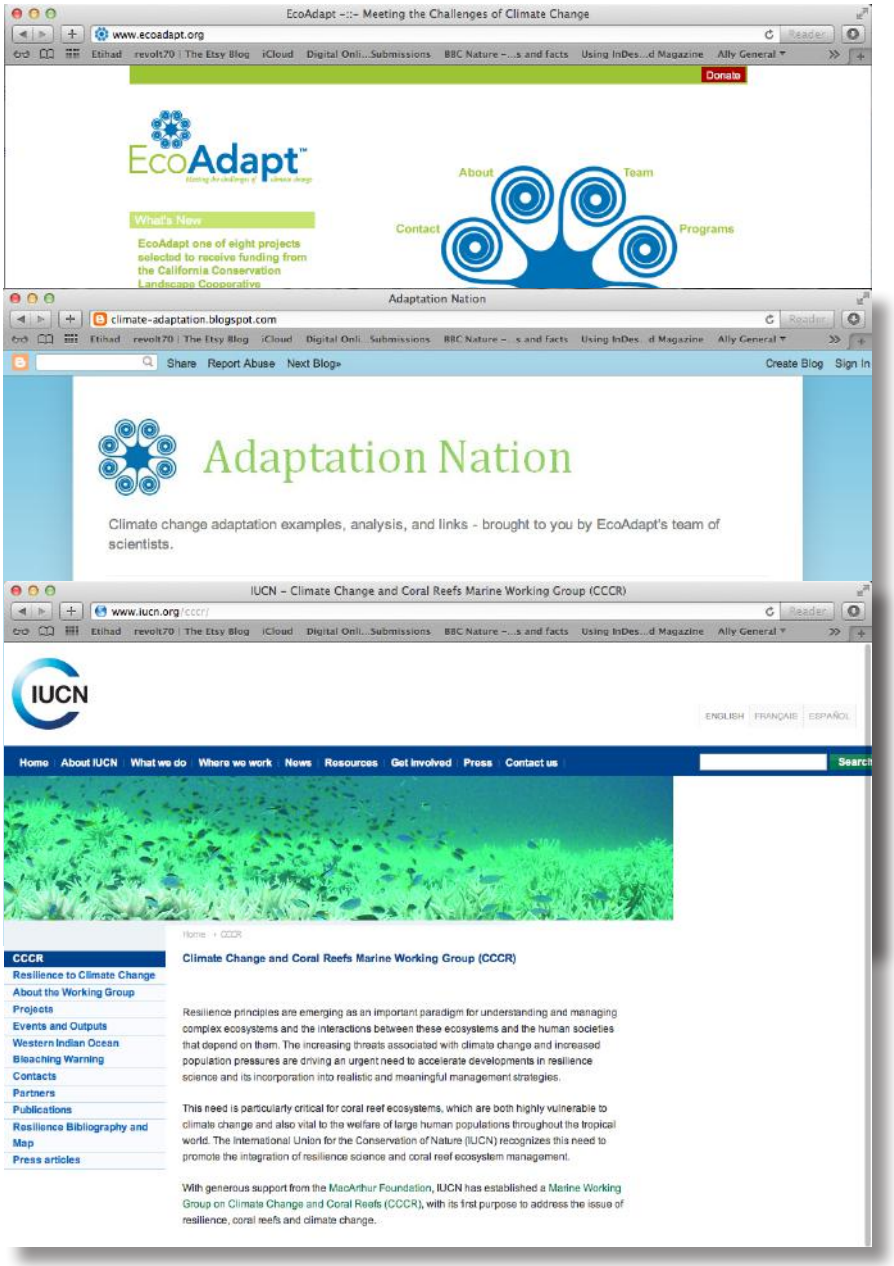
CLEAN UP ARABIA

23 & 24 November

INTERESTING **LINKS AND RESOURCES**

CLIMATE **CHANGE**

- http://www.ecoadapt.org/
- http://climate-adaptation.blogspot.com/
- http://www.iucn.org/cccr/



EDA
جمعية الإمارات للغوص
Emirates Diving Association

MISSION STATEMENT

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

LEGISLATION

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

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

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