DIVERS FOR THE ENVIRONMENT

EMIRATESDIVING.COM/MAGAZINE | MARCH 2010 | VOLUME 6 | ISSUE 1

EDA
جمعية الإمارات للغوص
Emirates Diving Association

EDA CELEBRATES 15 YEARS

DIVE MIDDLE EAST EXHIBITION 2010

DUBAI INTERNATIONAL BOAT SHOW
9-13 March 2010
Dubai International Marine Club – Mina Seyahi
Show Times: 3pm - 9pm Daily

The **4th edition** of the **Dive Middle East Exhibition (DMEX)** will once again be held alongside the Dubai International Boat Show. The combined events provide a natural synergy for all those with an interest and passion in diving.

DON'T MISS:

- **the interactive features at the dive pool**
- **the Free diving demonstrations**
- **the live presentations on the latest dive gear, equipment updates and trial dives for those who wish to take a plunge!**
- **the seminars and advise from the diving specialists**

Visit the DMEX stand and the dive demonstration pool located in the Equipment, Supplies & Services Marquee

2010 DMEX
DIVE MIDDLE EAST EXHIBITION

EDA
Emirates Diving Association

For more information, please contact:
Dubai International Boat Show Team
Tel: + 971 4 308 6451
Fax: + 971 4 318 8607
Email: dubai.boatshow@dwtc.com
www.boatshowdubai.com

Tickets for the show can be purchased onsite or online **www.timeouttickets.com**

ORGANISED BY: DUBAI WORLD TRADE CENTRE

VENUE: MINA SEYAHI; DUBAI INTERNATIONAL MARINE CLUB

EXCLUSIVE BANK SPONSOR: Emirates NBD

SUPPORTING PARTNER: PANERAI Classic Yachts Challenge

FEATURE SPONSOR: KLEINDIENST Group; The Heart of Europe

PREFERRED HOTEL: The Westin Dubai Mina Seyahi Beach Resort & Marina; Le Meridien Mina Seyahi Beach Resort & Marina Dubai

ENDORSED BY: Government of Dubai; Department of Tourism and Commerce Marketing

ALONGSIDE: Dubai International Boat Show

A MEMBER OF: AMSA Arab Marine Industries Association; IFBSO The World's Leading Boat Shows

SUPPORTED BY: ICOMIA

CERTIFIED BY: ufi Approved Event

ASSOCIATED EVENT

EDA
جمعية الإمارات للغوص
Emirates Diving Association

CONTENTS

REGULARS

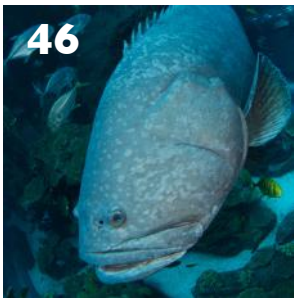
NEWS

CORAL NEWS

FEATURES

DIVERS FOR THE ENVIRONMENT

Please note that EDA's magazine, "Divers for the Environment" includes articles written by individuals whose opinions, whilst valid, may or may not represent that of EDA. It is hoped that the magazine can become a platform for individuals to voice their opinion on marine and diving related issues. You are welcome to submit an article for the next issue of "Divers for the Environment" released in June 2010. Send all articles/comments to: magazine@emiratesdiving.com.

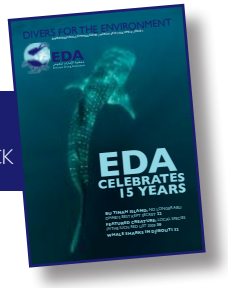


UW PHOTOGRAPHY

DIVING DESTINATIONS

HEALTH

EDA COVER
PHOTO BY WARREN BAVERSTOCK



Please recycle this magazine after you have read it.

EDITOR'S NOTE

IBRAHIM N. AL-ZU'BI
EDA Executive Director

15 years of marine conservation. Years spent protecting a national treasure so that others may be able to enjoy them. That is what EDA stands for. By giving his blessing to establish this organisation in February 1995, the late Sheikh Zayed bin Sultan Al Nahyan, not only placed conservation as a priority for us to uphold but inspired us to bring about change ourselves.

I want to take this opportunity to show my appreciation to all our members and staff for the dedication, loyalty and enthusiasm that they've demonstrated throughout this journey. Of course, none of what we have accomplished so far could have been possible without the leadership and visionary thoughts from our board of directors. I'm confident that the next 15 years will hold even more achievements we can be proud of.

However, these upcoming years hold a dark reality that we and the rest of the world face and that is climate change. The irony is that humans are the ones who cast this dark cloud over their own heads and walking away isn't an option. The truth is that no nation, however large or small, wealthy or poor, will escape the impact of climate change. Rising sea levels threaten every coastline. Severe storms and floods threaten every continent and more frequent droughts and crop failures breed hunger and conflict in places where hunger and conflict already thrive. On shrinking islands, families are already being forced to flee their homes as climate refugees. Our marine life won't go unscathed. The coral beaching and scarcity of fish in our seas are disasters that we all now associate with diving in the region's waters. Diving in the Galapagos islands a few months ago with the EDA team reminded me that the most memorable diving experiences have truly been when the seals, sea lions, marine iguanas, hammer head sharks and Galapagos sharks are protected and safe in their haven.

And yet, we can reverse the situation. John F. Kennedy once said that "Our problems are man-made; therefore they may be solved by man." It is true that for too many years, mankind has been slow to respond or even recognize the magnitude of the climate threat. But today is a new day. We can still make a difference and we have already. In this issue, you can read about the Reef Check Training we launched earlier this year, in collaboration with Reef Check, ICRAN and UNEP. Our priority will be to collect, analyze and share data. We will continue to monitor our marine life, all the while pursuing what we love: diving. Our members are becoming more environmentally aware divers, which has proven to be an essential element of conservation.

Our first issue of the year is an inspiring and informative one. Read about Bu Tinah Island, which has succeeded in remaining protected amid the sounds of dredging and rapid increase of island development projects around it. You won't have the heart to walk away from this article without taking a minute to cast your vote to make it one of the New 7 Wonders of Nature.

Eco Regards,

Ibrahim Al-Zu'bi

REEF CHECK TRAINING

If you are interested in knowing more about our marine environment, collecting data from our local reefs and getting more out of your dives, this may be what you are looking for. Divers will learn about our local ecosystems and will be able to participate in our monthly survey dives which will help us to understand the threats our corals are facing by providing important data.

ABOUT REEF CHECK

Reef Check is a coral reef monitoring protocol that uses standard and simple methodology to collect robust scientific data. Although its main objective is the study of coral reefs health, it also looks to educate the public about coral reef crisis, induce local community action to protect remaining healthy corals and contribute to economically sustainable solutions.

This methodology was implemented in 1997 by Reef Check Foundation, a non-profit international marine conservation organization. With the need to understand the global conditions of our coral reefs, it was mandatory by that time to establish a methodology that could be used all around the world, and done by divers with different backgrounds, not only marine biologists.

After intensive training, divers are able to collect data that is used in the creation of a Global and Regional/Local report regarding the status of the coral reefs. Reef Check teams collect four types of data for each dive site:

1. A description of each reef site based on 30 measures of environmental and socio-economic conditions and ratings of human impacts.
2. A measure of the percentage coverage of different substrate types, including live and dead coral.
3. Invertebrates indicator species counts.
4. Fish indicator species counts.

REEF CHECK AND EDA

By joining our Reef Check monitoring team, you can help monitor and track the world's reefs. Reefs, both tropical and temperate, are in a state of crisis, today they look vastly different from what they did only 30 years ago. Big fish are scarce and some marine creatures have disappeared completely. Over 45% of the world's reefs are severely threatened by human activities including overfishing, pollution and global warming. By becoming a certified Reef Check diver, you can help track the health of our reefs by participating in monitoring surveys and conservation worldwide.

Until now, EDA has trained more than 30 divers with Reef Check methodology, and it intends to train a few more in 2010. By dividing the divers in different Reef Check teams, we will be able to collect data at several sites on the East Coast of the UAE, with particular focus in the Marine Protected Areas (MPAs) Dibba, Al Aqah and Dadna. By collecting data every month, EDA will be capable of writing a 2010 report on the Status of Coral Reefs of the three MPAs on the East Coast. This report will make us understand the principal threats that our marine environment is facing at the moment and the actions that need to be implemented in order to re-establish a healthy ecosystem in the area.

For more information please visit:
www.reefcheck.org
www.emiratesdiving.com

TRAINING

You will be trained to perform Reef Check surveys in all Indo-Pacific. So, you will be able to join the EDA Reef Check team every month as well as joining other Reef Check teams in other countries of the Indo-Pacific. To look for a specific place go to: **http://reefcheck.org/ecoaction/coordinators_and_teams.php**

The trainings take place over three days. The first 2 days will be done in one weekend and will consist of classroom, tests and pool/sea activities (buoyancy exercises). You will become very familiar with many of Indo-Pacific's marine species of fish, invertebrates and will be trained to identify different kinds of substrates such as corals and sponges.

The third day consists of 1 to 2 dives on the East Coast, depending on the weather conditions, consisting of one underwater exam and a mock dive.

All training materials (manual, CDs, DVDs, field guide flash cards, reef check ID card), boat costs, transport to the East Coast and renewal or new EDA membership are included in the training price.

Testing and Certification: PowerPoint ID test (80%) and field test (90% to pass) to obtain regional certification card (Indo-Pacific). Certification card qualifies holder to participate in Reef Check surveys in the region and to submit their data to the global database.

QUALIFICATION

To join the Reef Check training you only need to be a diver (any level) with at least 15 dives (good buoyancy is important).

DATE

To be announced.

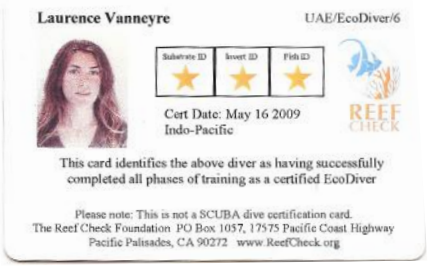
PRICE

The total training price is 600 AED, 50% off the original price. We are a non-profit organization so the cost of the training will go toward the expenses for the 2010 Reef Check training and project.

If you have any questions about the project or need more details about the training, please don't hesitate to contact us at:
projects@emiratesdiving.com

CONGRATULATIONS

EDA would like to congratulate Joanna, Laurence and Rania for finishing the Reef Check course last year 2009.



REEF CHECK TRAINING AT ZIGHY BAY

In the last week of January, EDA went to Zighy Bay Six Senses Hideaway Resort in Musandam to train 11 members of their staff with the Reef Check methodology. Giving Reef Check training in such an environment, where permanent concern about our carbon footprint is noticed, made this event very special. It is the intent of Zighy Bay Six Senses Hideaway Resort to study and conserve the marine life that exists on their coast, and for this they engaged themselves on learning to collect data with EDA. Future surveys will be made and together we will be able to understand and help the coral reefs that splendour the coast line of Zighy Bay.

To know more about Reef Check and the resort, go to:
www.reefcheck.org
http://www.sixsenses.com/six-senses-hideaway-zighy-bay/

The Reef Check team have been going to the East Coast every month to do periodic surveys. The data has been collected in Al Faqqet Marine Protected Area and Al Aqah Marine Protected Area (also known as Dibba and Snoopy Island). For this project we would like to thank the volunteers that have been very supportive as well as The Palm dive centre who have helped us with the facilities, boat and skipper. To all of you a big thank you!

EDA INVITES **ALL EDA MEMBERS** TO

THE ART OF APNEA, THE HERITAGE OF PEARL DIVERS AND FUTURE OF FREEDIVING

IN **ABU DHABI**

EVENT: The Art of Apnea, The Heritage of Pearl Divers and Future of Freediving in Abu Dhabi

DATE: Wednesday 3rd March 2010
TIMING: 7pm-9pm
LOCATION: ADMA-OPCO Auditorium

REGISTRATION: Pre-registration is required. To register please contact Kathleen Russell at **info@divemahara.com** or call +971 50 836 9530 or call the EDA's office at +971 4 393 9390.

PROGRAM

7:00pm
Welcome and introduction of guest speakers (MC Kathleen Russell and Mr. Ibrahim Al Zu'bi, EDA's Executive Director).

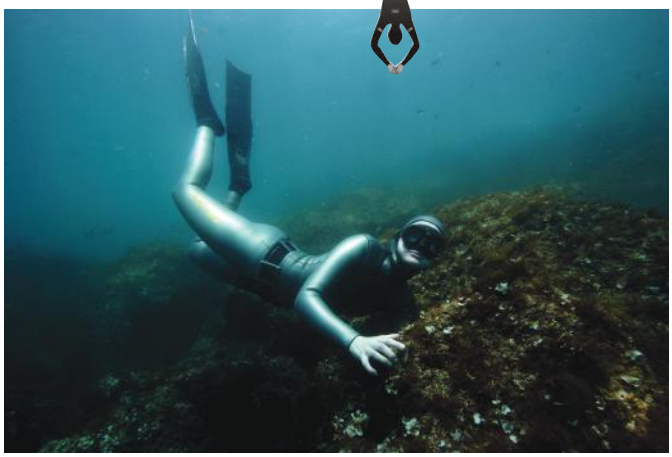
7:15-7:45pm
Presentation on History of Pearl Diving in the UAE
15min Q & A

8:00-8:30pm
Presentation on The Art of Apnea presented by Emma Farrell
15min Q & A

8:45pm
Presentation finishes, gift presentation to guest speakers and refreshment and light snacks are served outside of the auditorium.

SYNOPSIS:
Freediving has a particular importance for Abu Dhabi where pearls brought wealth to the region before oil & gas. So how do freedivers manage to hold their breath for so long and dive so deep? This seminar is an opportunity to connect the UAE's heritage of pearl diving and learn about the modern world of Freediving.

BIO: EMMA FARRELL



Emma has 7 years experience teaching freediving around the world. She is a founding member of the AIDA (the Worldwide Federation for breath-hold diving) International Education Commission. Emma also chaired the British Freediving Association between 2004 and 2006 and has competed in numerous international freediving competitions.

BIO: JUMA'A BIN THALETH

(EDA's Heritage Department Manager)
Juma'a is a dedicated young local pearl (aswell as rescue) diver. He is responsible for creating awareness in all schools, colleges and universities with regard to the Pearl Dive culture of the UAE. Juma'a is also responsible for EDA's Heritage Exhibition.

The event is organised in cooperation with ADMA-OPCO, EDA, AIDA and Al Mahara Diving Center LLC.

NEED A **DIVE BUDDY?**

Al Mahara Diving Center LLC is a premiere PADI 5 Star dive resort centre in Abu Dhabi specialising in high quality scuba diving training, knowledgeable staff in equipment retail and experienced to provide you with safe, fun and adventurous scuba and snorkelling experiences. We are also passionate about taking care of the local marine environment and work together with environmental NGO's, various companies in all industries, schools, youth organisations, environmental groups and the diving community to build public awareness in the preservation, protection of the regional marine habitat. We look forward to diving with you and giving you an unforgettable and rewarding experience.

We specialise in scuba courses, trips, equipment retail, air filling, overseas diving trips (individual or group), marine conservation projects with EDA, diver social activities, supporting dive professionals and much more.

AL MAHARA DIVING CENTER L.L.C.

Al Mahara Diving Center LLC
PADI 5 Star Dive Resort S21702
Training facility at Le Meridien Hotel and ICAD, Mussafah
FO12, ICAD
PO Box 52149, Abu Dhabi, UAE
Telephone: 02 556 1226
Mobile: 050 720 2833 (Alistair), 050 836 9530 (Kathleen)
Email: divemahara@emirates.net.ae
Website: www.divemahara.com (coming very soon with PADI's online e Learning)

BOOSTING BIODIVERSITY CAN BOOST GLOBAL ECONOMY

FEATURE **UNEP** PHOTOGRAPHY **SAEED MANSOUR – BAHRAIN**

2010 is Litmus Test of International Community's Resolve to Conserve and Enhance Planet's Natural Assets

A new and more intelligent pact between humanity and the Earth's economically-important life-support systems is urgently needed in 2010, the head of the UN Environment Programme (UNEP) said.

UN Under-Secretary General and UNEP's Executive Director Achim Steiner said that an unprecedented scientific, economic, political and public awareness effort was needed to reverse and to stop the loss of the planet's natural assets.

These losses include its biodiversity such as animal and plant species and the planet's ecosystems and their multi-trillion dollar services arising from forests and freshwater to soils and coral reefs.

"The words biodiversity and ecosystems might seem abstract and remote to many people. But there is nothing abstract about their role in economies and in the lives of billions of people," said Mr. Steiner.

"Take coral reefs for example. The range of benefits generated by these ecosystems and the biodiversity underpinning them are all too often invisible and mainly undervalued by those in charge of national economies and international development support," he added.

The latest estimates by The Economics of Ecosystems and Biodiversity (TEEB) study, which UNEP hosts, indicates that coral reefs generate annually up to US$189,000 per hectare in terms of coastal defenses and other areas of 'natural hazard management'.

"In terms of diving and other tourism revenues, the annual services generated equate to perhaps US$1 million; genetic materials and bio-prospecting, up to US$57,000 per hectare annually and fisheries, up to US$3,800 per hectare per year," explained Mr. Steiner.

Meanwhile, it is estimated, for example, that one fifth of coral reefs are already seriously degraded or under imminent risk of collapse as a result of unsustainable human activities such as coastal developments, over-fishing, destructive fishing practices and pollution.

Climate change and ocean acidification, linked with the build-up of carbon dioxide, could eventually see 50 per cent and perhaps up to 100 per cent loss of coral reefs worldwide.

"If you factor the true value of coral reefs into economic planning, it is likely that far more rational and sustainable choices would be made in terms of development, emissions and pollution control and resource management. It is a similar story in respect to all of the planet's nature-based assets from forests and freshwaters to mountains and soils," said Mr. Steiner.

He added that 2010 was meant to be the year when the world reversed the rate of loss of biodiversity, but this had not happened.

"I would urge heads of states to renew their commitment and set their sights broad and high.The urgency of the situation demands that as a global community we not only reverse the rate of loss, but that we stop the loss altogether and begin restoring the ecological infrastructure that has been damaged and degraded over the previous century or so," stressed Mr. Steiner.

He added that the International Year of Biodiversity would prove a success only if several litmus tests are met.

SCIENCE

There is an urgent need to bridge the gap between science and policy-makers in governments around the world.

In February, environment ministers attending UNEP's Governing Council/Global Ministerial Environment Forum will decide whether or not to establish an Intergovernmental Panel or Platform on Biodiversity and Ecosystem Services (IPBES).

"There is an urgent need to take forward the science, in part to sharpen our understanding of the natural world and unravel its complexities. For example, we still do not know how many species are needed within a given ecosystem to maintain its health and its economically-important services," said Mr. Steiner.

"There is also an urgent need to ensure that the wealth of science we already have is used by governments to maximum effect and genuine and sustained action on the ground," he added.

The proposed IPBES is aimed at addressing these issues. Mr. Steiner pointed out that governments should consider supporting the proposed new panel or give guidance on an alternative body or mechanism. He added the status quo was not an option if biodiversity loss is to be truly addressed.

PUBLIC AWARENESS

Mobilizing public support across countries, cities, companies and communities would be among the keys to a successful year.

"De-mystifying terms such as biodiversity and ecosystems and communicating complex concepts and sometimes obscure scientific terms, will also be vital to get people on board," said UNEP's Executive Director.

"Linking livelihoods, the combating of poverty and the relationship between biodiversity and natural systems with the health of economies needs to set the tone. Equally the link between not only the threat from climate change but

the role of living organisms and systems in buffering humanity against the worst impacts of global warming are messages that need to be heard loud and clear," he added.

1. For example, an estimated 5 gigatonnes or 15 percent of worldwide carbon dioxide emissions – the principal greenhouse gas – are absorbed or 'sequestrated' by forests every year, making them the "mitigation engine" of the natural world.
2. Forests also capture and store rainwater, releasing it into river systems while also recycling a great deal of the nutrients upon which agriculture depends.
3. Marine ecosystems, including mangroves, salt marshes and sea-grasses are not only coastal defenses and fish nurseries. It is estimated that they are absorbing and locking away greenhouse gases equal to half the world's transport emissions.

ECONOMICS

Bringing the economics of biodiversity and healthy ecosystems into mainstream economics and national accounts would be a major achievement.

TEEB, which builds on some 20 years of work, will publish its final report in advance of the 10th meeting of the Conference of the Parties to the Convention on Biological Diversity in Nagoya, Japan, in October this year.

However, its work so far has shed new light on how much the global economy is losing as a result of its failure to sustainably manage its natural capital.

The TEEB Interim Report estimated that annual losses as a result of deforestation and forest degradation alone may equate to losses of US$2 trillion to over US$4.5 trillion alone.

The study is also underlining the huge economic returns from investing in nature.
It is estimated that for an annual investment of US$45 billion into protected areas alone, the delivery of ecosystem services worth some US$5 trillion a year could be secured.

The study underlines that many countries are already factoring natural capital into some areas of economic and social life with important returns, but that this needs rapid and sustained scaling-up.

In Venezuela, investment in the national protected area system is preventing sedimentation that otherwise could reduce farm earnings by around US$3.5 million a year.

Planting and protecting nearly 12,000 hectares of mangroves in Vietnam costs just over US$1 million but saved annual expenditures on dyke maintenance of well over US$7 million.
One in 40 jobs in Europe are now linked with the environment and ecosystem services ranging from clean tech 'eco-industries' to organic agriculture, sustainable forestry and eco-tourism.

"Among the positive outcomes of the recent UN climate convention meeting in Copenhagen was an agreement that Reduced Emissions from Deforestation and Forest Degradation (REDD) can join the existing options for combating climate change. In other words, paying developing nations to conserve forests systems so that the carbon remains locked in nature rather than emitted to the atmosphere," said Mr. Steiner.

Other possibilities, ones that meet the climate but also the biodiversity challenge, could follow and should be taken forward in 2010.

These include carbon payments for farmers and landowners who manage agriculture and land in ways that reduce greenhouse gas emissions and enhance living systems and the role of marine ecosystems in climate including adaptation but also their importance in terms of biodiversity.

ALIEN INVASIVE SPECIES

Part of the challenge that echoes the economic question includes addressing alien invasive species.

These are species that, as a result of international trade including shipping or deliberate introductions, can flourish unchecked in their new homes sometimes thousands of kilometers from where they are naturally found.

By some estimates alien invasive species may be costing the global economy US$1.4 trillion or more while representing a further challenge to the poverty-related UN Millennium Development Goals.

In sub-Saharan Africa, the invasive witchweed is responsible for annual maize losses amounting to US$7 billion: overall losses to aliens may amount to over US$12 billion in respect to Africa's eight principle crops.

"Improved international cooperation through the UNEP-linked Convention on Biological Diversity is needed and stepped up support for the Global Invasive Species Programme," said UNEP's Executive Director.

"It is also important to boost the capacity of the responsible national customs and quarantine agencies, especially in developing countries and to accelerate controls on the movement of aliens via the UN's International Maritime Organization," he added.

ACCESS AND BENEFIT SHARING

Successfully negotiating an international regime on access and benefit sharing of genetic resources at the CBD meeting in Japan would also be a landmark for 2010.

Currently, and in the absence of such a regime, many developing countries harbouring the richest source of genetic material are declining companies from developing countries and scientists access to these resources.

An international regime could foster cooperation and unlock the genetic resources available in the developing world for the development of new pharmaceuticals, new crop strains and materials for all nations.

In turn it could trigger financial flows from North to South and improve the economics of conserving biodiversity and ecosystems.

"Constructive negotiations are underway since the last meeting of the CBD in Bonn in 2008 and there is optimism that an international regime could be concluded to the benefit of developed and developing economies, to the benefit of biodiversity and ecosystems," said Mr. Steiner.

IMPROVED INTERNATIONAL ENVIRONMENT GOVERNANCE

The international response to biodiversity loss and sustainable management of nature-based resources has been the establishment of several key bio-related treaties.

These include the CBD and its Cartagena Protocol on living modified organisms; the Convention on the International Trade in Endangered Species; the Convention on Migratory Species; the Ramsar Convention covering wetlands and the Africa Eurasia Waterbird Agreement.

Greater cooperation between the relevant treaties and agreements should be fostered in 2010 in order to accelerate the international response.

LOOKING FOR NEW DIVE SITES?

Al Boom Diving is now offering daily dives in the Musandam by speedboat. We still run the Friday dhow trip as well. Contact us on abdiving@emirates.net.ae or call 04 342 2993 to book your dive!

Most of the dive sites in the Musandam are sloping sides descending from the Hajar Mountain fjords. Coral reefs are abundant in this remote area, reef fish, rays, dolphins, sea turtles and whale sharks are frequently sighted. The sloping sides at most dive sites make the sites suitable for all levels of divers as you can choose your depth. Currents in the area make it advisable for Zone 1 divers to have the Open Water certification with 20 logged dives and Zone 2 divers to be at least PADI Advanced Open Water certification holders.

ZONE 1 > Dibba Port to Leema

RAS HAFFA

A classic Musandam dive site, with sloping sides and as yet un-spoilt; Ras Haffa is close to the Musandam fishing village of Haffa. Ideal as a second, shallower dive of the day, this site has colourful corals and reef fish. Look out for sea turtles, black tip reef sharks and all of the characters from Finding Nemo!

Depth: 5 – 15m

THE CAVES

A Musandam favourite, this dive site has it all: coral reefs, reef fish, and a selection of swim-throughs. A rock overhang gives the site its name. Popular as a shallow second dive of the day, this dive site is great for all dive levels. Look out for the entrances to the swim throughs and watch your buoyancy as you proceed through them!

Avg Depth: 5 – 12 m

RAS ALFIE

We don't know the real name for this site, but that's the adventure of the Musandam – if you find a new dive site, you can name it! Found by our instructor, Alfie, this previously unknown dive site is in pristine condition. The sloping sides that are so barren above the water descend to a rich reef that is home to hard and soft corals, angelfish, jacks, Moorish idols (or Al Boom Fish) and cuttle fish.

Avg Depth: 5 – 22m

RAS SAMUT

Also known as 'Wonder Wall', Ras Samut is situated close to Leema Rock. Ideal as a first dive of the day in Zone 1, the sloping sides of this dive site are home to everything from big batfish and spotted eagle rays, to Arabian angelfish and colourful clown fish. There can be strong currents at the top point of the site, so it is best to dive towards the point and surface in the shallows around the corner in the sheltered bay. Don't forget your fish ID cards to identify all that you see on this dive!

Depth: 5 – 25m

LEEMA ROCK

Another Musandam must see, Leema Rock is situated close to the Musandam village of Leema. The barren rock juts out from the ocean, but underwater it is home to a variety of marine life! All sides of Leema Rock make for great diving, but the seaward side of the rock is prone to strong currents and is best avoided. In the summer months, juvenile whale sharks are often spotted in the area. Sea turtles, jacks and reef fish are abundant. The sloping sides of the island mean that it is possible to do two dives on Leema Rock, the south side at depth and the north side at a shallower level.

Avg Depth: 3 – 27m

ZONE 2 > Leema to Khor Hablane

PEARL ISLAND

Just past Leema Rock is Pearl Island. One of the easier dive sites of Zone 2, Pearl Island offers great reef diving, and is ideal as a second dive of the day. Average depth is 10m around the island, descending to 20m further from the rock. Daisy and teddy bear corals in oranges, reds and pinks cover the reef. Parrot fish, clown fish and a variety of reef fish can be seen on this busy reef.

Depth: 5 – 12m

RAS MAROVI

Interesting rock formations on the surface descend to produce a varied underwater landscape at Ras Marovi. Just north of Pearl Island, Ras Marovi is made up of four islands, with the best diving in the channels between the islands. Currents can be strong running along the channels making it good for drift dives. Ras Marovi is home to a variety of sharks such as white tips, grey reef and leopard sharks. It is not unheard of to see manta rays on occasion.

Depth: 6 – 30m

OCTOPUS ROCK

One of the northern most dive sites of Zone 2 is Octopus Rock. Named because of the rock's resemblance to an octopus, the circular island on the surface stretches out in 'tentacle' shapes underwater. Most divers start the dive at the tentacle edges where it is deepest and end the dive close to the island. Here you will see big fish – grouper, batfish and sunfish. Shoals of jacks and barracuda can be seen as well as a nurse shark or two if you are lucky! This is a great dive for advanced divers.

Depth: 5 – 20m

KHOR HABLANE

One of the most northern dive sites of Zone 2, this dive site is well worth the longer boat ride. Khor Hablane refers to an area north of Octopus Rock where sloping sides and small bays before Zone 3. Pebble beaches are common in the area, and a variety of dives await your exploration.

Depth: 3 – 30m

RESORT BASED DIVING IN THE MUSANDAM

Diving from the Golden Tulip in Dibba (Musandam) by speedboat is available daily from Al Boom Diving. A 42-ft custom diving speedboat has been placed in the Musandam to offer dive trips all the way up to Khor Hablane in the Musandam. It is now possible to access Oakley Island, Khor Hablane, Octopus Rock, Ryan's Rock, Pearl Island and Hard Rock Café on a day trip from the hotel.

The speedboat departs the Golden Tulip at 8:30am, and returns by 3pm. On arrival back at the hotel, Al Boom Divers can enjoy 25% off food and beverage at the hotel and free use of the beach facilities. Special room rates make it affordable to stay over in the Musandam, at Dhs 400 per room per night for two, bed and breakfast; or Dhs 600 per room per night for two, dinner, bed and breakfast! This makes it possible to enjoy a weekend of Musandam diving at a very affordable rate.

Two dives in Zone 1 (as far as Leema Rock) with full kit is Dhs 425 (including Musandam park fees and a gourmet sandwich).

Two dives in Zone 2 (Leema Rock to Khor Hablane) with full kit is Dhs 500 (including Musandam park fees and a gourmet sandwich).

PACKED LUNCHES

Al Boom Diving is now offering packaged sandwiches on our Musandam and east coast dives. The sandwiches, supplied by Le Meridien Al Aqah, are available on our 9am and 12 noon dives at Al Aqah, and on the Musandam speedboat trips. A large sandwich and fries keeps you going on your second dives, for just Dhs 25! There is a choice of roast beef, grilled veg or chicken pesto. A full Arabic buffet is still served on our dhow trips.

Remember that Al Boom Divers get 25% off food and beverage at the Gonu Bar at Le Meridien Al Aqah and at the Golden Tulip Dibba. 20% discount is available from Sports Café at Jebel Ali Golf Resort and Spa.

For more information, email Al Boom Diving on abdiving@emirates.net.ae or call 04 342 2993.

JEBEL ALI GOLF RESORT & SPA

Dubai's Only True Resort

DIVE AND STAY DEALS

The drive back from your favourite dive sites in the Musandam and Fujairah can be tiring work on the weekend, and that's why Al Boom Diving has teamed up with our partner hotels to offer 'dive and stay' packages. These are available at Le Meridien Al Aqah Beach Resort in Fujairah, Golden Tulip and the Jebel Ali Golf Resort and Spa.

Room rates for two, including breakfast, are available. The options from there are up to you to tailor your weekend or mid-week getaway as suits you. Will you stay for three nights while you finish your Open Water or Advanced Course? Will you dive in Al Aqah, Musandam or Dubai? Will you go for the all inclusive breakfast and dinner? There is even an option for the "All you can eat, all you can drink and all you can dive" package for sheer indulgence! If you have friends that are not divers, why not suggest the stay over and a Discover Scuba Diving course?

For more information, give us a call or email us on the contact details below. Alternatively take a look at **www.alboomdiving.com**, and check out the newly updated Go Dive section.

Email: abdiving@emirates.net.ae
Tel: 04 342 2993
Facebook group: Al Boom Diving Club

AL BOOM DIVING REEFBALL PROJECT

On Tuesday February 9th, Al Boom Diving held a reef monitoring day at Le Meridien Al Aqah where divers were invited to do two dives on the "Meridien Reef" and complete courses like CoralWatch and PADI Project Aware.

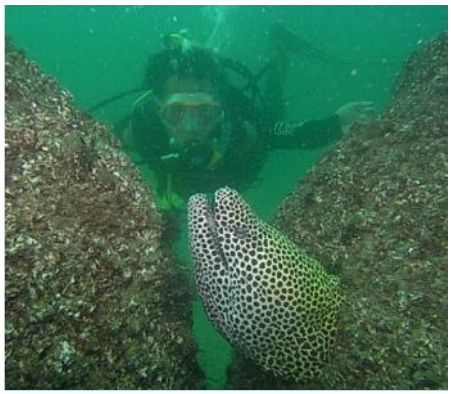
Placed in May 2009, it was expected that the artificial reef would progress slowly over the next three to five years. The progress has been excellent however with plant life already covering the reefballs, and many juvenile reef fish settling on the site. Hammour, crabs, lobster, banner fish and jacks are already calling the artificial reef home. The most exciting and recent addition to the reef is a large moray eel, which has taken up residence.

To increase the number of coral reef areas in the UAE, Al Boom Diving has started the Reef ball project. To date, an artificial reef has been placed at Le Meridien Al Aqah, and one at the Jebel Ali Golf Resort and Spa. Reef balls, from the Reefball Foundation are being manufactured for this purpose.

The Reef Ball Foundation, Inc. is a non-profit organization that functions as an international environmental organization. The foundation uses Reef Ball artificial reef technology combined with coral propagation, transplant technology, public education and community training to build, restore and protect coral reefs. The foundation has established "Reef Ball reefs" in over 56 countries with ongoing projects in 14 additional countries (giving a total of over 70 countries). Man's activities and natural disasters have led to a reduction in our natural reef systems. The loss of our natural systems, coupled with increased use compels us to do all that we can to save the natural coral reefs.

Although Al Boom Diving is the primary party in this project, we have the assistance of some other companies. Other parties involved in the project are: the Emirates Diving Association, Lootah Group and, Le Meridien Al Aqah and the Jebel Ali Golf Resort and Spa, for the house reef outside the hotels.

For more information, please contact Al Boom Diving on: **abdiving@emirates.net.ae**



ARTIFICIAL REEF BUILDING DIVE

FEATURE **SAMI NASR GRADE 9**

What a difference a school embodying a group of students eager to do even an inkling of good can be! Only a couple of years ago, our goals in life were simply to get through each school day like it was any other, to socialize and enjoy our time with friends, and of course to try and learn something educational as we go along. Little did we know that our goals would transform into something more significant and more effective not only to ourselves, but to our community.

Being a student at the International School of Arts and Sciences (ISAS) has given me the wonderful opportunity to become an altruistic and active participant in many concerns and projects, most crucial of which has been the environment and its struggle not to crumble as a result of our nonchalance and carelessness.

I consider myself one of the lucky ones who got to partake in a project that you don't get to be involved in quite often at such a young age. You watch the news and hear about well-known multi-national companies that decide to build something environmental, but little did we know that we, young learners, would get to realize a project of this worth and magnitude.

It all happened when we woke up one chilly December morning, and instead of dressing up and heading straight to ISAS, the school, in collaboration with the Al Boom Diving, decided to take us on a trip to Jebel Ali resort to assist in building an artificial reef.

As we geared up, we were greeted by dive instructors, staff, environmental engineers, and some friends that had arrived earlier. The team leader briefed us on our upcoming mission and we were ready to go. It was all perfectly arranged. The students who had some diving experience but still assisted by certified instructors went straight to the beach to start their work. The beginner divers were escorted to the pool for a introductory diving course.

The adrenalin rush we felt knowing that we were about to be part of something so essential for our environment made it all the more worthwhile. We dived around the site where the concrete 'Reefball' blocks would be placed and the instructors and engineers prepared us for what was to come.

After a few hours followed by a short break where we ate a light snack and drank some water, we got ready for the real work. Joined by our now more confident diver friends, the second dive was when we started dropping the reefballs and building the reef. Not only did we get to work, but we also witnessed the beauty of the ocean world. We saw countless vibrant and bright fish and sea plants of all sizes and a sunken catamaran; it was breathtaking!

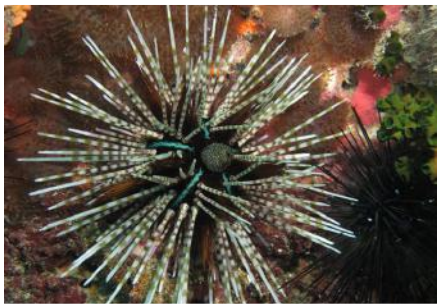
After the dive, we had some more food, and spoke about the unique experience we had just had. We took pictures and tried to savour every moment of our time there.

We all hope to go back to the dive site in a month to see how much it has changed and improved as a living reef for fish. It feels so rewarding and I can't help but feel proud of myself and my friends for contributing to the healing of our environment.

On behalf of my friends, I would like to thank our school, the International School of Arts and Sciences, and the supportive team of divers from Al Boom diving club, engineers, and organizers from Jebel Ali Resort for instilling in us a sense of environmental responsibility and consciousness and for urging us to preserve, even if in the smallest of steps, our increasingly fragile planet.

IMAGES AT A GLANCE

EDA MEMBER:
PHILIPPE LECOMTE
(**KOH SAMUI,** THAILAND)



Al Boom Diving

DUBAI • FUJAIRAH • MUSANDAM • DUBAI MALL AQUARIUM








Dive Courses, Dive Trips & Hotel Packages

Visit us at DMEX stand A1-1

our latest equipment...

ON SALE! with IN-Water Demos! at the boat show!










Al Boom Diving | AQUA LUNG FIRST TO DIVE | Cressi-sub | SEA&SEA UNDERWATER CAMERA EQUIPMENT | INNOVATIVE SCUBA CONCEPTS

Al Wasl Road, Dubai UAE • T: +971 4 3422993 • F: +971 4 3422995 • abdiving@emirates.net.ae • www.alboomdiving.com

ATLANTIS DIVE CENTRE

Located on the Crescent of the Palm and nestled among a fish-lovers paradise, the PADI 5 Star Atlantis Dive Centre opened it's doors to the public on the 15th January. As the brain child of Peter Turnbull – an avid diver and fish enthusiast in his own right – partnering with Jason Sockett, who brings with him over 12 years of diving instructorship in the Gulf, the Atlantis Dive Centre offers big promises before you even step over the threshold.

As you are welcomed into the Dive Centre you are greeted with a group of highly enthusiastic, multinational divers who are keen to bestow some of their passion onto you. Each instructor has spent 6 months learning the waters of the Gulf and include sites within their portfolios which up until now have been unavailable to recreational divers. A real plus point for those who are now familiar with the already wondrous treasures our surrounding waters have to offer.

To further enhance the true devotion for diving, each member of the admin team are also keen divers. Their knowledge of the sport alone will quickly assure you of the level of training and commitment that is expected at the Atlantis Dive Centre. Coupled with the warm and family friendly atmosphere there is a place for everyone on the full range of courses offered.

The Atlantis Dive Centre has two purpose built indoor salt-water pools offering multiple level learning from 1.3m to 3.5m. Salt-water pools allow divers to experience buoyancy comparable with the open water from the very onset.

The first pool is primarily used for Open Water students whereby the dual-level provides the diver a secure environment in which to acclimatize to the various requirements before hitting the open seas. The secondary pool at 3.5m and complete with a submarine offers an idyllic environment for PPB Specialty Courses whereby divers may perfect their weighting, reeling in and out for wreck diving and video and photography equipment familiarization.

With two 37ft Sea Masters and one W27F boats at their disposal, getting to dive sites in style and comfort is a given. Having 3 boats offers independent instructors an advantage of taking their students to sites separately from those already booked at the Atlantis Dive Centre. Leaving directly from the centre, students require minimal involvement in lugging equipment around offering a more relaxed and social approach to the experience.

So with a full range of PADI courses, weekend live-aboard excursions to neighbouring Oman and unprecedented experiences in our salt-water pools, the Atlantis Dive Centre aims to achieve a memorable experience for any diver of all levels. We hope to see you for a visit very soon.

LOCATION

Follow the main road on the Palm to the Crescent and signs to Atlantis. Turn right as you exit the tunnel and follow the Crescent road along the waterfront past Atlantis Hotel. Go right at the 3rd Round About and the Atlantis Dive Centre is located on the right hand side of the car park directly behind the security building.

Contact Info: 04 426 3000
www.atlantisdivecentre.com
reception@atlantisdivecentre.com

Show Your Support

Project AWARE Foundation's Newest Certification Card for 2010

Select the Project AWARE version of your PADI certification card. 100% of your donation above the standard card fee supports conservation of underwater environments including global species monitoring, data collection initiatives, education, research and improved resource management.

PROJECT AWARE®

www.projectaware.org

DMEX 2010 PRESENTATIONS

DAY ONE:	Tuesday, 09 March 2010	
TIME	SUBJECT	PRESENTER
18.00 – 20.00	Aqualung dive gear show; Try dives	Al BOOM DIVING
DAY TWO:	**Wednesday, 10 March 2010**	
TIME	SUBJECT	PRESENTER
18.00 – 20.00	Cressi dive gear show; Open Water class demo	Al BOOM DIVING
DAY THREE:	**Thursday, 11 March 2010**	
TIME	SUBJECT	PRESENTER
16.00 – 18.00	Try Dive Scuba and Full Face Mask demo (for beginners and experienced divers)	PREMIERS FOR EQUIPMENT
18.00 – 20.00	Aqualung dive gear show; Open Water class demo	Al BOOM DIVING
DAY FOUR:	**Friday, 12 March 2010**	
TIME	SUBJECT	PRESENTER
16.00 – 18.00	Cressi dive gear show; Aqualung dive gear show; Mock Dubai aquarium shark dive.	Al BOOM DIVING
19.00 – 21.00	Free diving demonstration; Free Diving disciplines, Yoga for Free Diving, Leaflet hand-outs and audience Q&A's.	FREE DIVING TEAM
DAY FIVE:	**Saturday, 13 March 2010**	
TIME	SUBJECT	PRESENTER
16.00 – 18.00	Cressi dive gear show; Aqualung dive gear show; Mock Dubai aquarium shark dive.	Al BOOM DIVING
18.00 – 20.00	Try Dive Scuba and Full Face Mask demo (for beginners and experienced divers)	PREMIERS FOR EQUIPMENT

COMPANY PROFILES

AL BOOM DIVING

Al Boom Diving is the leading dive operator in the UAE with a PADI 5 Star Dive Centre in Dubai, and a Gold Palm Resort at Le Meridien Al Aqah. Al Boom Diving offers all courses from beginner to instructor. Diver safety and enjoyment are our top priorities. We currently have two PADI Course Directors on staff and our staff speak a selection of languages.

Stand #A1-1

BEUCHAT

Founded by George Beuchat in the Thirties, The Company Beuchat has been involved in the development of all aspects of underwater activities. George Beuchat conducted many experimental dives and all the early developments in diving were conducted off the coast of Marseille. 1953 George Beuchat invented the first isothermal diving suit. 1964 The "Jet Fin" was created. This product is still in production today, and is used by Military & Commercial Divers all over the world. Over 40 years without any modifications. For more than sixty years Beuchat has been at the fore front in the design, development, manufacturing and marketing of new products which have marked the history of diving and spearfishing. Distributed around the world to 80 countries, Beuchat is recognised worldwide as a market leader in the fields of Scuba Diving and Spear Fishing.

Stand #E6-2

GULF MARINE COMPANY

Gulf Marine Sports LLC is a purpose built dive shop, established in 1998 and has branches in Dubai, Abu Dhabi and Ras Al Khaima offering a wide range of recreational diving equipment. It is a local retailer for snorkeling gear, free diving, spear fishing and scuba diving equipment, stocking major brands such as TUSA, Beuchat, Underwater Kinetics cases and lights, Bare Wetsuits, Trident Diving Accessories, Stingray Catalina, Luxfur, and PADI.

G.M.S is connected to a large diving community throughout the UAE, Oman, Qatar, and Bahrain. If you would like to learn diving, G.M.S will be pleased to offer you helpful, friendly & professional advice and assist you in your courses or direct you to a number of qualified instructors and dive centers all over the UAE, and GCC countries.

Stand #C5-1

PREMIERS FOR EQUIPMENT

Premiers for Equipment is a 100% local Establishment based in Abu Dhabi - UAE founded in 2001, dealing with several Government Authorities, Municipalities, Oilfield Companies, Divers & Diving Centers as a sole agent to worldwide companies.

For further information visit our website: www.premiers-uae.com

Stand #D5-1

SCUBA DUBAI

Started in September 1989, Scuba Dubai is now recognized as The Technical Expert in scuba diving equipment The Middle East. The dedicated and highly experienced staff are very knowledgeable about technical, military and commercial scuba diving equipment as well as recreational scuba diving equipment. The premises are welcoming and friendly, the staff are customer service orientated and very happy to chat about diving, underwater photography and to solve diving equipment dilemmas. 80% of all diving regulators and cylinders that belong to the general diving public in the Middle East are serviced here. Air purity testing and high pressure breathing air compressors repairs are done in-house. Scubapro, Apeks, Atomic Aquatics are the major brands sold from the well stocked shop. Equipment is also available from Oceanic, Catalina, Faber Steel, Trident accessories, Ikelite and Subal underwater camera housings and strobe lights. This is one of the few shops that have twin sets available for sale. Diver training and dive trips are not offered but information is freely given about dive centers, dive clubs and dive instructors in the region. Directions to the shop, opening hours and contact numbers are available on the website – www.scubadubai.com.

Stand #D6-2

TOURISM MALAYSIA

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

Malaysia Truly Asia!

Stand #E5-1

Technology feather weight

www.beuchat.fr

Masterlift X-Air Light 2

New weight ditching system
2 x 5 Kg

Adjustable harness with lumbar protection for unique comfort

Technology feather weight (size M : 2,9 Kg)
Dimensions when folded into the bag :
360 x 410 x 140 mm

Masterlift X-Air Light 2

- 420 denier nylon/polyurethane outer shell
- Semi rigid backpack with 2 pinch clip straps
- Adjustable harness
- Adjustable waist strap
- Rear trim weight pockets (2 x 2,5 kg) and front integrated weight pockets (2 x 5 kg)
- New weight ditching system
- 2 top dump valves and one rear dump valve
- Built-in power dump inflator
- 2 large zip pockets
- Knife housing
- Numerous D-rings
- Lift from 110 to 270 N
- Supplied with travel bag
- It complies with CE EN 1809 standards.

Tailles / Sizes	Flottabilité / Buoyancy	Buoyancy (Lbs)
XS	110 N	25
S	130 N	29
M	180 N	40
L	210 N	47
XL	270 N	60

Les flottaisons n'incluent pas le lestage
Specified buoyancy is without weight.

1 Lbs = 0,4535 Kg

BEUCHAT®
Inspired by the sea*

CORAL REEF BIOLOGY

FEATURE **CORIS – NOAA CORAL REEF INFORMATION SYSTEM** PHOTOGRAPHY **MARCELO MARIOZI**

Thousands of coral species exist worldwide. Stony (hermatypic) corals are the best recognized because of their elaborate and colorful formations. One trait of stony corals is their capacity to build reef structures that range from tens, to thousands of meters across. As they grow, reefs provide structural habitats for hundreds to thousands of different vertebrate and invertebrate species.

Although corals are found throughout the world, reef-building corals are confined to waters that exhibit a narrow band of characteristics. The water must be warm, clear, and saline. These waters are almost always nutrient-poor as well. Physiologically and behaviorally, corals have evolved to take advantage of this unique environment and thrive.

Not only are reef-building corals confined by a specific range of environmental conditions, but as adults, almost all of them are sessile. This means that for their entire lives, they remain on the same spot of the sea floor. Thus, reef-building corals have developed reproductive, feeding, and social behaviors that allow them to gain the maximum survival benefit from their situation.

REPRODUCTIVE BEHAVIOR

Over the eons many corals have evolved with the ability to reproduce both asexually and sexually. In asexual reproduction, new clonal polyps bud off from parent polyps to expand or begin new colonies. This occurs when the parent polyp reaches a certain size and divides. The process continues throughout the animal's life, forming an ever-expanding colony.

The nature of sexual reproduction among corals varies by species. About three-quarters of all stony corals form hermaphroditic colonies. These colonies have the ability to produce both male and female gametes. The remainder form gonochoristic colonies which can produce either male or female gametes, but not both. The sexuality of corals'; whether hermaphroditic or gonochoristic – tends to be consistent within species and genera, although there are exceptions.

As a predominantly sessile group of organisms, about three-quarters of all stony corals employ broadcast spawning to distribute their offspring over a broad geographic area. These corals release massive numbers of eggs and sperm into the water column. The gametes fuse in the water column to form planktonic larvae (planulae). A moderately-sized colony may produce up to several thousand planulae per year. Large numbers of planulae are produced to compensate for the many hazards they inevitably will encounter as they are carried through the water. The time between planulae formation and settlement is a period of exceptionally high mortality among corals. In contrast, some coral species brood planulae within their bodies after internal fertilization. While spawning is associated with high numbers of eggs and planulae, brooding results in fewer, larger and better-developed planulae.

Planulae swim upward toward the light (positive phototaxis) to enter the surface waters and be transported by the current. This behavior is observed not only in nature but in laboratory experiments as well. After floating at the surface for some time, the planulae swim back down to the bottom, where, if conditions are favorable, they will settle and begin a new colony. In most species, the larvae settle within two days, although some will swim for up to three weeks, and in one known instance, two months.

Once the planulae settle, mortality rates drop steadily as they metamorphose into polyps and form colonies which increase in size. The new colony becomes sexually mature at a minimum size, depending on the species. Some massive species, like Favia doreyensis, reach sexual maturity when polyps grow to about 10

cm in diameter, which occurs when they are about eight years old. However, some faster-growing, branching corals, including species of Acropora, Pocillipora, and Stylophora, reach sexual maturity at a younger age.

SPAWNING EVENTS

Among sessile corals, the timing of the mass release of gametes into the water column (broadcast spawning event) is very important because males and females cannot move into reproductive contact. Spawning species must release their gametes into the water simultaneously. Because colonies may be separated by wide distances, this release must be both precisely and broadly synchronized, and is usually done in response to multiple environmental cues.

The long-term control of spawning (control of the maturation of gonads) may be related to temperature, day length and/or rate of temperature change (either increasing or decreasing). The short-term (getting ready to spawn) control is usually based on lunar cues. The final release, or spawn, is usually based on the time of sunset. Cues also may be biological (involving chemical messengers) or physical.

Brooding species can store unfertilized eggs for weeks, and thus, require less synchrony for fertilization. Spawning species require synchrony within a time frame of hours. This regional synchrony varies geographically. In Australia's Great Barrier Reef, more than 100 of the 400 plus species of corals spawn simultaneously within a few nights during spring or early summer. Studies have shown that coral species can form hybrids through mass spawning. Such observations have led to the theory of reticulate evolution whereas modern coral species came about not through the separation of new species along different lineages, but rather through a continual process of separation and fusion.

In western Australia and the Flower Garden Banks of the northern Gulf of Mexico, spawning occurs in late summer or fall, and not necessarily simultaneously. In the northern Red Sea, none of the major coral species reproduce at the same time. In addition, individual corals do not necessarily breed every year. Evidence indicates that slow-growing, longer-lived corals are less likely to spawn every year than faster-growing, shorter-lived species.

FEEDING BEHAVIOR AND REEF PRODUCTIVITY

The unique mutualism between hermatypic corals and their photosynthetic zooxanthellae is the driving force behind the settlement, growth and productivity of coral reefs.

Zooxanthellae are photosynthetic, single-celled dinoflagellates, living in the endodermal tissues of stony corals polyps (intracellularly). Often, zooxanthellae are concentrated in the polyps' gastrodermal cells and tentacles. Deep water and some cold water corals lack zooxanthellae, but virtually all reef-building corals possess them.

During photosynthesis, zooxanthellae "fix" large amounts of carbon, part of which they pass on to their host polyp. This carbon is largely in the form of glycerol but also includes glucose and alanine. These chemical products are used by the polyp for its metabolic functions or as building blocks in the manufacture of proteins, fats and carbohydrates. The symbiotic algae also enhance the coral's ability to synthesize calcium carbonate.

Because of their intimate relationship with zooxanthellae, hermatypic corals respond to the environment in many ways reminiscent of plants. As a result, the distribution and growth of corals is strongly light-dependent, as is the overall growth of the reef. The vertical distribution of living coral reefs is restricted to the depth of light penetration, which is why most coral reefs dwell in shallow waters, ranging to depths of approximately 60 to 70 meters. The number of species of hermatypic corals on a reef declines rapidly in deeper water; the curve closely follows that for light extinction.

Because of their dependence on light, reef corals require clear water. Thus, coral reefs generally are found only where the surrounding water contains small amounts of suspended material, i.e., in water of low turbidity and low productivity. Thus, corals prefer waters that are nutrient-poor, yet paradoxically, are among the most productive of marine environments.

Although the zooxanthellae supply a major part of their energy needs, most corals also require zooplankton prey. With some exceptions, most corals feed at night. When capturing food particles, corals feed in a manner similar to sea anemones. Polyps extend their tentacles to capture prey, first stinging them with toxic nematocyst cells, then drawing them toward their mouths. In addition to capturing zooplankton, many corals also collect fine particles in mucous film or strands, which are drawn by cilia into the polyp's mouth. Some species are entirely mucous suspension feeders, such as the foliaceous ("leafy") agariciids, which have few or no tentacles. Prey ranges in size from small fish to small zooplankton, depending on the size of the coral polyps.

Prey supplies the coral and its zooxanthellae with nitrogen, an element essential to both organisms, but one that is not produced in sufficient amounts by either. The symbiotic relationship between corals and zooxanthellae facilitates a tight recycling of nutrients back and forth between the two.

The degree to which the coral depends on zooxanthellae is species-specific. Branching corals appear to be more self-nourishing (autotrophic) than some of the massive corals, largely because the multi-layered growth form of branching corals allows for a greater surface area to intercept light both horizontally and vertically. This enables corals to make maximal use of both incident and scattered light. In addition to these skeletal modifications, the polyps of branching corals tend to be small, thereby exposing the maximum area of zooxanthellae to light.

Corals that must obtain nourishment from outside sources (heterotrophic) typically are spheroidal and have a single-layered skeletal structure. Less plant material exists in the thicker tissues of massive corals as well. Heterotrophic corals possess thicker, larger polyps that allow for the capture of more plankton. Their form also maximizes the surface area of plankton-intercepting tissue.

The data on the amount of energy that corals derive autotrophically and heterotrophically are uncertain. However, estimates project that the proportion of energy ultimately derived from photosynthesis ranges from over 95% in autotrophic corals to about 50% in the more extreme heterotrophic species.

Evidence suggests that the phenomenally high productivity found on coral reefs is a complex function of the combination of efficient light capture mechanisms and nutrient recycling, as well as hydrodynamic processes.

COMPETITIVE BEHAVIOR

Corals require free substratum for settlement and free space for growth. Stony corals use two basic strategies to compete for space: indirect encounters (overtopping) and direct interactions (aggression).

An overtopping strategy is used most often by fast growing species. For instance, stouter, slower-growing corals are sometimes at a competitive disadvantage when they coexist with branching corals, which, by virtue of their upright, faster growth, gradually overtop their neighbors. The effects of overtopping are indirect. Underlying corals suffer light deficiency and come into contact with fewer food particles. Shaded from the necessary light, the overgrown species may die eventually, and recruitment of new colonies may be prevented, leaving a pure stand of branching corals.

Such a situation was observed on the Great Barrier Reef, where sequential photographs were taken over several years. Branched colonies of Acropora gradually extended over colonies of massive Montipora. When some of the Acropora branches were broken off in a hurricane, the underlying portions of the stouter colonies were dead.

In some situations, however, the fast, continued growth of branching corals may lead to their own demise. If environmental conditions allow

it, branching coral colonies can become overcrowded and die, and eventually are overgrown by another species.

AGGRESSIVE BEHAVIOR

While fast-growing corals often employ overtopping competitive strategies, other aggressive behaviors often are used by slow-growing species. One type of aggressive behavior involves the use of extruded digestive filaments and sweeper tentacles. Typically, an attack by an aggressive coral on a subordinate neighbor will result in the death of some of the subordinate's polyps.

Such behavior, however, also may allow for the coexistence of fast and slow-growing species. In an experiment conducted on Jamaican coral species in the early 1970s by Judith Lang, two coral species were placed adjacent to each other. The corals extruded digestive filaments orally and through temporary openings in the polyp walls. Usually, one species exhibited more aggression than the other, and its filaments penetrated the adjacent polyp walls of the subordinate species. Within 12 hours, the tissue of the subordinate species in contact with the aggressor's filaments was completely digested, exposing the underlying skeleton. Though larger subordinate colonies suffered only local loss of tissue, colonies less than 3 cm in diameter perished after the attack.

Lang's experiments also revealed that each coral species attacked only certain species, and each was attacked itself by certain other species, suggesting an "aggressive pecking order" among the corals. Results suggested that the slow-growing massive corals belonging to the families Mussidae, Meandrinidae, and Faviidae were the most aggressive species. The fast-growing, branching acroporid corals were intermediately aggressive, and the foliose agariciids, also quick growers, were the least aggressive. Aggressors may attack more than one subordinate at a time, and intermediately aggressive corals may attack a less aggressive coral even while being attacked on another side by a more aggressive coral.

Thus, it appears that at least on Jamaican reefs, fast- and slow-growing coral species can coexist because the speed at which branching corals grow is balanced by the aggressive nature of massive corals.

However, such a balanced competitive environment is not universal among reef ecosystems. Monospecific stands of corals do exist, and this may be due to a species being relatively fast growing while also aggressive. Other factors like spatial position, size and biological and physical disturbances also influence the outcomes of competition. These local processes, in addition to regional ones, contribute to the formation of species-diverse assemblages or a reef dominated by one or a few species.

The coral reefs off the Pacific coast of Panama illustrate a low species diversity reef and the complex species interactions that can occur. The shallow reefs are dominated by species of fast-growing, branching Pocillopora. Species of the slow-growing, massive Pavona dominate in deeper waters. In the field, the distribution of scars left by tentacle encounters between neighboring corals suggests that Pocillopora is dominant over Pavona. However, in laboratory experiments, Pavona can damage the tissues of Pocillopora within 12 hours of tissue contact.
Fortunately, long-term experiments have explained the paradox. After placing Pocillopora and Pavona together on the reef, within two days Pavona extends its mesenterial filaments and kills the adjacent tissues of Pocillopora. Pavona then retracts its mesenterial filaments, and algae quickly cover the bare areas of Pocillopora skeleton. One to two months later, tissue regenerates over the bare patches, and the polyps on the peripheral branches of Pocillopora adjacent to Pavona convert some of their feeding tentacles into very elongated "sweeper" tentacles that sway passively in the surge, frequently dragging over the Pavona colony.

Contact with the sweeper tentacles damages or kills the affected Pavona tissue. The exposed skeleton is rapidly colonized by filamentous algae and later by encrusting coralline algae that prevents further contact between the two corals. The sweeper tentacles of Pocillopora contract and resume their normal feeding function. Gradually, the faster-growing Pocillopora overtops the Pavona.

It is unclear why Pavona does not retaliate by extending its mesenterial filaments to counteract Pocillopora sweeper tentacles. Some researchers suggest that the sweeper tentacles are more powerful than the mesenterial filaments. Though previously thought to be used only for intercepting zooplankton, sweeper tentacles are structurally similar to the special tentacles of sea anemones that are used for aggression between clones.

DISTURBANCES

In addition to indirect encounters (overtopping) and direct interactions (aggression), the competitive advantage of one stony coral species over another may be affected by natural disturbances. Physical disturbances and predation can remove members of a community's dominant competitors, thus enhancing species diversity. However, disturbances do not necessarily increase species diversity. For instance, if a predator prefers a subordinate species, competitive exclusion is enhanced. Any kind of disturbance that disrupts the process of competitive exclusion, but does not eliminate competitors, will promote coexistence.

Finally, corals must contend with other competitors like soft corals and algae for reef space. Disturbances such as catastrophic low tides, predation and grazing affect the availability of space. Sea urchins and herbivorous fish prevent algae from monopolizing space. Soft corals can be overtopped by stony corals, but their rapid growth and distastefulness to many predators allow them to rapidly colonize any newly-opened space.

HAITI **EARTHQUAKE** AND **CORAL REEFS**

FEATURE **REEF CHECK EXECUTIVE DIRECTOR DR. GREGOR HODGSON**
PHOTOGRAPHY **KRISHNA DESAI**

The earthquake in Haiti has been a huge tragedy with perhaps 200,000 lost and many more injured. What has not been discussed is the status of coral reefs in Haiti. Were they damaged by the earthquake, and if so will this affect the long term food supply for Haitians? Long time Transect Line readers will recall the dramatic earthquake and tsunami that affected Aceh, Indonesia and many other countries in late 2004. Reef Check was the first conservation organization on scene and sent back the first photos **(http://www.reefcheck.org/news/news_detail.php?id=49)** of tilted islands and large areas of exposed dead reef.

The problem in Haiti is that very little is known about the reefs. Reef Check has been partnering with a local conservation group in Haiti since 2005 and was preparing for field surveys and training when the earthquake hit. Haiti's reefs have a large potential to help supply protein to the hungry population.

Haiti occupies the western half of Hispaniola Island with a population of over 9 million (25% of the Caribbean). It is the poster child of poverty in the western hemisphere with a per capita GDP of $1300, and environmental degradation. 80% of Haitians live under the poverty line and 54% in abject poverty with 70% of the labor force lacking regular employment.

Fringing coral reefs are found along most of the 1829km long coast with a barrier reef in the north. Very little is known about Haiti's coral reefs. Reef Check surveys carried out in 2002 with the help of RC Jamaica indicated that despite heavy impacts, coral reefs in the Arcadine/La Gonave area were still in relatively good condition with up to 50% cover, and included large stands of the endangered Elkhorn Coral, Acropora palmata.

The Reefs at Risk in the Caribbean (2004) by World Resources Institute rated all the reefs around Haiti to be threatened by human activities especially overfishing, poison fishing, watershed-based sources of sediment and pollution. Extensive land clearing and poor agricultural practices have led to dramatic erosion problems threatening over 90% of the reefs. Haiti's coastal resources are the most heavily exploited and poorly managed in the Caribbean, but are the main source of livelihood and sustenance for an estimated 30,000 fishers and their families. Fish also provide 50% of the protein for Haitian people. Fishers target mainly lobster, conch, and reef fishes using spearfishing, light fishing at night, and poisons (chlorine). Many of these activities are illegal, but law enforcement is limited. Without any conservation training or Marine Protected Areas, Haiti will remain in a downward spiral of overexploitation of reefs and reduced ability of reefs to provide protein or employment.

In 2010, Reef Check will again partner with the Haitian NGO, Fondation pour la Protection de la Biodiversité and Reef Check Dominican Republic to implement a project to establish the first MPA in Haiti. Reef Check has a very strong coral reef monitoring and conservation program in the Dominican Republic, the other half of Hispaniola. RC DR is enthusiastic about assisting Haiti to improve marine conservation. RC DR is currently co-managing the La Caleta MPA near Santo Domingo so there will be good opportunities for cross-training.

If you would like to help Reef Check help improve reefs in Haiti so as to increase food supply and jobs, please consider a donation **(https://my.reefcheck.org/myaccount/make_donation.php)** to our Haiti program.

BU TINAH ISLAND: NO LONGER ABU DHABI'S BEST KEPT SECRET

FEATURE **LAILA YOUSEF AL HASSAN**

Aerial View of Dugongs around Bu Tinah Island - Copyright Sheikh Ahmed bin Hamdan

The UAE's environment is indeed a wonder of nature in itself. Repeat that statement to anyone and more often than not, you'll be met with an expression of silent amusement or disbelief. For starters, take the sea; our relationship with this force dates back to the Stone Age. It was linked to the very existence of people along the coast. Today, it is home to some of the most extensive seagrass beds in the world and to the globally endangered dugong. Moreover, take a look inland. It's difficult once you've experienced the stillness and felt the cool grains of sand between your fingers to not fall in love with our deserts.

However, as beautiful as they are, these wonders of nature aren't immune from their share of problems. Our seas are plagued with over fishing and pollution. Our deserts are so strewn with litter and construction debris and threatened by the race for development that one can't help but think that one day it won't just be footprints in the sand that we will watch disappear.

Nevertheless, 130 km west of Abu Dhabi, is a little known island that is as wild and undisturbed as they get in our region. Imagine an island with shallow sparkling blue waters and sandy beaches, visited by critically endangered wildlife, musical with birdsong and remote from the bustle of human habitation. Add colorful coral reefs and 7-meter high mangrove trees to that picture and you'll start to get an idea of the peace and beauty of Bu Tinah Island.

Unsatisfied with just hearing about this island, we set off to discover Bu Tinah for ourselves. The island remains closed off to the general public, in order for it to remain an undisturbed haven for wildlife, and so we felt privileged to be of the lucky few allowed to visit it. After a painfully early departure from Abu Dhabi city and still dizzy from the boat ride from Al Mirfa, we pulled onto the island. And soon enough, the beautiful scenario described previously became our reality for the next two days. Hot tea whipped up by our trusted Biosphere Reserve Rangers in hand, we spent the morning discovering the island. Its sights and its sounds overwhelmed me and I couldn't help but have that unavoidable emotional moment. I felt proud that the organization I work for, the Environment Agency – Abu Dhabi has defied the odds and managed to protect this island so far.

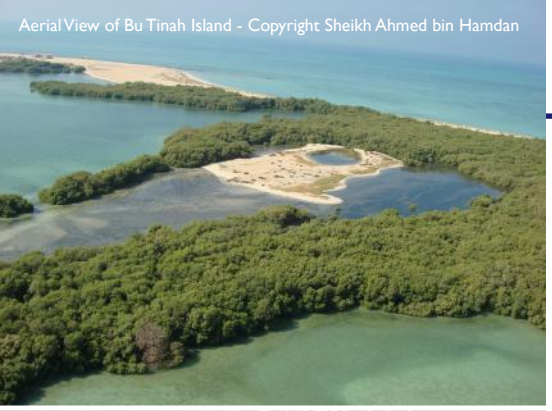
It's winter and so we were not the only ones enjoying the island. The spectacular Osprey, an expert fisher, had already set up its impressive nest and was ready to breed. Perhaps the most interesting fact about the Osprey has to do with one of its toes! It is completely reversible and the osprey can turn it backwards and forwards. But what we found most remarkable is that the male often arrives a few days ahead of the female to take care of 'business' and do all the fishing in preparation for her. When Autumn arrives, these birds fly away to various destinations including Oman.

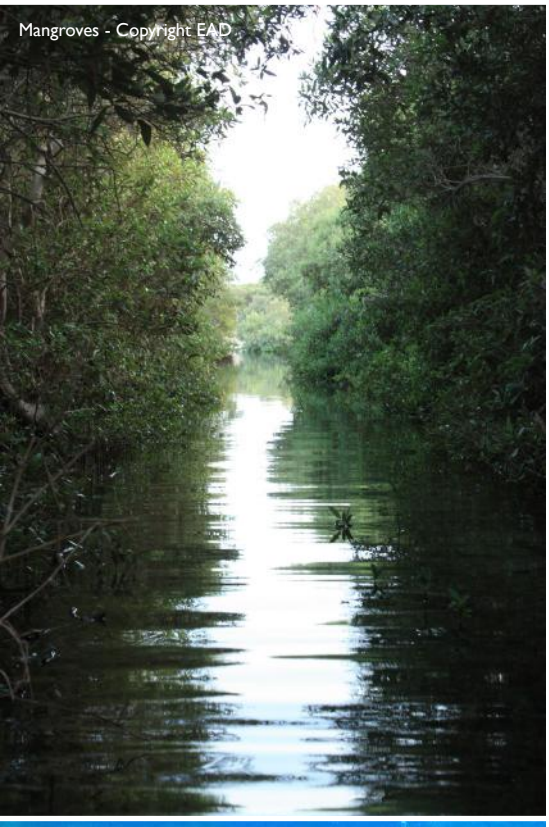
Bu Tinah is an important roosting site for around 25,000 globally threatened Socotra cormorants and the surrounding waters provide enough fish for all of them. Specialists in diving deep in search of food, these birds have the amazing ability to accurately control the depth at which they swim. The island's waters also host the world's second largest population of dugongs, a shy harmless marine mammal that is globally threatened.

As we continued to explore the island on foot, we came across two graves submerged in the intertidal zone. An uncomfortable silence overcame the group but was quickly broken by our questions. We were told they were old graves that may have belonged to pearl fishermen. These were probably fishermen who sacrificed their lives at sea by the turn of the twentieth century, when the UAE was gaining a reputation for producing some of the best natural pearls in the world.

Bu Tinah Island is quickly attracting the world's attention, as it should. It is a core area of the Marawah Marine Biosphere Reserve, which is managed by the Environment Agency – Abu Dhabi (EAD), and was the first marine biosphere reserve in the region to be recognized by UNESCO. The Island is considered a miracle of nature because in spite of the UAE's harsh temperatures and salinity, its habitats and species remain healthy.

Competing against the likes of the Galapagos Islands and the Great Barrier Reef in an international poll to become one of the


Aerial View of Bu Tinah Island - Copyright Sheikh Ahmed bin Hamdan


Mangroves - Copyright EAD


Dugong - Copyright Yusuf Thakur


Socotra Cormorants - Copyright EAD


Flamingos - Copyright EAD

New 7 Wonders of Nature, Bu Tinah stands a winning chance because of what it can teach us about environmental protection and survival. Its thriving habitat and species have formed a unique living laboratory with key significance for climate change research. In early 2010, the Environment Agency – Abu Dhabi (EAD) launched a regional campaign to raise awareness about Bu Tinah Island and drive people to vote for it as one of the New 7 Wonders of Nature.

As I set my gaze on the sun setting on Bu Tinah, with good friends by my side, I watched the cormorants fill up the horizon. The view is majestic and the serenity of the place broken by the sounds of a few stirred up ospreys. I felt so far removed from the craziness of the world. And that experience in itself gets my vote every time.

WHY SHOULD YOU VOTE FOR BU TINAH ISLAND?

1. CORAL REEFS

They have tolerated our high temperatures, making them a living laboratory for global climate change studies. They are extensive and mainly consist of hard corals.

2. SEAGRASS & SEAWEED

Three species of seagrass and over 21 species of marine algae are found around Bu Tinah. These aquatic meadows provide food for a variety of marine wildlife, including globally endangered sea turtles and dugongs. They also supply shelter to a number of smaller sea animals.

3. MANGROVES

A long stretch of natural mangrove trails along the backwaters of Bu Tinah. Mangroves are among the most fertile and productive ecosystems on the face of the Earth. They act as feeding or breeding grounds for a variety of birds and marine life.

4. DUGONG

The shyest character of the island is definitely the dugong, a gentle and graceful marine mammal also known as the Sea Cow. Abu Dhabi hosts the second-largest dugong population in the world! (the majority of which are found in the waters surrounding Bu Tinah Island). Dugongs have found Bu Tinah to be an ideal natural sanctuary for them because of the extensive seagrass meadows and the prohibition of human activity.

5. TURTLES

Every year, the stunning and critically endangered Hawksbill turtle returns to nest on Bu Tinah. Annual monitoring has revealed a high number of foraging green and hawksbill turtles.

6. BIRDS

Several bird species take refuge in the winter on Bu Tinah because of the abundant availability of food in its shallow waters. It is an important stopover site for migratory birds and breeding site for the Osprey, the Western-reef heron, the Bridled tern, the White-cheeked tern and the Greater flamingo. In addition, it is a roost site for the Socotra cormorant, supporting approximately 20,000 to 25,000 birds.

7. FISH

The Orange-spotted grouper, the Spangled emperor and the Sordid sweetlips are year-round resident fish species in the waters of Bu Tinah. Higher temperatures during the summer months cause species such as the Two-bar seabream and the Orange-spotted trevally to escape to deeper waters, returning to the island in September.

8. DOLPHINS

At least three species of dolphin are found around the island. Indo-pacific humpback dolphins are observed close to the island while Common dolphins are seen in deeper waters; Bottlenose dolphins are encountered in the island's deep and shallow waters.

9. INVERTEBRATES

Inter-tidal and sub-tidal areas of the island are rich in invertebrates such as crabs, insects, worms, jellyfish and mollusks, playing a crucial role in the coastal food chain. A wide variety of shoreline birds including the flamingo feed on these invertebrates.

هيئة البيئة - أبوظبي
Environment Agency - ABU DHABI

HOW TO VOTE FOR BU TINAH ISLAND

Vote by Telephone!

1. Dial +448721840007
2. At the end of the message, enter the Bu Tinah nominee code 7705.
3. If you have voted successfully, you will hear a 'Thank You' message.

Vote by SMS! (UAE Only)

SMS the word 'Bu Tinah' to 3888.
Each SMS costs AED 2 only and you can vote as many times as you like.

Vote Online!

1. Go to www.vote7.com
2. Click on the 'Vote Now' icon
3. Choose your 7 wonders by clicking next to the photos of your choice.
4. Click on Continue to Step 2
5. Fill in your personal information and click the box that states you agree with all terms and conditions.
6. Click on Sumit Your Vote
7. You will receive an e-mail from info@vote7.com. Click on the link in the e-mail to confirm your vote.

Note: Only one vote is allowed per e-mail address.

A **S.A.F.E.R.** WAY TO SAVE YOURSELF

FEATURE **SARA-LISE HAITH**

Wassim Al Zein owns a spearfishing store and would like to see the introduction of more safety gear in the UAE

Arthur C. Clarke famously quoted "How inappropriate to call this planet 'Earth', when it is clearly 'Ocean'". Freediving and spearfishing are captivating sports that allow humans to become participants in the Ocean which occupies some 70% of our Earth.

While land hunters of the wild are equipped with 4 x 4 vehicles, Global Positioning Systems, and quite often native residents who are experienced trackers of animals which allow hunters to pin point the location of the desired target, the spear fisher simply has to sit, wait, watch, and hold his or her breath until an immense desire to breathe kicks in. An immediate ascent to the surface to capture some welcome breaths of air are required, and often enough the spear fisher drags along a 50 kilogramme catch, or larger. During the waiting process, commonly known as aspetto, the spear fisher slowly consumes all the available oxygen that he has drawn in during one huge gulp of air, and upon the ascent, uses up considerably faster the remaining O2. With planning, experience in calculation and gradual training, the diver reaches the surface safely to able to display later in the day photos of the catch on the next visit to Spearboard.com, or drag it down to the fish market for sale, or simply, surprise the family with a delicious feast.

It is however during this moment of the ascent where the international dilemma of a Freediver may start to come into play; it is the fine-line between a possible over-stay at depth and having correctly timed the dive to reach the surface safely, without the experience of a Loss of Motor Control at the surface or even a shallow water blackout. A simple error in calculation or an over-estimation of one's physical capacity or just the mere ignorance of physical warning signs due to the over-powering allure of a rather large and tasty fish can lead a diver tragically to a sub-aquatic Nirvana from where he may never surface. The result, a tragedy, for family and friends, and perhaps a premature departure or a wasted life.

Not many sports leave the athlete in question more responsible for his actions and risk than spearfishing. All other terrestrial or marine sports have all sorts of safety paraphernalia for personal protection. There are braking systems, safety boots, crash helmets, fireproof suits, bullet proof vests, knee pads, shoulder pads, elbow pads, and even a spare chute for that unlucky sky diver. With continued play or practice of these sports, with use of safety gear, there is a reduced degree of harm and the outcome may be an "injury" as opposed to a "fatality".

Even scuba divers have a greater chance of survival, with spare air below available from a buddy (provided the scuba diver dives responsibly with a buddy), and the chance of drowning is minimized in case of equipment failure.

The freediver or spear fisher has only one recourse for breath, which is the surface. There is no greater sight that the lightening of the blue from the darker depths to the glittering sparkles of sunlight on the water's surface which sends a message to the diver saying "you are almost there".

There are a million emotions and experiences felt by a freediver, from his first excursions to the sea. However there is no single description for the emotion felt when one's spearfishing buddy is found floating face down on the bottom with his float and spear gun still attached. And I say the BOTTOM, as spearfishers rarely float due to their weight systems dragging them down. This person, who has fallen victim to a blackout, is an unfortunate regular statistic in the spearfishing world. More unfortunate also is the breaking of the news to the family and loved ones.

It is surprising that large manufacturers of freediving and spearfishing equipment have not developed a safety device which could be promoted alongside that shiny new spear gun. It is almost like manufacturing a car without an air bag or seat belts, a regulator system without an "octopus" or rock climbing without ropes. All these are safety devices that will assist you in the event of something going wrong. Often enough, things go wrong that you are not necessarily prepared for in a single moment.

A solution for freedivers and spearfishers has been developed by Cuban/Canadian spear fisher and underwater hunter Ricardo G. Hernandez who began freediving and spearfishing in 1964. He was trained as an Underwater Combat Swimmer and was winner of the First Cuban Armed Forces National Spearfishing Championship in 1966. He was also a member of the Cuban World Champion Team in 1968. He holds a number of record experiences including being a Member of the assisting safety team for Enzo Maiorca's No Limits record of 64 meters in Cayo Largo, Cuba, 1967, winning the National Cuban Spearfishing Champion First Category


Enzo Maiorga Ascending Inflatable Device


S.A.F.E.R. Prototype Vest


Mechanism in Stand By (Compressed position)


S.A.F.E.R. Mechanism in released position - inflation

in 1968, 69 consecutively, having won all the previous classification competitions in an unprecedented occurrence.

More importantly, he is the developer of the US Patent 5,800,228 in September 1998 for the invention of a "Permanently Wearable Free Diver Self Rescuing System" a unique self-rescue device named S.A.F.E.R. (Shallow Water Blackout Anti-Unconsciousness Failsafe Retrieving-System), for which he is currently seeking investors for manufacturing. It is a patented system of self-rescue for spear fishers and freedivers.

The developer of S.A.F.E.R, Mr. Hernandez, says that he understands the necessity of an apneist (freediver) to don safety equipment that will not hinder his movement or streamlining capacity, or obstruct any of his physical actions during the hunt. It would need to be a system that would provide him with a life jacket that could be adapted to his exposure suit, and that it would inflate automatically when he loses conscience during a precarious or dangerous ascent. At the same time, it would guarantee the underwater hunter his positive buoyancy on the surface, even though the diver would be in an unconscious state, his floating position would be with his head visibly above water leaving the possibility him sinking again or involuntary aspiration of water difficult. This would then avoid him from consequent drowning. The diver could also have the gear in 'stand-by" during a difficult ascent and should he feel that it is not required and he can reach the surface safely, he could cancel the inflation action.

There is also another possible use of the voluntary inflation mechanism of the SAFER. If the diver wanted a guaranteed ascent to the surface after exceeding his maximum operating depth, or when he finds himself in different scenarios like piercing himself on an urchin or injuring his leg, inhibiting an efficient swim kick, he could use the device to surface without using excessive energy or exertion.

S.A.F.E.R. is an acronym which stands for "Sistema Permanente Automático de Recuperación de Emergencia y Rescate", which roughly translated means Automated Fixed System of Emergency Recovery and Rescue. The S.A.F.E.R. is the result of many years of study by Hernandez. He has undertaken numerous analyses and experiments to develop this model of life preserver.

It is basically composed of two elements, a specialized low volume jacket made of isothermal material and an inflation system made of three modules in a capsule of compressed CO2. The inflation mechanism of the S.A.F.E.R. is a small trigger which can be connected directly to the inflatable jacket. It is ergonomically designed with a small handle which can be pressed with the palm of the hand which then pierces a needle into the capsule. What is quite innovative is that this action does not initially completely perforate the capsule as long as the hand keeps up the pressure. If the diver loses conscience, the hand relaxes and the automated system kicks in and the jacket will automatically inflate.

See the two photos which show the principle test used to demonstrate the concept of this mechanism.

If the spear fisher gets to the surface without losing consciousness, there is a reset button (see circled diagram) by which the action of inflation can be cancelled. This is done by a simple thumb movement.

The S.A.F.E.R. comes with 4 filled and rechargeable capsules which can be attached to the weight belt system and can be refilled multiple times.

Hernandez comments on the current existing models on the market which are activated by pulling on a string (like those seen on aircrafts). He says that this system does not really meet the needs of a spear fisher as the inflation mechanism needs to be activated consciously whereas blackout is often unanticipated and inflation needs to be automated. The advantage of the S.A.F.E.R. system is once the first stage is activated, loss of consciousness or blackout will result in weakening of muscles, and the system is automatically inflated. If the diver hopes or assumes that he will reach the surface he will not pull the cord or will doubt its necessity and the possible blackout is surprising and often devastating.

False expectations often increase the risk of drowning. Also, the simple fact that only one capsule is available in other life jacket systems means that in the event of use it would preclude the spear fisher from the privilege of his safety for the rest of the day's diving.

Various world champion competitive freedivers have used similar systems to guarantee their safe return to the surface. The most famous system is the one used for No-Limits diving such as Pipin Ferreras, Umberto Pellizzari, the late Jacques Mayol and Tanya Streeter. Jacques Mayol also used an inflatable jacket with a pull-cord activator, during his time which was a one-time use and had to be re-inflated on the surface. This is a proven method of guaranteed ascent, available to all divers and not just the champions. See an early photo of Enzo Maiorca using his "back mounted inflating surfacing device", which is portrayed quite well in the famous freediving film "The Big Blue".

In the wise of Ricardo Hernandez, "If you had one opportunity, even if it were just one occasion, where you needed it and did not have it…you would never need it again."

For more information regarding sales of this item contact Sara-Lise at **diva@divasindubai.com** or alternatively contact Rick Hernandez via his website **www.divesafer.com**.

EDA CELEBRATES 15 YEARS

EDA VISION:
'To have a rich and sustainable marine ecosystem for the future generations'

EDA MISSION:
- to preserve, conserve and enhance the marine ecosystem for the future generations
- to preserve, conserve the diving heritage and pearl diving in the UAE
- to create an awareness of the benefits of preserving, conserving and enhancing the marine environment,
- to balance the exploitation of natural resources without destroying the ecological balance of the marine environment
- to coordinate the establishment of best practises rules and regulations related to the marine environment
- to pursue the enforcement of the established laws of the land related to the marine environment
- to educate the new generation of the importance of preserving, conserving and enhancing the marine environment

EDA PROFILE:
EDA was initiated in 1995 by the instructions of H.H Sheikh Zayed Bin Sultan Al Nahyan, late President of the United Arab Emirates, who felt the importance of diving and the need to protect the UAE marine life from further destruction and pollution.

EDA's objective is to prevent destruction of the Marine Environment by promoting sustainable management of natural marine resources, raising public awareness, encouraging community participation and conducting environmental monitoring.

EDA MAIN PROJECTS:
- Coral Reef Awareness & Monitoring Project (CRAMP)
- International Year of the Reef (IYOR) celebration
- Mooring Buoys Project
- Dive Middle East Exhibition (DMEX)
- Clean Up Arabia
- Heritage & Pearl Diving Awareness Project
- EDA Social
- EDA Magazine

CORAL REEF AWARENESS & MONITORING PROJECT (CRAMP)
EDA's CRAMP constitutes local participation in ongoing global reef conservation efforts through Reef Check, a volunteer conservation organization active in 82 countries and territories worldwide. CRAMP involves the training of volunteers in specialty diver courses to conduct surveys of the UAE reefs. The data collected is sent to Reef Check for inclusion in worldwide conservation studies and efforts.

INTERNATIONAL YEAR OF THE REEF (IYOR)
One of CRAMP's prime objectives is raising awareness about coral reefs. This is why EDA recently signed up as the UAE focal point for IYOR, in collaboration with the International Coral Reef Action Network (ICRAN), a United Nations-funded global network that is working to halt and reverse the decline of the health of the worlds' coral reefs.

EDA lined up several activities in celebration for IYOR, all of which were in line with CRAMP's objectives to promote awareness of the UAE coral reefs:

PRODUCTION OF IYOR MERCHANDISE
- Publication of printed materials (posters, stickers) on coral awareness/IYOR
- Coral reef awareness presentations to schools
- Presentations from coral reef experts to EDA members
- Promotion of the responsible tourism guidelines among UAE tourists through the EDA registered dive centers
- Promotion of IYOR in the EDA booth in the Dive Middle East Exhibition (DMEX)
- Production of an official "State of the reef status report"

MOORING BUOY PROJECT
EDA also promotes for the preservation of the UAE coral reefs through the installation of mooring buoys in various popular dive sites.

DIVE MIDDLE EAST EXHIBITION (DMEX)
EDA supports and promotes the UAE as a premier diving destination through DMEX which is organized by the Dubai International Boat Show in association with EDA. EDA-registered dive centres and retailers enjoy special exhibition rates and a dedicated space within the Boat Show to promote for their services.

CLEAN UP ARABIA
Clean Up Arabia, the annual voluntary campaign aimed at cleaning up debris and rubbish from the dive sites and beaches of the UAE, has been running for 15 years.

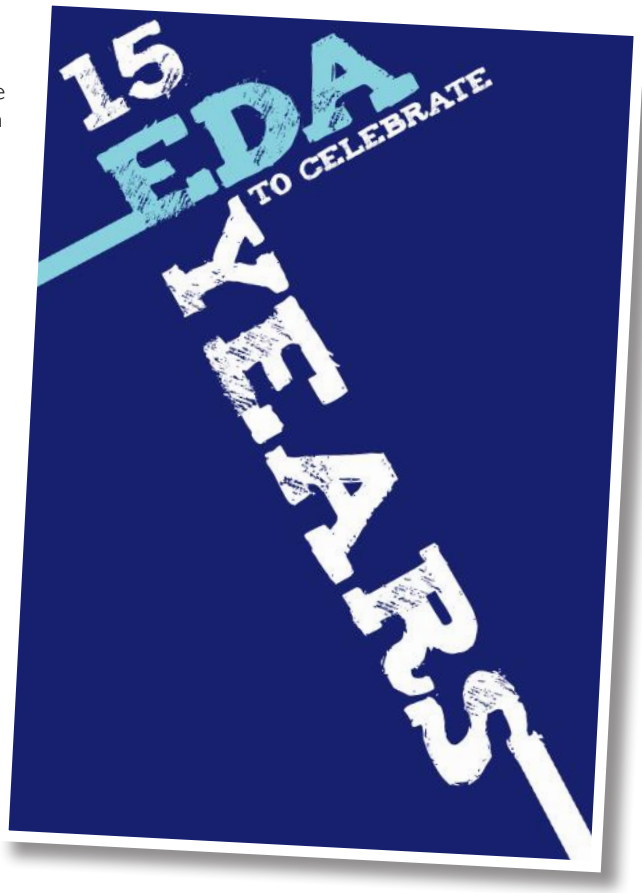
It is organized in collaboration with the United Nations Environment Programme - Regional Office of West Asia (UNEP – ROWA) and is backed by both the Australian 'Clean Up the World,' campaign and the US-based 'International Coastal Cleanup' and PADI PROJECT A.W.A.R.E.

Clean Up Arabia not only focuses in areas in the Emirates but is also simultaneously conducted in Oman, Kuwait, Bahrain and Qatar.

HERITAGE AND PEARL DIVING AWARENESS PROJECT
EDA contributes to the preservation of the traditions and history of pearl diving in the UAE by way of presentations, publications and pearl diving trips to enable the public to have a better understanding and appreciation of this cultural aspect of life in the UAE in the olden days.

EDA SOCIAL
EDA Social is an activity that may involve presentations or discussions of topics relevant to the diving community and EDA's environmentally-conscious members and supporters. The talks are led by individuals who are experts in their respective fields and aim to provide members the opportunity to gain knowledge on topics relevant to the diving community.

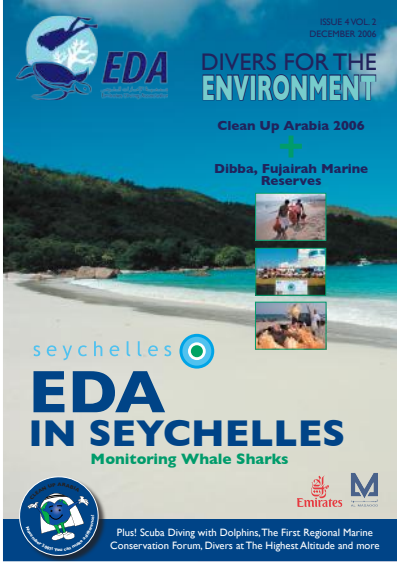
EDA MAGAZINE
EDA produces the quarterly magazine "Divers for the Environment" which is designed to update EDA members about the latest EDA activities, environmental issues and news and features relevant to the diving community.

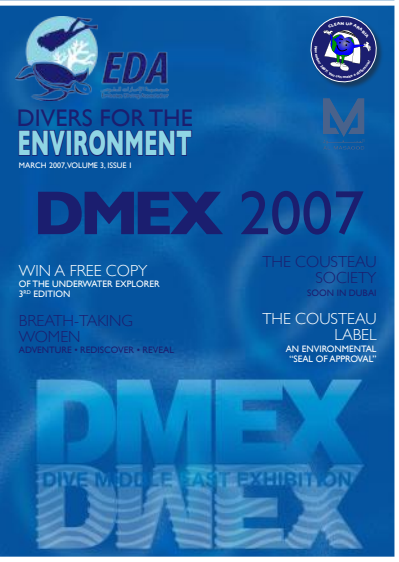



ISSUE 1 VOL. 2
FEBRUARY 2006
EDA
DIVERS FOR THE ENVIRONMENT
TOURISM MALAYSIA
MALAYSIA BORNEO
FROM CORALS, TO JUNGLE, TO MOUNTAINS
MAF Supports Local Diving Heritage
Plus! Ford Grants, Marine Environment, Equipment Choices, The Nature Network, Truly HDV and more

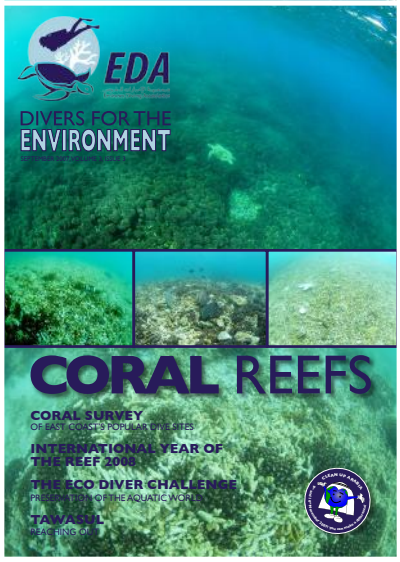

ISSUE 2 VOL. 2
MAY 2006
EDA
DIVERS FOR THE ENVIRONMENT
EDA SIGNS AN MOU
+
DIBBA RESEARCH CENTRE
SriLankan
SRI LANKA BENTOTA
Soaking it all up
HSBC Supports EDA's Marine Conservation Efforts for the 4th Year
Plus! Shell Supports EDA, Tadweer Recycling, Year of the Turtle, Anilao's Macro Charms, Upcoming Events and more

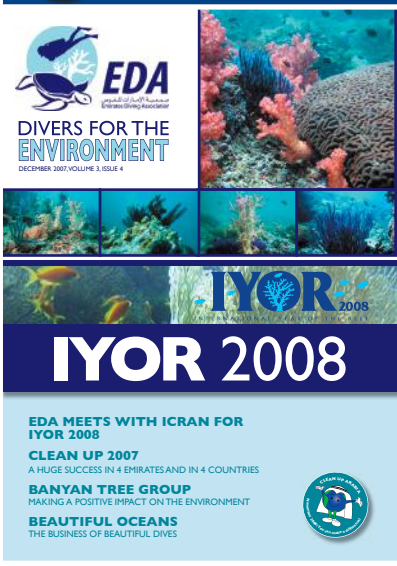

ISSUE 3 VOL. 2
AUGUST 2006
EDA
DIVERS FOR THE ENVIRONMENT
Preserving The Art of Pearl Diving
+
EDA Safety Committee
WIN
A FREE TRIP TO MALAYSIA
EDA
UAE DIVE GUIDE
Dive Our Waters
EDA Registered Dive Centers/Retailers/Clubs
Plus! Symposium on the Dugongs, Dream Diving The Seychelles Archipelago, EDA in Malaysia, Upcoming Events and more


ISSUE 4 VOL. 2
DECEMBER 2006
EDA
DIVERS FOR THE ENVIRONMENT
Clean Up Arabia 2006
+
Dibba, Fujairah Marine Reserves
seychelles
EDA
IN SEYCHELLES
Monitoring Whale Sharks
Emirates
Plus! Scuba Diving with Dolphins, The First Regional Marine Conservation Forum, Divers at The Highest Altitude and more


EDA
DIVERS FOR THE ENVIRONMENT
MARCH 2007, VOLUME 3, ISSUE 1
DMEX 2007
WIN A FREE COPY OF THE UNDERWATER EXPLORER 3RD EDITION
THE COUSTEAU SOCIETY
SOON IN DUBAI
BREATH-TAKING WOMEN
ADVENTURE • REDISCOVER • REVEAL
THE COUSTEAU LABEL
AN ENVIRONMENTAL "SEAL OF APPROVAL"
DMEX
DIVE MIDDLE EAST EXHIBITION


EDA
DIVERS FOR THE ENVIRONMENT
JUNE 2007, VOLUME 3, ISSUE 2
SUBIOS
UNDERWATER FILM & IMAGE FESTIVAL
THE DOW CHEMICAL COMPANY
DUBAI WHALE SHARK TAGGING STUDY
EDA CRAMP VOLUNTEERS
FIRST BATCH OF VOLUNTEERS FINISH TRAINING
DIVING DESTINATIONS

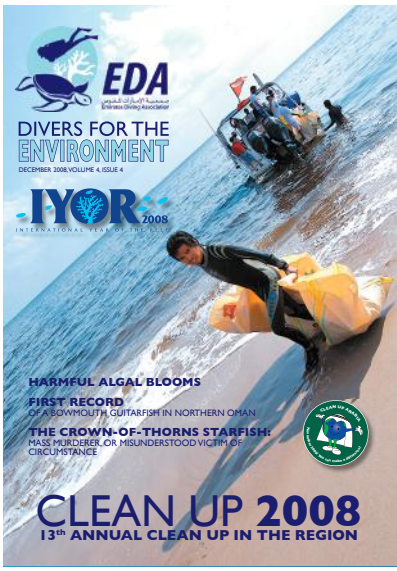

EDA
DIVERS FOR THE ENVIRONMENT
CORAL REEFS
CORAL SURVEY
OF EAST COAST'S POPULAR DIVE SITES
INTERNATIONAL YEAR OF THE REEF 2008
THE ECO DIVER CHALLENGE
TAWAKEL


EDA
DIVERS FOR THE ENVIRONMENT
DECEMBER 2007, VOLUME 3, ISSUE 4
IYOR 2008
IYOR 2008
EDA MEETS WITH ICRAN FOR IYOR 2008
CLEAN UP 2007
A HUGE SUCCESS IN 4 EMIRATES AND IN 4 COUNTRIES
BANYAN TREE GROUP
MAKING A POSITIVE IMPACT ON THE ENVIRONMENT
BEAUTIFUL OCEANS
THE BUSINESS OF BEAUTIFUL DIVES

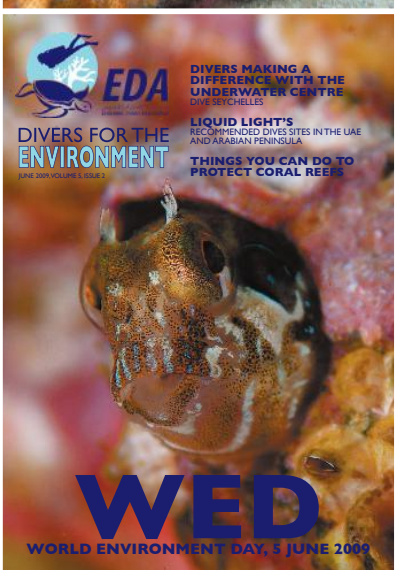

EDA
DIVERS FOR THE ENVIRONMENT
IYOR 2008
IS OFFICIALLY LAUNCHED IN THE U.S.
SCUBA DIVING COMMUNITY
SHOWS SUPPORT FOR IYOR 2008
EAD LAUNCHES CAMPAIGNS
TO ADDRESS MARINE DEBRIS PROBLEM
WHY DIVE FOR EARTH DAY?
DMEX 2008
DIVE MIDDLE EAST EXHIBITION
DMEX


EDA
DIVERS FOR THE ENVIRONMENT
JUNE 2008, VOLUME 4, ISSUE 2
IYOR 2008
THE PAVILION DIVE CENTRE
ECO DIVER CHALLENGE
SPILLING THE BEANS ON OIL SPILLS
IS THERE A FUTURE FOR MARINE TURTLES IN THE MIDDLE EAST?
DIVING IN DJIBOUTI
DISCOVERING A PART OF EAST AFRICA


EDA
DIVERS FOR THE ENVIRONMENT
SEPTEMBER 2008, VOLUME 4, ISSUE 3
IYOR 2008
SURVEY REVEALS OVERALL ENVIRONMENTAL AWARENESS
ADRENALINE SPORTS LIVE!
TO HOSE SEVERAL ADVENTURE FIRSTS IN THE MIDDLE EAST
CORALS JOIN FROGS AND TOADS AS WORLD'S MOST ENDANGERED
MABUL ISLAND
DIVING IN BORNEO IN THE STATE OF SABAH


EDA
DIVERS FOR THE ENVIRONMENT
DECEMBER 2008, VOLUME 4, ISSUE 4
IYOR 2008
HARMFUL ALGAL BLOOMS
FIRST RECORD
OF A BOWMOUTH GUITARFISH IN NORTHERN OMAN
THE CROWN-OF-THORNS STARFISH:
MASS MURDERER OR MISUNDERSTOOD VICTIM OF CIRCUMSTANCE
CLEAN UP 2008
13TH ANNUAL CLEAN UP IN THE REGION


EDA
DIVERS FOR THE ENVIRONMENT
MARCH 2009, VOLUME 5, ISSUE 1
CARBS AND FITNESS
YOUR CHOICE OF FOODS CAN AFFECT YOUR BODY'S RESPONSE TO DIVING STRESS
EXPEDITION NOTES: OMAN
NEW REEF CHECK BIOSPHERE EXPEDITION – MUSANDAM
STATUS OF CORAL REEFS OF THE WORLD: 2008
DIGITAL ONLINE
UNDERWATER PHOTOGRAPHY COMPETITION


EDA
DIVERS FOR THE ENVIRONMENT
JUNE 2009, VOLUME 5, ISSUE 2
DIVERS MAKING A DIFFERENCE WITH THE UNDERWATER CENTRE
DIVE SEYCHELLES
LIQUID LIGHT'S
RECOMMENDED DIVES SITES IN THE UAE AND ARABIAN PENINSULA
THINGS YOU CAN DO TO PROTECT CORAL REEFS
WED
WORLD ENVIRONMENT DAY, 5 JUNE 2009


EDA
DIVERS FOR THE ENVIRONMENT
SEPTEMBER 2009, VOLUME 5, ISSUE 3
HYPERBARIC CHAMBER
AVAILABLE FOR FREE FOR EDA MEMBERS
2ND MEDITERRANEAN FREEDIVING MEETING AND COMPETITION 2009:
GETTING DEEPER
WHALE SHARKS
MIGRATING THROUGH UAE WATERS
DIGITAL ONLINE
PHOTO COMPETITION RESULTS


EDA
DIVERS FOR THE ENVIRONMENT
DECEMBER 2009, VOLUME 5, ISSUE 4
DIVING AQABA
GARDENS OF LIGHT
SHARKQUEST ARABIA
CAN WE PREVENT THE DEMISE OF SHARKS?
MUSANDAM BIOSPHERE EXPEDITION
14TH CLEAN UP
ARABIA CAMPAIGN
ABU DHABI & FUJEIRAH

FREEDIVING IT'S NOT ALL WET!

FEATURE **DALE THOMPSON** PHOTOGRAPHY **SARA-LISE HAITH**

No it isn't. And it is not all about reaching great depths either, and it is most certainly not all about competing, not always. No doubt Luc Besson's Le Grand Bleu influenced us all, and without a doubt, it did expose the world to the extraordinary ability of freedivers. But it is not all about a weighted sled pulling one down to great depths.

Freediving is a lot more than the ability to hold ones breath and dive. It is about knowing and getting to know ones body, mind, spirit and the extraordinary mammal that we can be. We are air breathing mammals, just like Cetaceans, we too possess some of their amazing abilities, like the mammalian dive reflex, the ability to lower our heart rate (bradycardia), the blood shift which allows plasma to pass freely through the thoracic cavity, peripheral vasoconstriction which stops circulation to the extremities, concentrating it to the heart and brain. Like all these fascinating words, I learnt, I also had to learn how my body would go through them. I had to be taught what they were and how to use them. And so I learnt to awaken the aquatic side of being human. No it didn't come from reading Aqua Man comics, or watching Water World, or reading all I could about freediving, it came from training.

Like all sports, it's the training that makes you better. I had attended an AIDA 2 star course, run by Sara-Lise Haith, who is a freediving instructor in Dubai. I felt that since I'd been scuba diving for years, that it would be easy to progress to Freediver. I was far from it. Unlike scuba, freediving does not rely on equipment. There are no gauges that let you know when to do what. Freediving relies on YOU, on mastering your ability, knowing your warning signs, being able to understand them, control them and sometimes push them. I had to recognize what I was going through and why. I even had to learn to breathe properly, from the abdomen not the chest; apparently this is far easier done in women than men. Even relaxing (hard to do when you're really excited about what you're doing) and some categorize this as an extreme sport, and all you have to do is RELAX!

Freedivers train regularly, in order to keep these aqua abilities in tune. Some freedivers start training weeks before a dive some months, depending on what type of freediving you're doing, whether it's for competition or fun or just to challenge yourself. It's the training that lets the divers know their limits and what to push for, and not all of them are done in water.

DRY APNEA

Just what it sounds like, it's dry, yes it takes place on land. There are a variety of techniques used. One in particular is the Dry Apnea Walk. This usually involves a "breathe up" which is basically breathing to relax, to help slow everything down, followed by a minute breath hold while seated, and then without breaking the hold the diver gets up and begins to walk, until it becomes necessary to breath again. It has been recorded that divers can do up to 400 meters in training this way. This form of training is used to accustom muscles to work under anaerobic conditions; it also helps freedivers tolerate Co2 build up in their circulation. There is also the apnea run which I found to be quite exciting, pushing the body to use muscle that requires oxygen to function and still hold your breath, head spinning and that's one of the symptoms after the ordeal.

Another apnea technique involves exhaling all the air from the lungs, squeezing the diaphragm to empty out as much as possible from the lungs, and then begin walking. It starves the body until the need to breathe becomes unbearable, this actually helps stretch the lungs, and believe it or not your lungs are like those impossible balloons that you couldn't blow up, until you stretched them, allowing them to fill easily, in the same way your lungs need to be stretched to get the most out of them. Dizziness, the feeling of being light headed, blurred vision is all part of the training.

The idea is to prepare the body to recognize these symptoms, the build up of Co2 the feeling of air starvation, the need to breathe. The quicker a freediver recognizes them, the better prepared they will be to react to them avoiding threatening situations, such as deep and shallow water black outs.

Dry Apnea training is only one aspect to this sport, but a vital one, as you can see it helps to inform the diver as much as possible as to what to expect before the dive, what to work on and what are the limits. This sport is about limits, and about understanding them before you can break them. In a sense, freediving is a lot more than a breath of air and a plunge. It is a journey of self-discovery. It's not merely signing up for the course getting certified and you're done, it's an on going discovery of depths, not just in the blue, but within yourself.

It requires dedication, discipline, meditation, diet and as you know training and not all of it will get you wet.

"Visit us in Dubai international boat show 2010" booth No. C5-1"

GULF MARINE SPORTS

الخليج للرياضات البحرية
GULF MARINE SPORTS

SINCE 1998
AND BECOMING
THE NO`1
DIVE SHOP

"Deep"
Shop
For
Diving

ABU DHABI OUTLET
Tel. : (971-2) 6710017
Tourist Club Area,
10th Street,
Old Mazda Show Rd,
Opposite Fayrouz Supermarket
DUBAI OUTLET
Tel. : (971-4) 3039773
Mobile : (971-50) 4467956
SH. ZAYED RD,
3RD interchange,
KNOTIKA MARINE MALL.
United Arab Emirates
firas@gulfmarinesports.com
www.gulfmarinesports.com

BARE BEUCHAT UK TUSA PADI

FEATURED CREATURE

BONNETRAY, MAYLAN, SPOTTED EAGLE RAY

(Aetobatus narinari)

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

Local Species in the IUCN Red List 2009

RED LIST CATEGORY & CRITERIA: NEAR THREATENED

Scientific Name: Aetobatus narinari

Common Name/s: Bonnetray, Maylan, Spotted Eagle Ray

Notes: The wide-ranging A. narinari is most probably a species-complex comprising numerous forms across its range. Based on external morphology, colouration, parasite fauna and distribution there are likely at least four species of 'spotted eagle rays'. Revision of the species may show that there are indeed more forms. Molecular research is presently underway to help resolve this issue.

Geographic Range: Widespread in tropical and warm temperate waters.

Population Trend: Decreasing

Habitat and Ecology: Coastal and semipelagic over the continental shelf from the surface to 60 m depth. Sometimes enters lagoons and estuaries and often associated with coral-reefs. Solitary or found in large schools of up to several hundred individuals. Although primarily observed near the coast and around islands and reefs, the species is likely to be capable of crossing ocean basins.

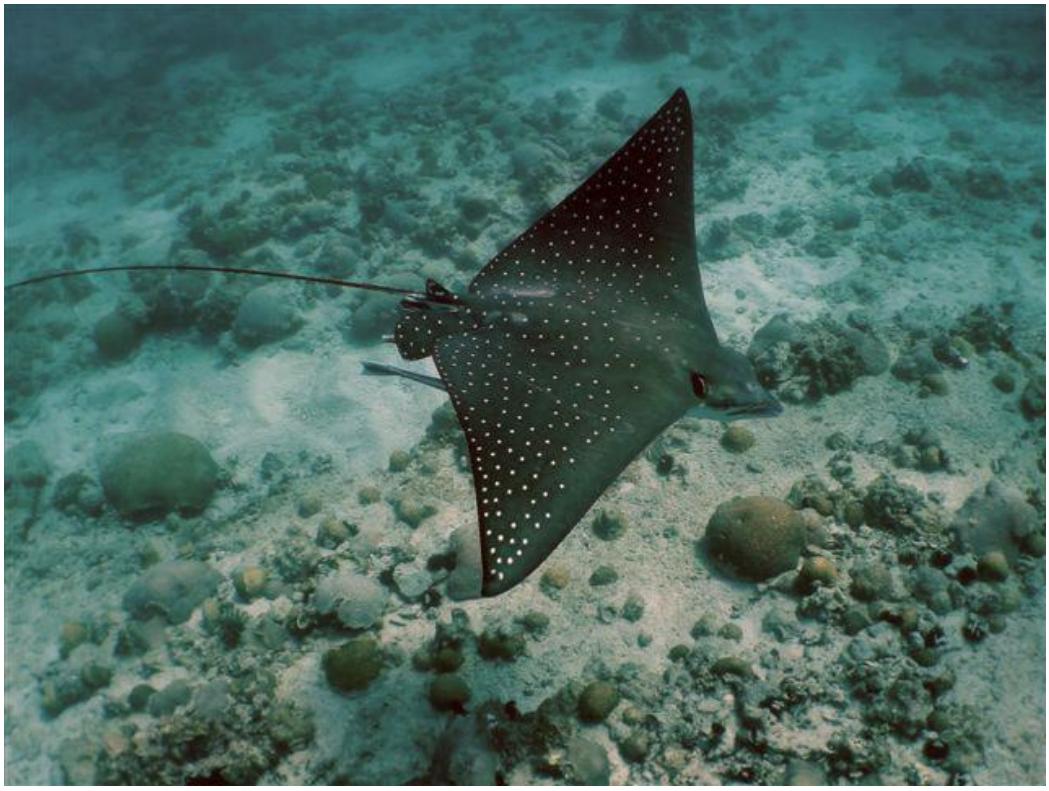
Around coral reef environments, spotted eagle rays often enter coral lagoons to feed. Diet consists of a wide variety of benthic species including polychaetes, bivalve and gastropod molluscs, cephalopods, crustaceans and teleost fishes with fish important prey items for adults.

Aplacental viviparous. Little information available on reproductive biology although known to have low fecundity, bearing 1 to 4 pups/litter. Gestation has been reported at 12 months and reproductive periodicity may not be annual. These factors combine for limited reproductive output. Reported to reach sexual maturity after 4 to 6 years. Although reaches 330 cm DW most observed are less than 200 cm DW.

Catches taken in the protective shark nets off the beaches of KwaZulu-Natal, South Africa, occur throughout the year but peak in summer (January and February). The overall sex ratio is unity but there is a significant association between sex and time of year, with more males than females caught in summer and more females than males in winter. Catches are rare in the southern part of the netted region, an apparent consequence of lower water temperatures.

LIFE HISTORY PARAMETERS

Age at maturity: 4 to 6 years (female and male).



Size at maturity (total length): Unknown (female); Between 100 and 115 cm DW for male (Indonesia).
Longevity (years): Unknown
Maximum size (total length): 330 cm DW
Average reproductive age (years): Unknown
Gestation time: 12 months, but may be less.
Reproductive periodicity: Unknown
Average annual fecundity or litter size: 1 to 4 pups/litter.
Annual rate of population increase: Unknown
Natural mortality: Unknown

Threats: Details of catches of this species throughout its range are scant. Nevertheless its small litter size, schooling behaviour, inshore habitat and hence availability to a wide variety of inshore fishing gear (beach seine, gillnet, purse seine, benthic longline, trawl etc.), its marketability and the generally intense and unregulated nature of inshore fisheries across large parts of the species' range warrant a global listing of Near Threatened, and a Vulnerable listing in Southeast Asia where fishing pressure is particularly intense and the species is a common component of landings. With further data it will likely fall into a threatened category in other regions also.

This species occurs in coastal inshore waters where fishing pressure is typically very heavy, especially in SE Asian waters, in parts of Africa and through portions of the species' range in the Americas. The strong swimming nature of this species makes it quite susceptible to a range of fisheries, especially inshore gill net fisheries, which are extremely intensive in some regions (for example, Kalimantan in Indonesia). The species also enters estuarine waters where fishing pressure is also extremely high and where (in SE Asia at least) pollution is also a major factor for all marine life.

The species is likely to contribute substantially to numerous inshore artisanal fisheries across its range and it is known to be landed regularly in some places. In Southeast Asia, Aetobatus narinari is landed in most countries within its range, for example, Indonesia, Thailand, the Philippines, Taiwan and Malaysia, all of which are countries where fishing pressure on the inshore environment is intense and generally unregulated. In Indonesia the species is presently caught consistently but in only small numbers in many fisheries and expected future declines in SE Asia are the basis for the Vulnerable listing there. The species is probably widely utilized across its range due to its availability to fisheries. Fishing pressure on the inshore environment across most of the species' range is only likely to increase in the future.

Although specific details are not available, pressure on the inshore environment through artisanal fishing activities off West Africa, throughout the Arabian Sea, the Bay of Bengal and in large portions of the species' American range has likely affected this species. There is nothing to suggest that pressure will decrease in these regions in the future.

It is a popular public aquarium species and is collected for the marine aquarium trade. In some localities it is likely to be persecuted when considered a pest of mollusc aquaculture farms, as has occurred with other myliobatid species, for example Myliobatis californicus.

In a few parts of its range the species faces lower levels of threat. These include South Africa where catch levels are low, the USA where the species is protected in Florida (see Conservation Measures below), the Maldives where the exportation of ray product is banned, parts of Oceania where human populations are low, and Australia. The species is afforded some protection and impact reduction in parts of Australia in Marine Protected Areas, by the use of Turtle Exclusion Devices in prawn trawl fisheries and because of spiritual significance in some indigenous communities. However, there is still concern for the species in Australia where it is taken as bycatch in inshore net fisheries and marketed as 'skate wings', 'ray flaps' or 'eagle ray flaps'. Eagle ray is becoming an increasingly popular seafood product in Australia and the landing of this product is likely to increase in the future.

Conservation Actions: Fisheries taking A. narinari are generally unmanaged throughout large parts of the species' range. Attempts to monitor and regulate fisheries in these regions would greatly improve conservation of this and other chondrichthyans. Monitoring (including species-specific catch details) of any directed elasmobranch landings and bycatch are necessary to provide valuable information on the population status of these rays. Fishery-independent surveys of this and other elasmobranchs are necessary to provide estimates of abundance and biomass.

In addition to species-specific catch details, life history information including age, growth, longevity, movement patterns, habitat use, potential nursery areas, diet, and further reproductive studies are necessary to develop effective conservation actions for A. narinari. Direct estimates of fishing and natural mortality are critical for assessing fisheries impacts on a particular species.

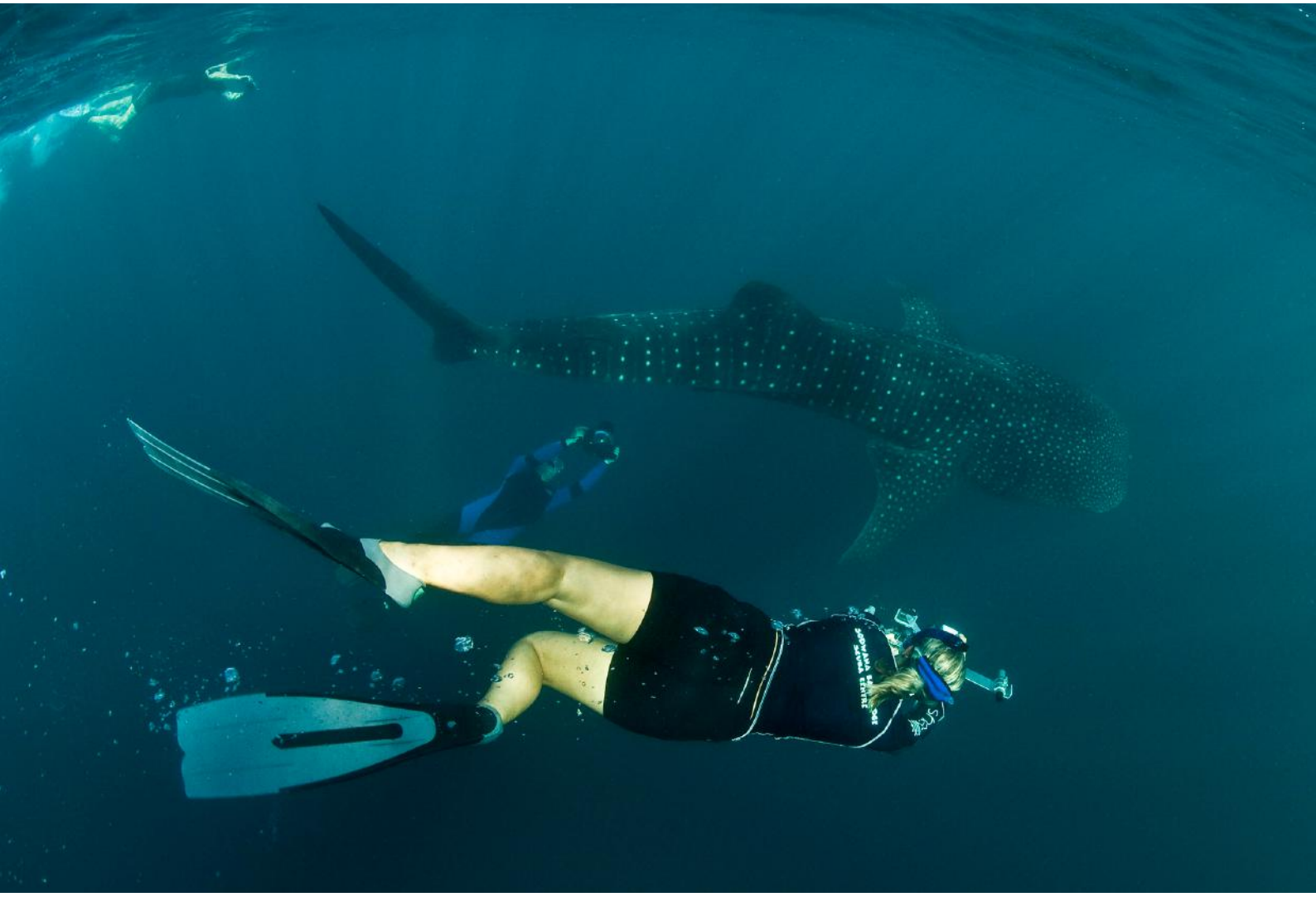
Of highest priority is the resolution of taxonomic issues to better define the actual ranges of the various forms/species of the A. narinari species-complex.

In the Maldives, the species is afforded protection in marine reserves created around diving sites in recognition of the high value of sharks and rays to tourism. The Maldives also banned the export of rays in 1995 and the export of ray skins in 1996. Again, this was to protect the tourism resource.

From: Kyne, P.M., Ishihara, H, Dudley, S.F.J. & White, W.T. 2006. Aetobatus narinari. **In:** IUCN 2009. IUCN Red List of Threatened Species. Version 2009.2. <**www.iucnredlist.org**>

WHALE SHARKS IN DJIBOUTI

FEATURE AND PHOTOGRAPHY **WARREN BAVERSTOCK – WWW.VERSTODIGITAL.COM**



LASER MEASUREMENT
One member of the research team ducks down and photographs the underside of the shark while another photographs the top using military grade lasers to assist with determining the length of the whale shark.

In November 2009 I was invited by Dr David Rowat of the Marine Conservation Society Seychelles (MCSS) and Michel Vely/Danile Jouannet from Megaptera to join them on their Djibouti Whale Shark Research Programme. With increased sightings in the UAE I was very interested in learning more about Whale sharks and how to monitor them with the goal of maybe setting up some sort of programme here in the UAE. I jumped at the chance to go and in January 2010 I boarded the M/V Deli, a 26 metre Turkish built wooden schooner and headed up the Gulf of Tadjoura where the plankton rich waters from November to January attract young Whale sharks. During our journey from Djibouti the skipper of the Deli briefed us on where we would be finding our Whale sharks and with the use of a map, he highlighted the two areas either side of our anchor point at Baie Coraillie. For the next week, twice a day, we would be visiting either Acacia Beach (West) or (East) Arta Bay where the French Foreign Legion Camp is based.

Finning continuously against the current keeping close to Arta bay's shoreline where I surveyed the surface looking for the glimpse of a flicking tail fin or shadow of a Whale shark. Over the previous 4 days of surveying I had become quite adept at spotting the signs of these huge fish. The sea was quite rough and as I surveyed the surface I intermittently found myself dipping my head into the swell to check if there were any sharks swimming toward me. I quickly turned 360 degrees during my survey and found myself glancing down at my legs dangling in the murky water and couldn't help but think about the large shark bite on one of the whale sharks that I saw earlier on in the week. As I lifted my head out of the water I heard the firing of machine guns from a group of French Foreign Legion soldiers that have been training on the firing range all morning. Moments later, two jet fighters flew overhead and as I bobbed up and down in the Gulf of Tadjoura I thought to myself, what a crazy place to come and see Whale sharks.

With a sick sense I dipped my head down into the water and I found myself face to face with two 5 metre long Whale sharks which were 'ram feeding' directly towards me. Being caught out like this had become a regular occurrence over the surveying days and as the two sharks swam centimeters below me, I over-inhaled to ensure that I wouldn't come in contact with their dorsal fins or their powerful tails.

It wasn't long before the encounter was over, and again I found myself distracted by the artillery firing at their targets. In the distance I could see the rest of the team approach in their skiff searching for sharks from the surface and as they passed the skipper signaled to me to ask if I wanted to get on the boat and continue the search further up the shore. As I swam to the boat he pointed directly behind me and signaled to the team, "SHARK". Before I knew it, the rest of the team were in the water with their cameras, working hard to collect the data they needed to confirm it as

an official Whale shark encounter. Puffing for breath after a difficult climb onto the skiff, in what was becoming heavy swell, I watched the team as they followed the fast moving fish.
With the team all back on board, I found myself listening to each person as they reported their findings. "Photographs left and right", "male, about 4.5 metres", "a large cut to dorsal fin", "2 large remoras", one of the teams reports to the data logger. Another member of the team mentioned that they noted other scarring and while pointing to the team the exact areas on the diagram, the skipper turned the boat into a wave and shouts out "SHARK". Once again the team are back in the water doing what they do best – collecting data…

Two hours later and we arrived back at Baie Coraillie and the crew had prepared a most welcome cup of coffee served with cookies. Showered and warm, I watched the sun set and reflected back to earlier in the week remembering the amazing trip to the Devil's Islands in the Bay of Ghoubbet where we spent the day surveying this amazing volcanic region to find out if Whale sharks ventured up this far. On that day we saw plenty of Whale sharks as well as Manta rays and Hawksbill turtles. In addition to this I experienced my first sonic boom from one of the fighter jets that I did not get to see, only feel. On our journey back up to Baie Coraillie we found the skipper having to carefully negotiate the 'Deli' through a small channel in a force 5/6 sea conditions and with the high winds everyone watched and experienced the adventure. Another highlight was an afternoon where I witnessed vertical feeding for the first time. I will never forget how oblivious the Whale sharks were to us when feeding in this manner and how intense it all became when later in the afternoon we had 40 plus Whale sharks, all feeding in an area the size of a small football pitch. I came back to the boat very tired that evening…

My thoughts were disrupted when the crew called to say that Whale sharks were off the starboard side, gulping at a cloud of plankton, which had been attracted by a strip light that they had set up. With that, we all sat down for supper and as we ate, discussed the numbers. Things were going very well and with 80+ Whale shark sightings being logged daily and with one morning left to go the team were very close to beating their 2009 record of 826 encounters (Using the I3S computer program the team yielded 186 uniquely identified whale sharks, of which 17 had been identified in 2008 – 2 week period). With cameras ready for the next day I made my bed up on deck and with a light warm breeze, stared up at the stars and as the mast swayed from side to side, I watched a fast moving UFO (Drone) circle the skyline.

The next morning we had been blessed with a clear sky and a calm sea. This mornings aircraft of choice was to a large military helicopter

AVOIDING COLLISION
Two whale sharks attracted to the same area of food compete for space while narrowly avoiding collision.

RAM FEEDER
Keeping up with a ram feeding whale shark can be very difficult.

VERTICAL FEEDING + NEXT PAGE
Oblivious to the team, this whale shark holds itself in a vertical position and continuously filters the dense cloud of microscopic food until it is gone.

KEEPING UP
Keeping up with these fast swimming gentle giants can be hard work.

that came in especially close to check out the Whale sharks and us. My first Whale shark of the day and it is lead by a shoal of Golden Pilot fish and with clear water and early morning sun, I can't help but feel humble to see this magnificent shark.

One of the team ducked deep down below the shark to check out what sex it was, while another directed two green laser points at its flank and took a photograph for measurement identification. Suddenly another shark swam past and with everything they needed, the team rapidly swam after this other shark.

Back on the skiff I watched the team and before I knew it, another shark. This time the shark was stationary in vertical feeding mode and as I jumped in along side this 5 metre shark I was surrounded by plankton. Suddenly another shark came into view being trailed by 5 members of the team all trying to keep up with this 'ram feeding' giant. Snapping away I sniggered to myself "I'm so glad I'm with this shark and not theirs". With my camera right at the mouth of this giant I was privileged to watch the plankton being gulped down while all the time its gills pumped for its next intake of food. After a while, the bloom of plankton moved off by the current and, so did my shark.

Some distance from shore, bobbing up and down in slightly rougher water I used the height of a wave to find our boat. It was some distance away and as I tread the water waiting for the skiff I decided to call it a day after that special experience. Back on the skiff and everyone ready to return to the Deli and after a quick count from each of the teams we confirmed that we have beaten 2009's record – the new record being 846 shark encounters. With the boat heading back to Djibouti, cameras and equipment packed away, I again reflected on my week's experience and thought to myself – "same time, same place next year – now where's that hot shower and beer?".

GOLDEN PILOT FISH
A shoal of juvenile Golden Pilot Fish swim just centimeters in front a fast swimming Whale Shark.

A SPECIAL THANKS TO:
The Marine Conservation Society Seychelles
www.mcss.sc/whale.htm

Megaptera
www.megaptera.org

TOP TIPS

- **DJIBOUTI AIRPORT** – be prepared for a lengthy VISA process – travel light. If you can get your VISA in advance, get it. If you can get a bottle of water on the plane before landing, do so as there is little ventilation in the air port.
- **HOTEL** – The Sheraton Djibouti Hotel is secure, basic but clean and good value for money.
- **EATING OUT** – Try the Melting Pot (fusion cuisine - Japanese, Greek, French – good food in an excellent atmosphere).
  http://www.meltingpotdj.com/
- **LIVEABOARD/DIVE OPERATION** – Dolphin Excursions (Djibouti) M/V Deli offers superb service on and an excellent well equipped vessel. Avoid day trips to Arta Bay in small local boats as generally the afternoon winds create large waves making your return to Djibouti very dangerous.
  http://dolphinexcursions.free.fr/
- **SEASON** – November to January.
- **EQUIPMENT** – Personally I would leave the dive equipment at home and go light. Include free diver fins for those fast sharks, a 3mm full wet suit, 2 masks and snorkels, a wind jacket, lycra hood, wooly hat and a fleece.
- **UNDERWATER CAMERA** – travel light – for the whole time I used a Nikon D2Xs in a Subal D2 with a Nikkor 10.5mm and a Nikon D2X in a Subal D2 with a Nikkor 17-55mm shooting in ambient light.
- **PHOTOGRAPHY** – what to expect – calm seas in the mornings with visibilities dropping off slightly by mid-day. Sightings start off slowly, gradually increasing by mid morning. Afternoons generally choppy with reduced visibilities but sightings are plentiful.
- **SKIFFS** – The only way to spot whale sharks are from a skiff or a dingy. Be prepared for a lot of climbing in and out of boats.

IMAGES AT A GLANCE

EDA MEMBER: PHILIPPE LECOMTE

RAYS SEEN AROUND ABU DHABI

Most of you think Abu Dhabi is only a sandy bottomed area and not very interesting for divers. The reefs are not big enough, there is not an abundance of fish and they lack colour. If reefs attract coral fish, sandy bottoms must attract other kinds of fish. If you dive and pay attention to your surroundings, you will find some of the most gracious and weirdest fish: Rays. Rays are present all year round and can be seen everywhere, even in Abu Dhabi. Some species are more common during certain times of the year. They move around a lot in order to find their food. They can either be on the sand resting or sneaking for seashells or shrimps. They are also found around rocks, reefs or searching for food in the sea grass areas. A great variety in terms of species, shapes and habits exists amongst rays. Some always swim like the Leopard ray and can be seen in the blue, sometimes searching for seashells on the reef. Some, most of the time rest on the sandy bottom like the Honeycomb stingray, the cowtail stingray or the butterfly ray. You can also see the Electric ray hiding between rocks. Some good places to see some of these amazing creatures is the breakwater in front of the Emirates Palace. Rocks, sand and little caves are present there where rays can find food and hide during the day.

Besides, you can also meet the uncommon guitarfish swimming amongst the seaweed bottom or sleeping on the sand. So grab your gear and enjoy a dive in Abu Dhabi.

Photography of the Spotted eagle ray can be seen on the Featured Creature article on page 26.


Guitarfish


Cowtail stingray


Butterfly ray


Honeycomb stingray


Honeycomb stingray

Butterfly ray

FREEDIVING CLINIC

FEATURE **ADEL ABU HALIQA**

Freediving UAE is inviting Patrick Musimu to run a freediving clinic from the 2nd to 6th April 2010. Patrick Musimu is a World Champion Freediver and the first man ever recorded to dive beyond the 200 meters mental barrier on a single breath in No Limit discipline! Patrick doesn't teach Freediving but rather guides people in their progression to what he calls "The Art of Free Diving". He is well known for his Flooding technique (equalizing his ears and sinuses by flooding them with sea water instead of air when diving deep), he is also known for his dry Gym training for freediving. Patrick is working on a world-wide project in an attempt to further understand and connect with the roots of freediving throughout history. See his blog, "Waving at My Ancestors", **http://wavingatmyancestors.blogspot.com**

He was also featured in the EDA magazine June 2009, Volume 5, Issue 2.

The free diving clinic will be a 5 day clinic that will combine classes, gym and open water sessions, participants will be introduced to sled diving as well, the device used for No Limit and Variable Weight disciplines in free diving.

During the theory classes there will be discussions about various aspects of freediving, that may include: Anatomy overview, Non-assisted breath-hold diving vs. Assisted breath-hold diving, mental strength and training, Aerobic vs. Anaerobic training, the depth equation, equalization techniques and many more.

During Gym sessions there will be Interval Cardio training, Chi Gong exercises, stretching, dry warm up, breathing exercises and more.

During open water sessions there will be assessments on the attendants performance and possible areas of improvement, diving strategy in Open Water, practical execution of what has been discussed and exercised and Sled diving among many more.

When asked about his visit to the UAE in April he said, "Thinking of the UAE, three things come to my mind. First an email of Mr. Adel AbuHaliqa; second Mr. Alaa El din's words who introduced me to the Middle East Pearl Diving culture; third an amazing pearl diving video found on Sheik Mohammed bin Rashid Al Maktoum's website.

In a world made of oxygen and hydrogen molecules, coincidences are merely a succession of evidences. I am therefore not surprised to see that 2 years after my first visit to the UAE it is one of those reasons that initiates my second visit.

The UAE have their roots deeply anchored in pearl diving traditions. In a few years, Emirati divers have bridged their past and renewed it with traditions bringing the modern form of ancient practice together. As any action starts with an emotion, I already know that the torch has been passed and I can only be honored to be part of this development.

As far as the "seminar" is concerned, I strongly believe that bounds will be made, others will be reinforced, and that projects will come out of this exchange of knowledge and experience.

See you down there."

If you are keen to understand your barriers and discover how to lift them; keen to learn adapted breathing exercises and new breathing patterns; to learn how to master equalizing; to learn and understand how to train outside water; if you intend to progress and discover new depth; if you intend to understand how to plan your progression and to focus on your self, then this clinic is for you.

Freediving UAE will be running freediving courses throughout the year, will be also inviting world class instructors in various fields of sports, including Freediving, Mono-finning and Swimming, Yoga and stretching and much more.

You can find out more by visiting:
www.freedivinguae.com

For further inquiries please email:
contactus@freedivinguae.com

Photo by Eric Petit

Photo by Jean Francois

Photo by Eric Petit

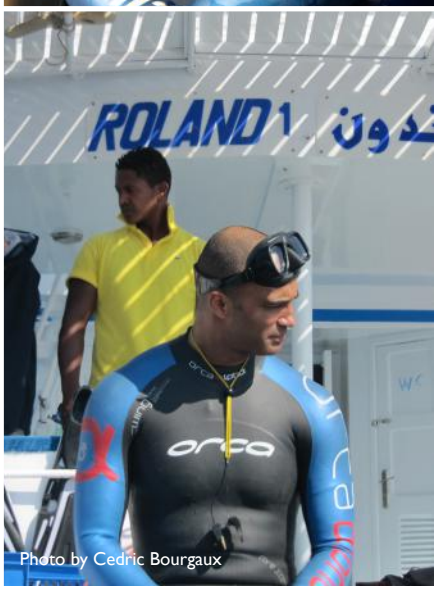


Photo by Cedric Bourgaux

Photo by Eric Petit

THE MOLA MOLA

FEATURE AND PHOTOGRAPHY **LAURENCE VANNEYRE**

THE MOLA MOLA
Nusa Lembogan in Bali, Indonesia – September 2009

The Ocean Sunfish, latin name Mola mola, which means millstone in reference to their roundish shape, is one of the most exciting encounters for a diver.

From a boat, you can catch sight of them from their dorsal fins when they swim on the surface. It's not a shark!

MORPHOLOGY

The Ocean Sunfish is the heaviest bony fish (sharks and rays being cartilaginous fish), its average weight reaches 1000 kg. The maximum recorded is 2235 kg for a 3.1 meter long specimen.

Size can vary a lot all over the world, from a 1m-long adult in the Atlantic Ocean (South-West of France) to a 3m-long adult in Indonesia.

Its head is prominent and the mouth is small in comparison to the body size.

The body is not thick compared to its height, it can be as long as high, fins included. It is round and compressed, with oar-shaped symetric dorsal and anal fins.
The pectoral fins are small and fan-shaped. It hasn't got a caudal fin when it is an adult, the caudal fin becomes a roll that makes a rudder, which is formed by extensions of the dorsal and anal fin rays. This roll or clavus is broadly rounded and has low, rounded projections (called ossicles or bony plate) which make up the margin.

Its skin is rough like sandpaper, especially on the clavus. It contains large amounts of reticulated collagen, up to 7 cm thick on the ventral surface. It is covered by denticles and large amounts of mucus instead of scales like most of the other fish.

Its colour is typically silver, with a slight opal sheen, but it can exhibit strikingly changeable spotty patterns. Some of these patterns may be region-specific. Mola mola also exhibits the ability to vary skin colouration from light to dark, especially when under attack.

Even though sunfish are bony fish and descended from bony ancestors, its skeleton actually contains largely cartilaginous tissues, which are lighter than bone, allowing it to grow to sizes impractical for other bony fish.

This is also illustrated by the fact that the largest fish in existence today is the whale shark, an entirely boneless fish.

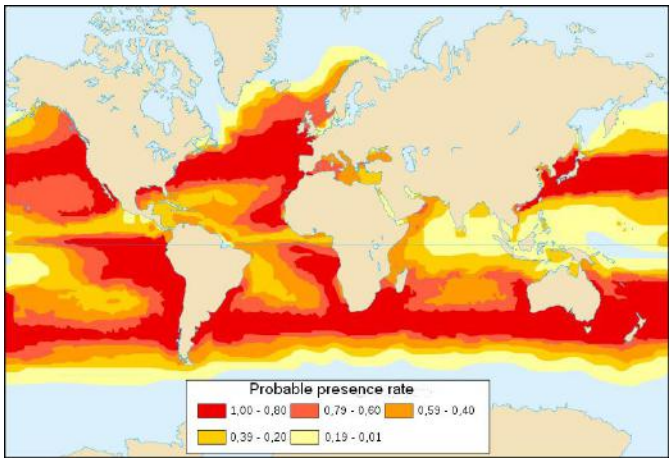
The Mola mola adult doesn't have a gas bladder which is what allows most bony fish to control their buoyancy. Scientists are impressed by their slow-motion swimming. At first they guessed that molas must drift wherever ocean currents take them. But molas in Southern California have been tracked swimming 26 km a day, at a top speed of 3.2 km per hour which is not far off the speed of a yellowfin tuna when it's just out cruising.

HABITAT

Mola mola's live in tropical and temperate waters all over the world, in the Pacific ocean until Alaska and in occidental European waters. It likes to live in water temperatures comprised between 12°C and 25°C.

If they spend a prolonged period in lower temperatures, they can be desoriented and can eventually die. Their presence in water such as in the southwest of England, outside their usual habitat, is evidence of increasing marine temperatures.

Here is a map of probable Ocean sunfish's repartition:



Mola mola's are pelagic fish and swim at depths of up to 600 m. It is found on slopes adjacent to deep water.The adults spend a large portion of their lives submerged at depths greater than 200 m, occupying both the epipelagic and mesopelagic zones.

FAMILY

Mola mola is a member of the Tetraodontiform order, that includs 7 families:

- Tetraodontidae (e.g Pufferfish)
- Balistidae (e.g Triggerfish)
- Diodontidae (e.g Porcupinefish)
- Monacanthidae (e.g Filefish)
- Ostraciidae and Aracanidae (e.g Trunkfish)
- And Molidae

This family, which represents all the ocean sunfish includes 4 species:

- Mola mola (Common sunfish)
- Mola ramsayi (Southern sunfish)
- Mola lanceolata (Sharp-tailed mola)
- Mola planci (Slender sunfish).This last one is the rarest of the ocean sunfish.

The Mola ramsayi is an austral temperate species, that we know only by beached specimens.

Throughout the world, the Mola mola has different names. It is not only known by its English name, "Sunfish", but as "Moonfish" in French, "Swimming head" in German, and "Cut short" in Philippino.

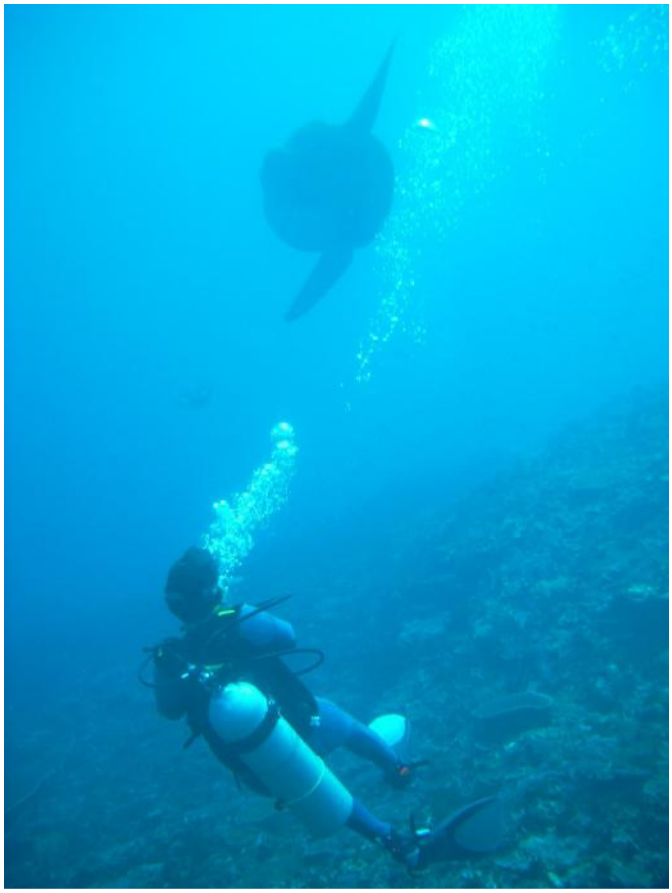
The common name Ocean sunfish comes from the Mola mola's habit of lying atop the surface of the ocean appearing to sunbathe.

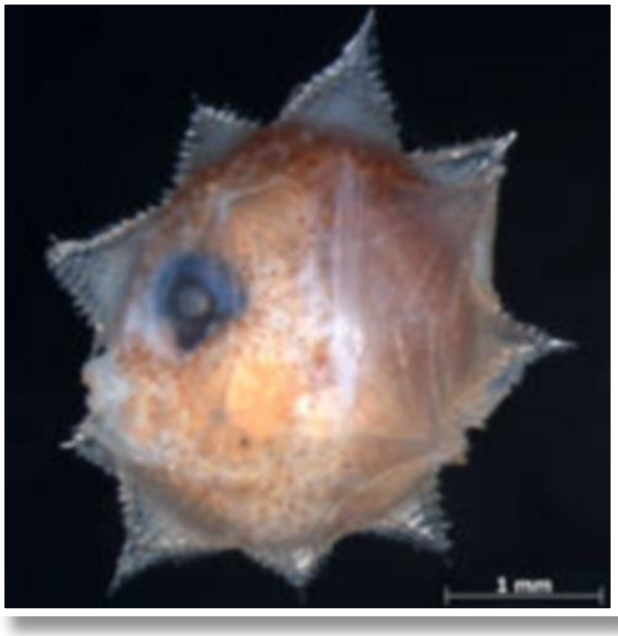
FEEDING

Mola mola's eat mainly jellyfish, and in big quantities because of the small nutritional value. To break their dinner into manageable pieces they don't chew; they suck the jellies in and out of their mouths until they're reduced to gelatinous chunks.They also eat calmars, zooplankton, squids, crustaceans, salps, ctenophores and small fish.They can break up harder organisms thanks to their teeth. Moreover, pharyngeal teeth located in the throat (like goldfish Carassius or Cobitidae), they grind food into smaller pieces before it is passed to the stomach.

The range of food items found inside sunfish indicates that they feed at many depths, from the surface to deep water.

Because they consume large volumes of prey, their presence in a given area may be an indicator of nutrient-rich waters where endangered species may be found.





Here is a picture of a 2.7mm-long larva of the ocean sunfish, Mola mola, from the Ichthyology Collection of the National Science Museum, Tokyo.

REPRODUCTION AND FIRST YEARS

Females lay more eggs than any vertebrate known animal. A 1.4 m female was estimated to be carrying 300 million eggs in her single ovary. The eggs are very tiny, less than 1 mm. They are layed directly in water, carried away by currents, and then externally fertilized by sperm.

After hatching, we can see the ressemblance of the larvae and juvenile with the pufferfish (Diodon). It has big pectoral and caudal fins. Its body is covered with spines that disappear at adult age.
When they are young, they often group together in large schools, and become solitary with age.

Spawning areas have been suggested in the North and South Atlantic, North and South Pacific, Indian Oceans.

Ocean sunfish may live up to ten years in captivity. Their life in natural habitats have not yet been determined. In an aquarium, scientists have found out that a young specimen increased in weight from around 30 to 400 kg in 15 months, and reached a height of nearly 1,8 m.

BEHAVIOUR

The Mola mola is usually shy. However, it may become familiar with divers in some locations.

This fish propels itself by dorsal and anal fins that are flapped synchronously from side to side, with an amazing celerity, more quickly than any swimmer. The small pectoral fins are not used for propulsion.

Ocean sunfish often swim near the surface, and their protruding dorsal fins are sometimes mistaken with those of sharks. However, it is possible to distinguish a shark from a sunfish by observing the trajectory made by the dorsal fin on the surface, while the fish itself moves underwater and remains unseen. Sharks, like most fish, swim by waving the tail sideways while keeping the dorsal fin moving in a straight line. The sunfish, on the other hand, swings its dorsal fin and anal fin in its characteristic sculling motion.

The Mola is flat on the surface when it takes a rest. But it's also a way to get warm, by presenting its largest profile to the sun. That occurs after successive dives into deeper and colder water.

More than 40 species of parasites may reside on its skin and internally. That's why we can often see the Mola mola being cleaned by other fish.
In temperate regions, the cleaner wrasses and other fish who live in kelp fields, remove parasites from the skin of visiting sunfish. In the tropical areas, the Mola solicit cleaning help from reef fishes.

Mola's also allow seabirds to feed on parasites from its skin by basking on its side at the surface. Sometimes we can see it breach more than 3 meters above the surface, it's probably another effort to dislodge parasites.

Sunfish are usually found alone, but occasionally in pairs or in large groups while being cleaned.

PREDATORS AND ISSUES

Mola mola body size deters a large amount of potential predators, but younger individuals are vulnearable to predation, by Tuna or Mahi-mahi.

Adults don't have a lot of predators. They are sea lions, killer whales and sharks. Sea lions appear to hunt sunfish, tearing the fins off, tossing the body around, and then simply abandoning the still-living but helpless fish to die on the seafloor.

Humans in some regions are also a predator, considering it as a delicate food, like in Japan, Taïwan, South Korea; although some sources indicate that the internal organs contain a concentrated neurotoxin, the tetrodotoxin, like the organs of other poisonous tetraodontiformes (Pufferfish and Porcupinefish). Certain parts of the fish are also used in traditional Chinese medicine. Flesh commercialization is forbidden in the European Union.

These fish do not adapt well in captivity.

Unfortunately, Mola mola's are frequently accidentely caught in fish nets.

Like turtles, it can eat floating waste by mistake, like plastic bags, leading to death.

The Mola mola has the status 'Not evaluated' on the IUCN Red List.

POPULATION

It is currently being explored whether or not an exciting new technique for identifying individual whale sharks using NASA methodology for identifying star patterning can also be applied to mola populations, particularly those extra-spotted ones, said ECOCEAN information architect Jason Holmberg.

When you see a Mola, you can include your data on this website:
http://oceansunfish.org/sightings/
This website, filled by citizen scientists (a network of volunteers for scientific work), is beginning to outline the seasonal distribution of ocean sunfish throughout the world's oceans.

The map below displays the locations of the 50 most recent sightings reported by citizen scientists.

Become a citizen scientist in indicating your sightings!

REFERENCES:

BOOKS
- Atlas Mondial des Poissons Marins – Kuiter et Debelius, Edition Ulmer

WEBSITES
- http://www.wikipedia.org
- http://www.fishbase.org
- http://oceansunfish.org
- http://australianmuseum.net.au/Ocean-Sunfish-Mola-mola-Linnaeus-1758

After 20 Years, we are...

still enjoying the dive!

20 YEARS 1989 - 2009

Scuba Dubai is the longest established dedicated dive store in Dubai, staffed by professionals with a deep understanding of the products sold and repaired. Since 1989, it is the recognized expert in diving equipment repairs and sales and is the central point of reference for techincal matters in the Middle East.

Our workshop employs seven fully trained, qualified and experienced technicians; and can repair or service almost all brands. 80% of all regulators and cylinders in the UAE are serviced here. Air purity testing and high pressure breathing air compressors repairs are done in-house.

Our customer-service oriented, friendly and helpful sales staff offer equipment from Scubapro-Uwatec, Luxfer, Faber, Apeks and Atomic Aquatics. Accessories and gadgets are available from a wide variety of manufacturers. Underwater camera housings are available from Ikelite and Subal.

All of Scuba Dubai's air is oxygen compatible and high quality, clean air is guaranteed for Nitrox and standard air fills to 300 Bar. Scuba equipment can be rented to qualified divers.

Our business is to provide you with the right equipment, tools and advice to enable you to concentrate on the task at hand...

...enjoying the dive!

For more information please contact us:

by phone +971 4 341 4940
by Freephone (UAE only) 800 SCUBA, by fax +971 4 341 4960
email: info@scubadubai.com, http://www.scubadubai.com

SCUBA DUBAI

SCUBA DUBAI NORMAL TIMINGS:
Saturday - Wednesday: 9:00 AM - 8:30 PM,
Thursday: 9:00AM - 7:00 AM
Friday: closed

NUDIBRANCHS. AN EXPERIENCE IN ITSELF

FEATURE AND PHOTOGRAPHY **PETER MAINKA, EDA ABU DHABI COMMITTEE**

CHROMODORIS ANNULATA
Old Cement Barge, Abu Dhabi

A dive with certified/experienced divers is mostly followed by an exchange of information about the wonderful things we have seen underwater.

One of the most interesting and varied kinds of underwater animals is the "nudibranch". To bring it closer to someone who has never heard of these – just think of it as a kind of special "sea slug".

Only very few types of nudibranchs have common names. As there are so many different kinds, the Latin names are more commonly used. The family of the Chromidoridiade is one of the biggest amongst them.

One type of Nudibranch we see on almost every dive; be it in Abu Dhabi, Dubai or the East Coast, is the Chromidoris Annulata.

The bushy bundle on one side are the gills and can be retracted when disturbed. The two feelers on the other end are actually rhinophores, smelling sensors with small light sensitive dots at the base. The mouth is underneath and rarely seen. Only when they head for new grounds might you have a chance to see something like this on the Chromidoris Lochi.

Another very nice member of that family is the Chromidoris Willani. We have not yet found them in UAE waters.

CHROMODORIS WILLANI
Batangas, Philipines

Similarly the decorative Jorunna Funebris was thought to not live in the region. However, I took this picture around Khassab and have also seen them at the Daymaniyat Islands.

JORUNNA FUNEBRIS
Khassab, Oman

Actually, it seems that some Nudibranchs appear seasonally. Sometimes you don't see a species for a year or more and then you see six of them in one location. This occurred to me with the Armina cygnea.

ARMINA CYGNEA
Shark Island, Khor Fakkan

Some other species that are quite hard to find belong to the families of Flabellinidae and Facelinidae. They are commonly referred to as Flabellina. They are very small in size measuring 1 to 4 cm. Although they are colourful, it takes a trained eye to see them because they are well camouflaged. Once you have detected one it should be easy to find more in the same area like at popular dive sites such as Car Cemetery and Inchcape II.

FLABELLINA
Car Cemetery, Khor Fakkan

Another species I had not previously seen before in this region is the Thecacera pacifica. It can now be found regularly on Inchcape II, Shark Island (bottom 15m+) and Car Cemetery and can't be missed by its bright orange body.

Also commonly found on the East coast is the Risbecia Pulchella and the Ceratosoma Trilobatum.

THECACERA PACIFICA
Inchcape II, Khor Fakkan

RISBECIA PULCHELLA
Shark Island, Khor Fakkan

CERATOSOMA TRILOBATUM
Climbing over a clam shell, Octopus Rock, Musandam

Another colourful example I have seen only once at Inchcape II is this small Hypselodoris Kanga.

Some buddies have found similar Nudibranchs on the Inchcape II and at Shark Island but not this particular one. This shows it is always worth going back to the same place again and again, just to explore the micro cosmos under water as it allows us to discover more of its secrets – ideally with a like minded enthusiastic buddy.

Exploring macro marine life takes time as you have to look carefully as you progress slowly through the dive site. The closer you look on a dive, generally the more rewarding the results will be.

HYPSELODORIS KANGA
Inchcape II, Khor Fakkan

ARE MANTA RAYS THE ONLY THING **WE LOOK FOR IN THE MALDIVES?**

FEATURE **BARBARA KARIN VELA, MD** UNDERWATER PHOTOGRAPHY **PETER ULLSTRÖM, MD, PHD**

Imagine yourself lying on the bottom of the ocean, holding a rock and waiting…waiting for five minutes, ten minutes, moving back and forth with the current and slowly getting cold. At that moment, as you want to give up and continue diving, there they come: the beautiful manta rays with their huge wings spread, circling around and observing the observers. During this special spectacle you forget the current you are struggling with, you forget that a minute before you felt chilly and started to shiver, the adrenaline rushes through your blood and a certain warmth mixed with excitement fulfills you. Yes, you have seen the manta rays up close! Your pressure gauge is showing only 50 bars left and there is no more time to enjoy the scene. Now it is time to slowly ascend. Last look on the reef and you see the turtle swimming away. As you surface, you start feeling your bladder is full. Why do you always have a full bladder at the end of a dive?

You are on the boat, exchanging underwater experiences with other divers. Suddenly there is panic at the other end of the boat. There is an injured diver vomiting over the deck and losing his balance. You start with the alphabet: ABCDE, repeating it over and over. The alphabet is given, the oxygen is given, the dive computer is checked, the captain has informed the doctor in the nearest clinic and off we go. You suddenly notice there is a person with a camera filming everything! And when you look around, still with your bladder full and with the adrenaline rushing through your blood stream, you see a few calm faces, nodding with approval. Yes, they can handle it!

What connects the Lankan Reef and its beautiful manta rays with the effect of immersion? What connects the turtles with the suffering of vertigo? What connects the Maldives with decompression illness? The obvious answer is diving and medicine, but where is the connection between the two? With the manta rays we got lucky, but the injured diver was part of the practical exam in diving medicine. The man with a camera was there to film us, so we could analyze it during the evening seminar. Each year in October, since 1999, the island of Bandos in the Maldives archipelago hosts a course in diving medicine, organized by a group of enthusiastic professors led by Hans Örnhagen, MD, PhD. While the guests of that small island resort enjoy the holiday atmosphere, the beaches, the sun and the joys of the marine life, a group of around 20 doctors are following a boot camp schedule of getting up early, followed by lectures, dives and practical exercises.

The course objective is to train doctors in diving medicine providing competency in fitness to dive examinations of recreational and professional divers; pathogenesis, diagnosis and treatment of diving injuries; mastering diving and hyperbaric physiology to a level qualifying for advisory services to recreational and professional divers as well as diving schools and diving companies. The course has been designed to comply with the recommendations of the Joint Medical Subcommittee of ECHM (European Committee for Hyperbaric Medicine) and EDTC (European Diving Technology Committee) for class II a (Diving medicine physician) doctors.

The course had excellent organization. Two weeks before my departure for the Maldives I received a package with the books and lecture handouts. I almost fainted when I saw the four kilos of knowledge in a box! Do I really need to read all of it beforehand? When I looked at the schedule I understood that the time for studying would be very limited.

The schedule looked like this: lectures starting at 8am, lunch at 12.30, followed by either afternoon lectures or exercises. The evenings were reserved for seminars. On the days we didn't have lectures, we had scheduled diving, the activity no one wanted to miss out on since most of us were passionate SCUBA divers. One of my favourite exercises was underwater spirometry, a unique way of measuring lung capacity. Time for the beach? If you were very fast in eating your lunch, and had no questions to discuss with your teachers, you could swim for a while between 13:28 and 13:37, since afternoon lectures would start at 14:00 sharp.

I must admit the experience was extraordinary. For a while I felt like a student again, walking barefoot around the island, carrying a thick binder, not thinking about anything else but what the next lecture would be and how much time I would have to study for the exam. Of course, when you are a carefree student, your mind starts to wander and in a minute your exam is replaced with the thoughts of the beautiful marine life and more dives. I am sure that all the resort guests, while enjoying their cocktails and the sunset in the Sundowner bar, were wondering who the book worms were.

The summary of the two weeks: 2.2 pounds less, fourteen dives more, one diploma and a few friendships more. It was my pleasure to participate in the latest course held on Bandos Island in October/November 2009 where I gained a diploma in diving medicine.

THE **AQUARIUM** DIVER

HOW I WENT BACK IN SEARCH OF **MY PHOTOGRAPHIC LANGUAGE**

FEATURE AND PHOTOGRAPHY **MARCELO MARIOZI – WWW.UWPHOTO.AE – UWPAE@ME.COM**

When I started diving (and I won't tell you how long ago that was) to be called an "aquarium diver" wasn't the best of compliments. It was only directed at very short divers or the ones whose skills (or "manhood") were only compatible with the best of the circumstances. Surfing since the age of 6 I was fairly OK aquatically speaking, and at 5'9" I was safely outside the height zone for the adjective. I would have never imagined that after becoming a father I would be called an "aquarium diver" and would receive that with great pride.

Little more than a year ago a new aquarium was opened here in Dubai. It's one of the best looking aquariums I have ever seen. Inside the trendiest shopping mall (and to be the trendiest in Dubai is no small achievement), and the biggest mall in the World, right on the foot stones of the Burj Khalifa – the recently inaugurated tallest man-made structure on Earth – on an amazing complex right in the middle of town.

The Dubai Aquarium is not easily missed within all the grandeur that surrounds it. It's main window, measuring 32.88m wide, 8.53m high, and 75cm thick, holds the Guinness Book of Records mark for the largest acrylic panel in the World. It is also the largest suspended aquarium in the World (as it does not sit on the "ground floor" and there are shops and facilities underneath it) with a 10 million litre tank measuring 51m x 21m and 11m deep. Inside it, there are more than 33,000 specimens (all kept within rigid ethic standards of WAZA - World Association of Zoos and Aquariums and CITES - Convention on International Trade of Endangered Species of Wild Fauna and Flora). There are more than 200 sharks (when grouped together with their cousins, the rays), included within this number is the largest population of Sand Tiger Sharks in any aquarium, 32 specimens.

Situated in the centre of the mall, it is hard to miss. A marine environment is beautifully created with a shark cave, pier, volcanic rock, corals and kelp forest. And I can't deny that since the very first moment I saw it, seeing the biologists diving in it, I wanted to be there. And to shoot it. So when I got an approval from a Brazilian magazine for an article on the aquarium, I jumped on it.

Living in Dubai, I help the local association (EDA - Emirates Diving Association) in developing underwater photography locally, organizing contests, events and courses. Most of my "photographic" time is spent teaching underwater photography, and although I love it, it doesn't represent much in the terms of an artistic challenge. This "job" proved very challenging, maybe more than my rusty skills would allow, and certainly much more than I expected. But going through with it was very rewarding and put me back on track with my search for an underwater photo language or style, something that was stalled for a few years.

The facilities of the Dubai Aquarium are state-of-the-art, and going for a dive there (after strolling in flip-flops with my bags passing stores like Prada, Cartier and Rolex…) looks more like a dive set for a futuristic movie. But I was thrown back in real-life the moment I hit the water. Not only by the fact that I was diving with 100+ sharks in a constrained environment, but by the sheer terror when I first measured the light in the tank which fluctuates around EV 5-7 for ISO100…Light levels are kept that low in order to avoid an algae boom. Aquariums that choose to use natural light as their light source are normally very simple in design putting their emphasis more on the animals displayed, but the complex scenery and niches of the Dubai Aquarium required very low lighting levels in order not to become green with algae, there was simply no asking for them to turn on more lights.

It was the first time that I shot underwater where I wished I had a better high-ISO performance camera. I shoot with a D300 which I think is the best option overall for underwater photography. Let me explain a bit before I start getting funny remarks. I started shooting underwater with film, and I never used anything past an ISO400 underwater, I never needed to, and I really appreciate the size of the D300 (or its "s" version) – the smaller all-metal sealed body – and its lens choices. But, I found myself with unfaithful thoughts over a D700 while diving there. But there was no turn-back, no time to buy a D700 and a new housing, so I started pumping up my ISO until I got "shootable" speeds and apertures, adjust the high-ISO noise reduction, and then pray.

At first I was very worried, but as I started shooting it started to get interesting. I always liked unconventional action shots, and with such a high level of big fish activity in a relatively small space, while stuck at 1/30s or slower shutter speeds, I found myself back on my own track to finding my "style". Underexposing a bit, panning my housing with a 10.5mm fisheye lens centimeters away from a 2.5 meter Sand Tiger Shark, clicking and hoping the strobe would somehow freeze the subject. Intense, very intense 45 minutes.

I had all the images for my article on that single dive, but I wanted more…I approached the aquarium curator and he liked the images, they needed images for marketing and I needed more dives there, a perfect marriage and I ended up doing more jobs there.

I was glad I shot in RAW, instead of the JPGs I am used to shooting for competitions. The WB in the tank is another big challenge I did not know about. I only noticed that when I checked the images at home on my MacBook calibrated screen. It was all over the place, like I was drunk! Together with the light levels they keep the colour temperature slightly cooler than the "bluest" ocean at something like 12-14 thousand Kelvin, again to keep algae levels

under control. It also varies during the day on a lunar cycle for the fish and evidently to drive me insane. They have light shows every now and then when lights go from green to purple…God Save RAW.

Another "challenge" is that every time I pointed my camera up, remember the famous words "shoot up, shoot up…" I was completely knocked out by a ceiling full of light spots. Like I was being punished by some sort of Photo God of my sins of complaining about the sun and it's dreaded sunballs since I went digital. Believe me, I will never complain about sunballs in my pictures ever again. The 50-something Suns I had in the aquarium were not only hard to tame but also drove my light measuring nuts! You'll have an idea by looking at some of these images. I remember flinching when I sometimes pointed the camera up while looking through the view finder…God Save M Mode as well.

I was very pleased with the first results, the action shots looked OK and I especially liked the darker fringe in front of the moving subjects created by their body obscuring the ambient light after the flash pop. It created a "definition" boundary in the right area, closer to the "face" or head of the fish. Had I gone rear sync, I might have gotten sharper tails instead. Of course this new (new to me at least!) approach, produces a lot of images inside my computer's trash bin, but the keepers are really worth it.

There were some interesting experiences as well, like shooting an ROV they keep for technology demonstrations for the public. I would signal for the ROV operator to move it around or turn on the lights etc…and guess what? It would just do as I told it to! It is so funny or unusual for an almost-exclusive underwater photographer to control their models (mainly fish) that I found myself laughing while the ROV followed my instructions, wishing fish would behave like that sometimes. That was easy, but remember to never look into it when it is pointed at you with lights on, or you will feel what I believe the fish feel when we shoot them, believe me.

The action inside the tank is another story. I was shooting the fish and I wanted a shot of the action that occurs during the general feeding when divers go down with a big bucket of food. I am talking about a lot of fish. After briefing with the feeders we would kneel on the sand and they would feed the smaller fish coming towards us. Easier said than done. The action got really intense when they got closer. At one point the ROV, which was about 2m from us, was completely knocked out, rolled over and it's operator had to pull it up out of the mess. I was insistently trying to shoot the action while my strobes, housing, arms, hands, mask, got hit by tails of all kinds of fish and smaller sharks. I noticed my buddy was also being beat when a big ray sat over me sucking over my head, the sound was like being inside a washing machine, and I knew my bodyguard-buddy was probably needing a bodyguard himself. We were literally ran over by fish. Nothing we could do, the camera could rarely find focus, strobes were blocked by fish most of the time, snapped 5 shots at most and we had to go up a few meters to escape the massacre. We met above the cloud of fish, it was the end of the dive and I remember laughing it out all the way.

I am still doing some shots in there, there are a few angles and opportunities to be explored and the aquarium is about to receive some Scalloping Hammerhead Sharks that I want to portray. An aquarium dive is something not to be missed, but it is so much more enjoyable when you are prepared for it. If you ever have the chance to do such a dive, take a bit of time to think about the factors I exposed here. I wish I had someone to talk about it with before. For the next dives I just got myself a TTL converter, even though since going digital I never missed TTL. I want to be able to shoot the smaller fish and to do some portraits of the bigger ones with better productivity, because the opportunities to dive in such a place are amazing.

I was really happy and proud to have been invited to do this job and its put me back on my own photographic track while helping spread the word about our Oceans. It is estimated that more than 25 million people have seen the main window for free in its first year of operation and the Dubai Aquarium like all good aquariums, helps to take environmental causes into urban areas where most agencies struggle to penetrate.

While I was shooting there, I had never had so many people shooting me, it was impressive. And to be able to show my 3 year old son what his father does underwater was also very emotive. I remember once, as soon as I popped my head out of the water, the first thing I said to my dedicated DM and bodyguard was, "I don't want to dive in the Ocean ever again, it's like hunting for food against a walk in the supermarket!".

Nah!!! Not really.

PIC FIX

YOUR IMAGES EXPOSED AND REFLECTED

FEATURE **MARCELO MARIOZI – PHOTO@EMIRATESDIVING.COM**

If you want to get your pics published here and reflected on, send an email to: photo@emiratesdiving.com with your attached picture (2000 x 3000 JPG), with a description of the equipment you used, where you took it and your background in underwater photography.

This month on Pic Fix, we will analyze a successful picture from Mr. Rudy Bier. Rudy has just completed the basic underwater photo course, and did his "graduation dives" with a Pro DSLR system. On his first dives he was able to achieve the course objectives of "technically correct" images, where he showed complete mastering of all the basic aspects of underwater photography such as focusing, light measuring and flash exposures underwater, as well as perfect buoyancy and environmental awareness.

The first dives with a camera after the basic course can be very challenging. Aside from all the factors in the dive itself, having to remember everything or more precisely, having to think it all at once with all the aspects of underwater photography, makes it seem very complex. Only with time and the experience that comes with it, (therefore "diving at home" is very important to steepen the learning curve), one can become comfortable in all aspects and enjoy it almost like a "second nature".

During the first images it is very common to forget about one or more of the techniques studied during the course, and I did choose one of Rudy's images that exemplify it. Although being completely competent in all aspects of the dive and the picture taking in this image, Rudy forgot about some of the basic aspects of composition. If there is one simple point that can increase the quality of anyone's images without any equipment or knowledge investment, it is composition…it is the easiest way to get good pictures.

In this clam-shell image, Rudy's lightning technique was perfect, setting and positioning the strobes in order to make the clam "glow" from the inside. His focus was dead sharp on it, and with good depth of field. But the composition could be improved. Had he applied a "diagonal" composition he could have got a stronger image, and (as I normally say in these articles) getting a bit closer might have helped as well.

Rudy showed amazing ability in his first dives, he completely mastered the camera settings and even showed incredible improvement in his composition during those dives, but this picture will help him and other readers understand that sometimes factors that are outside the camera can have a huge influence in the final picture quality.

2010 **DIVE DESTINATIONS**

FEATURE **DISCOVER ORIENT HOLIDAYS**

DATE	DESTINATION	DESCRIPTION	PACKAGE PRICE (USD)
May (12 - 18)	Layang Layang, Malaysia	Layang Layang's pristine reefs, which drop down as sheer walls into the abyss are covered with splendid examples of healthy hard corals with staghorn, tables and acropora. The reefs are home to a great variety of sea life where turtles, triggerfish, manta rays are quite common, but overshadowed by the mighty presence of the scalloped hammerhead sharks.	3,250.00 per person (twin sharing) 3,650.00 per person (single occupancy)
Jun (10 - 16)	Lembeh Strait, Indonesia	The Lembeh Strait is one of the world's foremost venues for muck diving, explorations of sea-floor sediment home to exotic, colourful, and often bizarre creatures. On a floor of dark sand scuttle a mind-boggling array of unusual and rare critters. A photographers' dream and a total eye-opener for anyone with even a passing interest in the smaller things in the ocean.	2,800.00 per person (twin sharing) 3,150.00 per person (single occupancy)
July (9 - 15)	Anilao, Philippines	Just 2.5 hours drive from Manila. Anilao is one of the best-kept secrets in Asian diving. There are 30 secluded dive sites featuring a healthy reef system that teams with life. There's world-class macro life as well as a great range of pelagic action.	2,200.00 per person (twin sharing) 2,400.00 per person (single occupancy)
Aug (13 - 19)	Bali, Indonesia	Mola Mola (Sunfish) season! Diving in Bali is an adventure which will capture your imagination. The sea is full of types, colour and sizes of fish which are too numerous to count. The fish, corals and plant life will amaze you. This is the last frontier on Earth to explore.	2,600.00 per person (twin sharing) 2,850.00 per person (single occupancy)
Sept (9 - 15)	Sharm El Sheikh, Egypt	7D6N Sharm El Sheikh & 5 days diving Meal includes breakfast and lunch. Sharm El Sheikh has become a favourite spot for Scuba divers from around the world. Being situated near the Red Sea, it provides some of the most stunning underwater scenery and warm water making this an ideal place to dive. The crystal clear waters of the Red Sea offer unobstructed opportunities to spot tropical marine life ranging from sharks and dolphins to gorgonian fans and feather-stars.	2,100.00 per person (twin sharing) 2,300.00 per person (single occupancy)
Oct (29 - 05 Nov)	Alor Island, Indonesia	6D5N diving + FOC 1N at Kupang Alor Island is located between Flores and Sawae sea, East Indonesia. The remote location guarantees the type of diving that most only dream of and the cold water passes through narrow straits between the islands causing strong currents and eddies. They attract big fish that come in to feed such as barracuda, schooling big-eye jacks, dog-toothed tuna, monster groupers, and lots of sharks. An excellent bonus is the likelihood of spotting pilot whales, dolphins and Orcas (Killer whale).	2,700 per person (twin sharing) 2,950.00 per person (single occupancy)
Dec (2 - 8)	Sipadan, Malaysia	Sipadan is located on the south eastern Coast of Sabah, Malaysia and is judged by many to be among the top 5 diving locations in the world. It's famous for swirling tornado formations of Barracuda, massive schools of parrotfish, sharks, an abundance of turtles and a thousand kinds of exotic sea and macro life.	2,700.00 per person (twin sharing) 3,050.00 per person (single occupancy)
Diving Packages Include: • 6 Days 5 Nights accommodation (unless stated) • Return air tickets • Airport and daily transfers whenever applicable • Full board meals (unless stated) • 2/3 guided boat dives/day • Tanks & weights provided		Diving Packages Exclude: • Dive and travel insurance • Dive equipment • Additional diving excursions • Personal expenses and visa	

RESERVATION AND ENQUIRY:

Please email opdxb@discover-orient.com.my / doh.dubai@gmail.com or call (Kaw) +971 50 992 9039 / (May) +971 50 913 3298

LAYANG LAYANG, MALAYSIA

FEATURE **DISCOVER ORIENT HOLIDAYS**

6D5N DIVING AT LAYANG LAYANG, MALAYSIA
USD 3,250.00 per person (twin sharing basis)
USD 3,650.00 per person (single occupancy)

Layang Layang's pristine reefs, which drop down as sheer walls into the abyss, are covered with splendid examples of healthy hard corals with staghorn, tables and acropora being the most numerous. The reefs are home to a great variety of sea life where turtles, triggerfish, manta rays and more are quite common, but overshadowed by the mighty presence of the scalloped hammerhead sharks.

PACKAGE INCLUDES:

ACCOMMODATION:
4 Nights accommodation at Avillion Layang Layang Resort
1 Night accommodation at Kota Kinabalu Hotel

Layang Layang Island Resort is the only diving operator and hotel accommodation available on this small coral atoll in the South China Sea. Numbers are very limited due to the low availability of flights, so if you want to share in this breathtaking wonder, we suggest you plan your trip well in advance – book early!

FLIGHT & TRANSFER:
Return International Flight Dubai to Kota Kinabalu, Malaysia
Return Domestic Charted Flight Kota Kinabalu to Layang Layang Island

MEAL:
Daily Breakfast, Lunch & Dinner

DAILY ITINERARY FOR DIVERS
0700 Light Breakfast
0800 1st Dive
0930 Main Breakfast
1130 2nd Dive
1300 Lunch
1500 3rd Dive
1630 Tea Break
1930 Dinner
*2 dives on arrival day, 3 dives on subsequent days & 1 dive on day before departure

EXCLUDES:
Dive equipment (rental available)
Own expenses and visa fee (if applicable)

FAMOUS DIVE SITES:

SHARK'S CAVE 5 – 40 M
This is one of Layang Layang's most famous dive sites and it has an abundance of sharks of various varieties. Diving in Layang Layang is mostly about big fish action and this site is a good bet for plenty of large pelagic fish. The first and deepest of 2 large sandy ledges is an overhang, running in depth from 30 to 40 metres, down an incredible sheer wall. Schooling jacks often congregate here, forming loose balls of shimmering silver. Moving on westerly with the wall on your right, you'll move past purple fans and some giant barrel sponges. Take a close look on the walls as giant frogfish and green painted frogfish can be found hanging in the black coral bushes, and painted lobsters stare out from the cracks in the wall. After about 5 more minutes you'll come to a second ledge at 25 to 30 metres deep. Giant trevally and dogtooth tuna patrol the entrance way. This ledge is much larger and can be penetrated to about 5 or 6 metres. Within the cave, you'll find whitetip reef sharks asleep on the floor. Make sure that you don't block their exit out of the cave though, as you don't want to become the object of an attack from these otherwise docile creatures. Heading back out again into the open sea, you may encounter sightings of hammerhead sharks, grey reef sharks, manta rays and eagle rays, all gliding past you in the open waters.

D'WALL 5 – 40M
There is a large shelf in the wall at about 40 metres, which would be wise to use as the maximum depth marker to your dive. Making your way down to this level, you'll witness the tremendous colours of the wall, peppered with colourful nudibranchs, some enormous barrel sponges, large drooping fans of red, blue and purple, and the radiant violet of large tropical anthias. But don't keep your head wedged in D'wall at all times. There may be sharks here too. Grey reef sharks and, at the right time of year, schools of hammerhead sharks will be cruising past the Layang Layang atoll. Back at 25 metres you'll first come across a small triangular cove which a dozen or so giant trevally use as their lair. A little further on is another larger shelf, adorned by black coral bushes, and also inhabited by trevallies, groupers and emporer angelfish. Examine the orange gorgonians to the left of the entrance as here you will find pygmy seahorses, and sometimes giant frogfish nearby.

THE VALLEY 5 – 30M
It is a gentle slope with large formations of hard corals. Groupers, sweet-lips, large schools of surgeon fish and fusiliers roam the site. Trigger fish have their nests here so mind your manner! Though the depth stays shallow at 10 to 15 meters, it does drop off into the deep blue. There are many areas to explore. Schools of barracuda and skinner swim in the area with the occasional reef shark cruising the length and breadth of the dive site. Turtles tend to settle in this area to rest in the shallows.

SNAPPER LEDGE 5 – 40 m
It is a safe and easy dive with magnificent corals and colourful reef fish. For photographers, it's a good spot for wide-angle, macro and close-ups, when the sun is directly on it. One can simply drift along with the current and relax.

THE TUNNEL 5 – 40M
The Tunnel is located just to the south of Layang Layang Island Resort and is rather sheltered. As a consequence, it offers few of the pelagic opportunities which other dive sites in Layang Layang can boast about. Instead, it posesses a tableau of hard coral formations of staghorn corals, plate corals, table corals, mushroom corals and brain corals. The site gets its name from the vertical fissures that the coral colonies make, forming 'chimneys' which divers can examine close up for moray eels and macro marine life in the form of molluscs, squat lobsters and small crustaceans. This is a great site for a night dive, watching the nocturnal antics of mantis shrimp, crayfish, crinoids, starfish, hermit crabs and sea urchins. Additionally, there are the usual reef fish like the pufferfish, parrotfish, boxfish, scorpionfish and turkeyfish.

LEMBEH STRAIT, INDONESIA

FEATURE **DISCOVER ORIENT HOLIDAYS**

6D5N DIVING AT LEMBEH STRAIT, INDONESIA
USD 2,800.00 per person (twin sharing basis)
USD 3,150.00 per person (single occupancy)

The Lembeh Strait is one of the world's foremost venues for muck diving, explorations of sea-floor sediment home to exotic, colourful, and often bizarre creatures. On a floor of dark sand scuttle a mind-boggling array of unusual and rare critters. A photographers' dream and a total eye-opener for anyone with even a passing interest in the smaller things in the ocean.

PACKAGE INCLUDES:
ACCOMMODATION:
5 Nights accommodation at Lembeh Hills Resort

Every villa and suite at Lembeh Hills Resort is a sanctuary of calm with space and peace providing the utmost in lavishness. They all view the amazing Lembeh Strait, have AC, high-speed Internet access, multiple telephone lines, have a direct line & cable TV. The 23 villas & suites are beautifully selected for its location to completely redefine tranquility in Lembeh.

FLIGHT & TRANSFER:
Return International Flight Dubai to Manado, Indonesia
Coach transfer of 90 mins from Manado to Lembeh Hills Resort, Desa Makawidey

MEAL:
Daily Breakfast, Lunch & Dinner

DIVING:
Up to 3 guided boat dives per day with YOS Dive Lembeh
Boat, Tank, weights and weight belt

OTHERS:
Free 30 mins massage: Head and Shoulder massage or Foot massage
Free merchandise: 1 T-shirt or 1 cap

EXCLUDES:
Dive equipment
Own expenses and visa fee (if applicable)
Additional Diving Excursions

Bunaken Day Dive Excursion (By Land and Sea Transfer) ~ min. 4 persons	USD 35.00/person
Additional Night Dive ~ min. 2 persons	USD 55.00/diver/dive
Extra Day Dive on the same day	USD 45.00/diver/dive
Enriched Air Nitrox Use per Day (Up to 3 Tanks)	USD 20.00/diver

HERE ARE THE MOST EXCITING SITES THAT ARE HOME TO THE MOST BIZARRE MARINE LIFE EVER:

POLICE PIER
The sandy shallow slope here has a lot of rubble, trash and things that look out of place underwater. However don't let this waste-look disappoint you as they all make excellent hiding places for all manner of exotic critters. Under the pier itself you can expect to see frogfish, seahorses, wasp fish, snake eels, cleaner shrimp and cuttlefish, also keep your eye in search for the endemic Banggai cardinal fish. This is also a great spot for a night dive where countless species of crab come out to forage for food and the rare Bobbit worm may be found.

NUDI FALLS
Small vertical rock drops into a slope that ends on a grey sandy bottom at 25 meters. As its name suggests, the highlight of this dive site is the sheer numbers of nudibranches that can be found. The soft coral bed houses myriad macro creatures including pygmy seahorses, frogfish and mantis shrimps. The elusive Rhinopias can also be found here though your dive guide is more likely to spot one.

HAIRBALL
Bizarrely named spot is one of Lembeh's more popular. Frogfish sightings here are pretty much guaranteed on this black sand bed of life. This is a true muck dive site with seahorses, octopus, crabs and plenty of other crustaceans. Many of the critters are very well disguised, as algae make a great camouflage. Close by is Hairball 2 where juvenile batfish, cardinalfish and zebra crabs are seen.

CRITTER HUNT
Placed at the southern tip, Sarena Kecil Island is the spot which upon first impressions does not look like much. However with the majority of Lembeh's dive spots housed to macro marine creatures that scatter amongst the rubble and small coral heads, passion and patience are the key here, hence the name! Keep a look out for decorator crabs, wasp fish, frogfish and squat lobsters.

ANGEL'S WINDOW
Placed off the north coast of Lembeh Island, the submerged peaks here have a number of gorgonians that are home to pygmy seahorses. It is a little different to the rest of Lembeh's muck dive sites, this spot is more like a coral reef dive. Visibility is usually a bit better and there is a couple of swim throughs at about 25 meters which make up the "Window". Snappers and jacks are often found hanging out here and the walls are lined with crinoids and feather stars.

CALIFORNIA DREAMING
A nice dive to get a break from all the muck. Colourful coral gardens with large orange tree corals and red gorgonians feeding in the current are found here. The visibility is also often better than that of the murkier muck sites. There is a plateau at around 14 meters where the critters can be found for those macro addicts that simply can't get enough of the bizarre critters!

TELUK KEMBAHU
Abbreviated to TK1 and TK2. They are named after a local village and are found on the Sulawesi side of the Strait. Topography consists of a dark sandy bottom with scattered rubble and sunken logs. It is where the first mimic octopus was sighted in Lembeh, also the home of the Banggai Cardinalfish which can only be found in this region. No shortage of other marine inhabitants here either with mandarin fish, gobys, devilfish, frogfish, porcelain crabs, mimic octopus, wonderpus and razorfish, make this an exceptional dive site.

ANILAO, BATANGAS PHILIPPINES

FEATURE **DISCOVER ORIENT HOLIDAYS**

6D5N DIVING AT ANILAO, BATANGAS PHILIPPINES
USD 2,200.00 per person (twin sharing basis)
USD 2,400.00 per person (single occupancy)

Just 2.5 hours drive from Manila. Anilao is one of the best-kept secrets in Asian diving. There are 30 secluded dive sites featuring a healthy reef system that teams with life. There's world-class macro life as well as a great range of pelagic action.

PACKAGE INCLUDES:

ACCOMMODATION:
5 Nights accommodation at Aquaventure Reef Club Resort
Aqua Venture Reef Club Resort – rooms with Air-Condition, hot/cold water & private toilet & bathroom. All Guest rooms feature native, rustic, architecture design that strongly gives Filipino ambiance for relaxation.

FLIGHT & TRANSFER:
Return International Flight Dubai to Manila, Philippines
Return Airport transfer to and from the resort by coach approx 3hours/way

MEAL:
Daily Breakfast, Lunch & Dinner

DIVING:
4 diving days
2 guided boat dives per day
Unlimited shore dive without divemaster
Boat, Tank, weight and weight belt
Daily Marine Park fees included
Compliment of 2 Night dives

EXCLUDES:
Dive equipment
Own expenses and visa fee (if applicable)
Extra Dives – USD 25.00 extra single tank: min 3 persons per boat
USD 32.00 extra 2 tanks: min 3 persons per boat
USD 30.00 night dive: min 3 persons per boat

FAMOUS DIVE SITES:

LIGPO ISLAND 30 – 140 ft
Conditions: Generally calm, but this dive can have some very fierce currents that change quickly. Not a dive for novices when currents are running. Visibility can reach 80 ft.

This popular site has plenty of red and yellow gorgonian sea fans. A 20-25 min banca ride will get divers there. There is a drop off consisting of slanted rocks and a gentle sloping sandy bottom reaching to 30m. 100ft. Divers can look for the long nose hawk fish, tasselled scorpion fish, moray eels and other reef fish. The multi colored gorgonians and the interesting rock formation are the main attractions along with the colourful reef fish.

THE CATHEDRAL 30 – 140 ft
Conditions: Generally calm but can have some strong currents that make photography difficult. Visibility can reach 80 ft. The site is best dived at neap tide.

This is a Marine Park Sanctuary and probably the best known Philippine dive site. There is a miniature underwater castle structure and a famous cross hence the name "Cathedral." This concrete cross was installed by former Philippine president Fidel V. Ramos, when he was a Constabulary chief. There are two rock pinnacles near the cross at 18m/60ft and they are covered with soft corals, huge gorgonian sea fans and there are a variety of reef fish. Divers can find octopus, pygmy sea horses, green sea turtles, giant frogfish and marble sting rays. Grey Bamboo sharks may be encountered closer to 38 meters for divers who have deep diving experience. Great for night dives.

MAINIT POINT 15 – 120 ft
Conditions: This site is more exposed than most in this area. Currents can be very strong and afternoon winds can make the surface choppy and spoil the visibility. Best dived on a flood tide, preferably during neap tides. Visibility can reach 80 ft.

Some rocks break the surface. A gradual set of boulders form mini drop offs from 16 ft to 100 ft plus. Due to the currents the marine life is plentiful and varied especially when the currents are running. There are good corals and the fish life includes Moorish idols, porcupine puffer fish, snappers, powder blue surgeonfish, jacks, scorpion fish, wrasse and fusiliers as well as all the smaller reef fish, angelfish and butterfly fish. There is a cave 23 ft in where Whitetip Reef sharks have been sited. The boulders are festooned with soft corals and anemones, together with many crinoids, colorful Linckia sea stars and nudibranchs. Because of the fierce currents, one has to shelter behind rocks to be able to take photographs.

BEATRICE ROCK 15 – 35 ft
Conditions: Generally calm, with strong currents, but this site is exposed enough to get very rough at times. Best dived during neap tides. Visibility can reach 80 ft.

Beatrice Rock offers a series of short drop offs with channels in between, from 16 to 90 ft and a pinnacle rising from 45 to 25 ft. There are large barrel sponges, good gorgonians, black corals, soft corals, stony corals, anemones with clownfish, nudibranchs and sea stars. The site is densely populated with just about all the reef fish you could expect including schools of triggerfish, snappers, surgeonfish, jacks and anthias. Occasionally, turtles and blue-ringed octopuses are sited.

SOMBRERO ISLAND 15 – 35 ft
Conditions: Generally calm with a strong current, but it can get rough on the surface. Visibility can reach up to 80 ft.

This site is about 30 minutes by banca across the Maricaban Strait to the northern end of Maricaban Island. 'Sombrero's' hat shaped island is a great site for fish encounters. It is densely populated with marine fauna, lots of nuribranchs, sometimes found mating or fighting; lots of small caverns along the drop off are inhabited by thousands of red toothed trigger fish, groupers, lion fish and lots of colourful anthias that occasionally turn the water red. In mid water beside the drop off, dives can encounter rainbow runners, surgeon fish, fusiliers and starry eyed puffer fish.

BALI, INDONESIA

FEATURE **DISCOVER ORIENT HOLIDAYS**

6D5N DIVING AT BALI, INDONESIA
USD 2,600.00 per person (twin sharing basis)
USD 2,850.00 per person (single occupancy)

MOLA MOLA (SUNFISH) SEASON!
Diving in Bali is an adventure which will capture your imagination. The sea is full of different types, colour and sizes of fish which are too numerous to count. The fish, corals and plant life will amaze you. This is the last frontier on Earth to explore. The dive season is year round in Bali although conditions do vary from time to time. Sun fish, sharks and other large pelagics are best spotted between June and September which is also the time when seas might be both disturbed and enriched by the monsoon winds.

PACKAGE INCLUDES:
ACCOMMODATION:
5 Nights accommodation at Alam Asmara Dive Resort & Spa.

Alam Asmara Dive Resort Bali was formerly a resort called "Pandawa", the resort has been transformed succesfully with passion, into a Romantic Dive Resort, offering 12 Deluxe Bungalows.

FLIGHT & TRANSFER:
Return International Flight Dubai to Denpasar, Bali
Return Airport transfer to and from Denpasar to Alam Asmara Dive Resort, Candidasa

MEAL:
Daily Breakfast & Lunch
2 Dinners at Jimbaran Seafood restaurant

DIVING PROGRAM:
Day 1: Dive 2x at 1 Dive Site at Tulamben or Amed
Day 2: Dive 2x at 1 Dive Site at Gili
Day 3: Dive 2x at Nusa Penida
Day 4: Dive 2x at Nusa Penida
Extra 1 Day dive on either Tulamben or Gili on the same day

INCLUDES:
Sea & land transportation, dive guide, tank, weights & weight belt, light lunch during diving trip and dive insurance at USD50,000.00 per person

EXCLUDES:
Dive equipment (rental available)
Own expenses and visa fee (if applicable)

FAMOUS DIVE SITES:
NUSA PENIDA
Bali's premiere scuba diving destination – the clear waters of Nusa Lembongan and Nusa Penida islands. Must go Dive Sites are Crystal Bay & Manta Point.

Crystal Bay is perhaps Nusa Penida's best dive site. It is located in the south west of the island and features a shallow bay, carpeted in corals. The bay provides shelter from currents and is a good place to start your dive. Apart from the superb corals in the bay, the big attraction here is that this area is a favourite spot for mola mola (sunfish), which gather to be cleaned on the slopes of the reef just outside of the bay.

Along the remote cliff edges that form the southern coastline of Nusa Penida is a dive site called Manta Point. Here the sea is quite shallow, cool and can have strong surge. The water is often quite murky too due to the plankton which attracts mantas, often in small groups. The manta rays come here to feed and often stay for quite a while, seemingly oblivious to the attentions of observant divers. If you give them space then you can watch them circling about for most of the dive in depths ranging from 18 metres up to the surface.

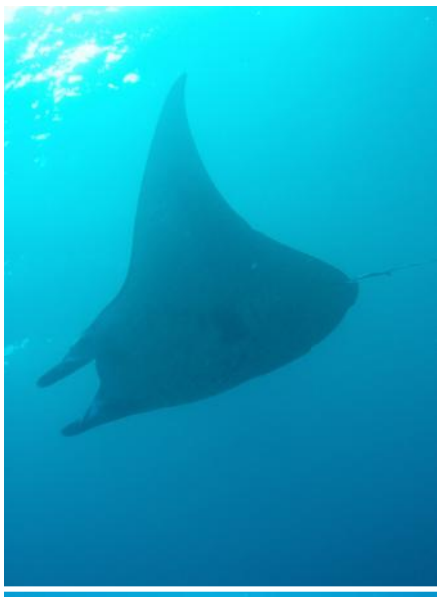
TULAMBEN 7 – 30 M
The most famous of Bali scuba diving spots and the most popular of the Tulamben Dive Sites. On this dive site, you will see the remains of a US liberty ship sunk during world War II. The Liberty Wreck is now completely covered in healthy coral growth, and the numerous structural holes provide endless opportunities for exploration. Soft corals dominate here, with crinoids, featherstars and hydroids.

AMED 5 – 40 M
Off the slope, you will come to a steep wall of hydriods, sponges and sea fans, dropping down to over 40 metres. The fish life here is prolific with bluefin trevally, bumphead parrotfish, tuna, black and white snappers, Indian triggerfish cascading down the walls. Dense growths of gorgonian fans and barrel sponges, and large outcroppings dot the reef, harbouring common lionfish and bearded scorpionfish.

GILI TEPEKONG 14 – 40 M
The protected areas in the shallows between the mainland and Gili Selang host large colonies of leather corals and brain corals. Directly to the north of the island lies the most protected section of the site. As you work your way down the black sand reef slope you'll find big black coral bushes and gorgonian fans, hosting Bargibant's seahorse.

However, it's the proximity to deep water channels that makes this Bali scuba diving site popular with adventurous divers. The cobbly east side of the island plunges sharply beyond recreational diving limits, and the swift currents attract giant trevally, grey reef sharks and deep water pelagics such as hammerhead sharks.

Schools of jacks rotate in perfect gyres during daylight. They form their schools for protection from barracudas. 'Current-swept' can be an understatement here and down currents can be treacherous. You may need to make the most of any protection offered by lee pockets to the south of the islet, to make for shallower waters. Drifting down the outer edge of Gili Selang, you can sense the full and sometimes alarming strength of the Lombok Strait.



SHARM EL SHEIK, EGYPT

FEATURE **DISCOVER ORIENT HOLIDAYS**




7D6N Diving at Sharm El Sheik
USD 2,100.00 per person (twin sharing basis)
USD 2,300.00 per person (single occupancy)

Sharm El Sheikh has also become a favourite spot for Scuba divers from around the world. Being situated near the Red Sea, it provides some of the most stunning underwater scenery and warm water making this an ideal place to dive. The crystal clear waters of the Red Sea offer unobstructed opportunities to spot tropical marine life ranging from sharks and dolphins to gorgonian fans and feather-stars.

PACKAGE INCLUDES:

ACCOMMODATION:
6 Nights accommodation at Camel Hotel

Camel Dive Club and Hotel is located right in the heart of Na'ama Bay, the main resort area of Sharm El Sheikh. It is approximately 10km from Sharm El Sheikh International Airport. The Hotel's location, and its integrated facilities including dive centre and school, swimming pool, beach (2 minutes walk), restaurants, and the most popular bars in town, are unique. Our 5* PADI IDC centre (founded in 1986) adjoins the Hotel and is one of the best-known diving centres in Sharm El Sheikh.

FLIGHT & TRANSFER:
Return International Flight Dubai to Sharm El Sheik
Return Airport transfer to and from Sharm Airport to Camel Hotel

MEAL:
Daily Breakfast & Lunch (only during diving day)

DIVING:
5 days diving with 2 guided boat dives to over 40 beautiful dive sites in Ras Mohammed, Tiran and along the mainland coast.
3rd dive can be added with extra charges of Euro 20.00/person.
Extra cost to dive at Dunraven wreck (Euro 30.00/ diver) & Thistlegorm wreck (Euro 85.00/ diver), no advance booking is allowed as the excursions depend on good weather and sea conditions.

EXCLUDES:
Dive equipment (rental available)
Own expenses and visa fee (if applicable)
Ras Mohamed National Park fee is Euro 5.00 to be paid directly at the counter of Camel Dive Centre.

DIVE SITES:

SHARK & YOLANDA REEF
Surely the prize of Ras Mohammed, this reef offers an opportunity to spy every single species of fish in the Red Sea. Watch out for scorpionfish, rarely seen on other dive sites, as well as the wreck of the Yolanda. Every possible fish species is found here, including hammerheads, gigantic tuna and a menagerie of other pelagics. An ever present school of barracuda and snappers are residents and it's a great place to see Napoleon wrasses.

ANEMONE CITY
Get caught up in the hustle and bustle of this busy underwater metropolis with sprawling highways and by-ways of hard and soft corals. Prolific anemone's harbour a permanent populace of anemonefish, but with plenty of other fish species to give it a truly cosmopolitan feel.

RAS GHAZLANI
With no mooring and a generally strong current, this site is famous for drift diving which is the perfect way to appreciate the tranquillity. Located at the mouth of Marsa Bareika, this site consists of a steep slope covered by coral heads. Dropping down to 15 metres, the reef wall descends gradually as you go deeper with abundant fish life all across the reef. Pufferfish, eagle rays, groupers and napoleonfish dot the reef, and keep your eyes on the blue for some pelagic action.

JACKFISH ALLEY
Jackfish Alley is a popular Sinai Peninsula shore dive and is located only a short distance from the beach. Most often done as a drift dive, you can start at a white mark on the cliff from where you drop down to a cave at about 5 metres which is full of glassfish. Towards the south lies a sandy coral-covered plateau buzzing with marine life, and is one of Ras Mohammed's most photographed coral pinnacles as it's swirling with glassfish. Further south, the plateau narrows into a sandy gully – Jackfish Alley. Coral growth is good overall and the fish population is excellent. White tip reef sharks can often be found taking an afternoon nap on the sandy plateau.

DUNRAVEN WRECK
The 80m long Dunraven steamship was built in Newcastle, England in 1873. In March 1876, on her voyage up the Suez from India to the UK, she caught fire and sank to the seabed at 30m, off Shaab Mahmoud south of Sharm El Sheikh, with her cargo of cotton and wool. The wreck was only rediscovered in 1979. The cavernous hull is adorned with soft corals and black corals and is full of schooling goatfish and glassfish, squirrelfish and a few groupers and moray eels. Pass some ballast stones, the large boiler room and several breaks in the hull until you reach the bow at 15m. Here you can ascend and swim back along the upper surface of the ship. The exterior of the hull is now covered in hard corals, with sea whips and gorgonians hanging from the vertical sections. It's a great place to spot nudibranchs, crocodilefish, scorpionfish and colourful clouds of fairy basslets.

THISTLEGORM
The Thistlegorm was discovered in 1956 by Jacques Cousteau and is probably the most famous wreck in the world. It sank in 1941 when it was hit by a German bomb that blew a hole in the port side, igniting tank ammunition that was in the hold. The explosion ripped the roof of the ship backwards, rather like opening a tin of sardines. The stern section of the wreck lies almost horizontal to the sea bed; the remainder of the wreck is nearly upright.

Inside the wreckage, tyres, tanks, motorbikes, Bedford trucks, waders and wellington boots can be seen. Penetration is possible around the bridge and blast area. The large prop is still in position and the guns on the stern are in excellent condition. Artillery litters the blast area. A bath tub can be seen towards the bow and a toilet near the stern. The sea life is impressive with possibility of seeing tuna overhead the resident turtle. Expect this to be very busy, especially once the day boats have reached it; it is likely to be chaos both on the surface and under the water.

ALOR ISLAND, INDONESIA

FEATURE **DISCOVER ORIENT HOLIDAYS**

6D5N DIVING AT ALOR ISLAND, INDONESIA + 1N AT KUPANG
USD 2,700.00 per person (twin sharing basis)
USD 2,950.00 per person (single occupancy)

Alor Island is located between Flores and Sawae sea, East Indonesia. The remote location guarantees the type of diving that most only dream of and the cold water passes through narrow straits between the islands causing strong currents and eddies. They attract big fish that come in to feed such as barracuda, schooling big-eye jacks, dog-toothed tuna, monster groupers, and lots of sharks. An excellent bonus is the likelihood of spotting pilot whales, dolphins and Orcas (Killer whale).

PACKAGE INCLUDES:
ACCOMMODATION:
5 Nights accommodation at Alor Resort
1 Night accommodation at Kristal Hotel, Kupang
FLIGHT & TRANSFER:
Return air ticket Dubai/Jakarta or Bali/Dubai
Return domestic flight Jakarta or Bali/Kupang/ Jakarta or Bali
Return ground boat transfer Kupang to and from Alor Island
MEAL:
Breakfast at Kupang
Daily Breakfast, Lunch & Dinner at Alor
DIVING:
2/3 dives on the 1st day arrival at Alor
Unlimited diving for Day 2 – Day 5 at Alor
Boat, Tank, weights and weight belt
EXCLUDES:
Dive equipment (rental available)
Own expenses and visa fee (if applicable)

WHAT TO SEE:
Diving or snorkeling with Sunfish is something that eludes most divers, even the seasoned ones.

In Alor, Sunfish have not only been seen by us, while diving, at most of our 40 odd dive sites but we now have discovered the secret to snorkeling with them on a regular basis. Each individual animal has it's own markings, much the same as a dairy cow, so we can identify if we see the same one more than once.

From around fifty five separate sightings over the years, we have yet to encounter the same individual twice. We can only assume from this that there are large numbers of Sunfish inhabiting the Alor Archipelago.

These amazing creatures launch themselves out of the water and create a huge splash up to three times in a row and are often mistaken for the breach of a Manta Ray. Living in mid-water and said to only venture near to shore to feed from the reef – Sunfish are the strangest underwater inhabitants.

Orcas or Killer Whales are the largest of all the Dolphins and swim in family groups of up to a dozen. Over the past decade, we have documented the migrating habits of various groups of Orcas through the Alor Archipelago. On many previous occasions, we have offered our guests the once in a lifetime opportunity to snorkeling with these "Gentle Giants". The largest group we have encountered was a family group of nine females with juveniles and one satellite male.

Alor is Indonesia's newest Mecca for Muck diving according to Larry Smith, renowned expert on Indonesia 's most famous Muck and strange critter diving locations. "Alor is simply the best of the best". Alor is teeming with numerous dive sites that offer even the most seasoned of Muck divers an experience they will never forget. So dust off those cameras and prepare to meet some weird creatures that in any other context could come from another planet. We have many amazing sites that are literally crawling with some of the most unusual critters that you can possibly encounter underwater, from Pegasus Sea Moths to Mimic Octopus, Devil Fish to Ornate Sea Horses. If you're into this type of diving then get ready because Alor will blow you away with it's amazing marine life.

SIPADAN, MALAYSIA

FEATURE **DISCOVER ORIENT HOLIDAYS**

6D5N Diving at Sipadan, Malaysia
USD 2,700.00 per person (twin sharing basis)
USD 3,050.00 per person (single occupancy)

Sipadan is located at the South Eastern Coast of Sabah, Malaysia and is judged by many to be amongst the top 5 diving locations in the world. It's famous for swirling tornado formations of Barracuda, massive parrotfish schools, the sharks, an abundance of turtles and thousands of different species of exotic sea life or macro life.

PACKAGE INCLUDES:
ACCOMMODATION:
5 Nights accommodation at Borneo Divers Mabul Resort or SMART Resort.

Borneo Divers Mabul Dive Resort occupies a beautiful stretch of white sandy beach. Easy access to the water provides for effortless shore and boat diving. Each Chalet consists of two rooms, which are constructed from beautiful hardwood in a local style, ceiling fans and balmy tropical breezes provide ample cooling, but each chalet is also fully air conditioned for your comfort.

The Smart Divers resort is nestled in a coconut grove on the south-east side of the island overlooking the water and near Sipadan Island. It consists of 45 wooden duplex chalets with each room featuring two oversized single beds, a couch, shelves, ceiling fan, flyscreened windows, air-conditioning, a private en-suite offering free-flowing hot and cold fresh water and a front veranda.

FLIGHT & TRANSFER:
Return air ticket Dubai/Kota Kinabalu/Tawau
Return ground transfers within airport/hotel, Semporna-Mabul Island by van coach and boat.

MEAL:
Daily Breakfast, Lunch & Dinner (excluding alcohol, fruit juice and carbonated soft drinks)

DIVING:
3 boat dives a day at either Mabul, Kapalai or Sipadan Island with professional Divemasters (Diving at Sipadan is subject to quota availability)
Night Dive has an extra cost of RM 50.00 per dive with minimum of 3 paxs with professional divemaster
Unlimited house reef diving
Boat, Tank, weights and weight belt

EXCLUDES:
Dive equipment (rental available)
Own expenses and visa fee (if applicable)
Entry permit to Sipadan Island costs RM 40/ day/pax.

SIPADAN ISLAND
SOUTH POINT
Colourful abundant walls, sharks, turtles and schools of fish in big numbers and all the while the possibility of seeing something really exciting such as hammerheads or thresher sharks. Cruising along you won't be sure whether to poke around in the wall or keep an eye out for the bigger stuff. As with many of the other Sipadan sites, there is no hanging around in the blue doing a boring safety stop. Instead you will want the use of every breath of air in your tank as you spend the last few minutes hovering over coral gardens with as much colourful life and activity to offer.

BARRACUDA POINT
One of the favourite dive sites here. Hordes of

turtles, vast schools of jacks, bannerfish and snapper are merely bit part players on this site. A variety of sharks are also likely to be spotted but the real stars of this show are the eponymous barracuda. Find yourself in the eye of the hurricane that is the enormous vortex of barracuda here and you will be simply awestruck.

TURTLE CAVERN

This is a site not dived as much these days as it was before the closure of the resorts based on Sipadan Island itself, but it is well worth doing as it is unlike any of the other sites. Before approaching the cave entrance you may well be stunned to see a marauding horde of huge bumphead parrotfish charging past you as you sink down the wall. The cavern itself is large and intriguing. Turtle skeletons rest on the sea-bed, apparently having met their doom in the confusing passageways of the cavern. Don't worry, those passageways are much too small for you and this is an easy and interesting dive to add to the other excellent sites.

MABUL ISLAND

FROGGY LAIR

Typically for Mabul, this site is full of wonderful critters and a keen pair of eyes can be treated to sights such as crocodilefish, an awesome variety of nudibranchs, garden eels, mantis shrimps and, as the name of the site suggests, lots of different species of frogfish in various colours and sizes. Photographers tend to love the line up of critters here and if you are lucky you may even spot the likes of a flamboyant cuttlefish and blue-ringed octopus.

EEL GARDEN

Located towards the southern end of Pulau Mabul. Eel Garden is one of the deeper dives around the area. Divers descend to a sandy flat between 20 to 25 metres sloping towards the open sea. Finning carefully and avoiding stirring up the silty bottom, divers can observe gobies seeking refuge in the tiny crevices and moray eels occupying larger holes. Looking towards the sandy patch, you will see what appear to be blades of long grass swaying with the current. These are the elusive garden eels (Heteroconger Hassi) living in colonies that quickly dart back into their burrows on approaching shadows or excessive movement in the water.

RAY POINT

Also located on the southern tip of Pulau Mabul, this site slopes to about 30 metres at the sandy bottom. Currents sweeping through this point bring clear water and good visibility. Sea fans and soft corals that thrive in current areas are home to gobies, blennies, moray eels, butterfly fish, damselfish, parrotfish and stonefish (Synanceia Verrucosa).

SEAVENTURE PLATFORM

Mabul, Seaventures Platform is a flat sandy dive site about 17m. This is an old oil platform that has been converted into a hotel owned by Seaventures Dive Resort. It stands on huge pillars. You dive underneath in 17m of water. An amazing dive site! There are several piles of metal rods, look close, and there are always several frogfish (yellow to red, black and gray) sitting on them. Inside the largest pile there is a huge moray eel. His head must have a diameter of about 15cm! We also found ghost pipefish (Harlequin and sea grass), wasp fish, nudibranchs (Halgerda, Cromodoris etc.), stonefish, flying gurnard and there are always lots of batfish and flute fish close to the pillars.

LOBSTER WALL

Wall dive with some small caverns. There are many nudibranchs, anemones, shrimps and in a small cave I even found a baby cowfish. Great night dives.

KAPALAI ISLAND

MANDARIN VALLEY

Slope to about 20 metres, hard corals then sand with small underwater mound. This dive site got its name from a dragonet that can be found there and that has a beautiful colour like the clothes of the Chinese mandarins. It lives during the day under the spines of sea urchins. Go out to the small underwater mound, there were several leaf fish there last time. Leaf fish can shed their skin and in such a way adjust to the surrounding reef. I saw one, where some yellow ascidians were growing on his skin right over the eye. There is also a mushroom coral (Heliofungia a.) on the sand with some white anemone pipefish (Siokunichthys n.) living inside.

RAY CHANNEL

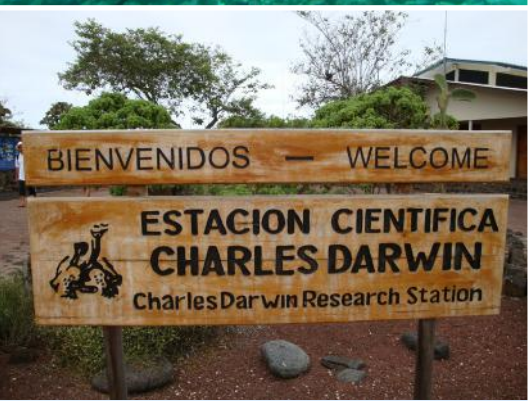
This is a sandy channel with the reef on one side. The special fish, you find here and nowhere else in Mabul is the dragon fish (Pegasus). This small animal lives in pairs on sand and feeds on invertebrates. There are some leaf fish; a spiny devilfish lives close by and there is a small baby-angelfish.

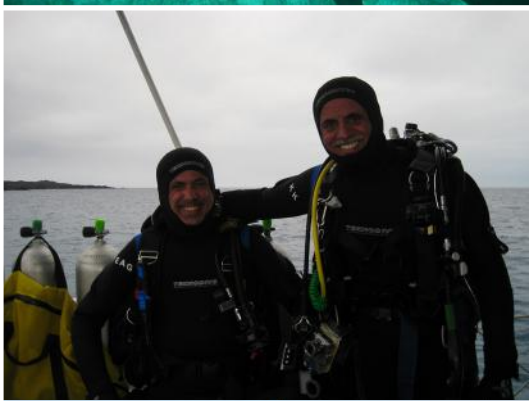
IMAGES AT A GLANCE

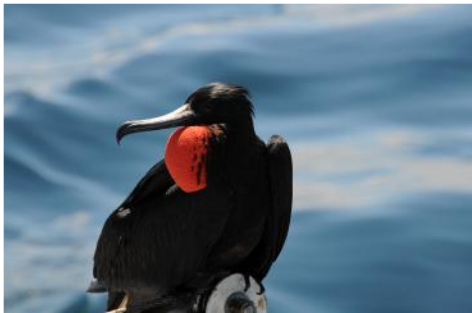
PHOTOGRAPHY **EDA TEAM**

GALAPAGOS ISLANDS ECUADOR

EDA went on a two week expedition to the Galapagos Islands – Ecuador. The expedition was mainly diving…diving and diving…with a few land excursions. You can read about the amazing Galapagos Islands in our previous issue, December 2009, Volume 5, Issue 4. We wanted to share some of our photos with you showing the untouched, natural beauty of that which is Galapagos.







YOGA AND STRETCHING
FOR FREEDIVERS – PART 2

FEATURE **ADEL ABU HALIQA**

INTRODUCTION:
In Part I of this series we explored briefly what Yoga is, three different perspectives of Yoga; real Yoga, Yoga for real and the Eight Limbs of Yoga.

In this part (Part II) we will talk about some of the different paths of Yoga, then talk about Yoga for Freedivers.

I want to address one important disclaimer again, the material you are going to read-through might suggest that Yoga and Stretching could be a cure or a remedy for some illnesses and an ultimate solution for some physiological and psychological issues. Although this might be true, please keep in mind that the purpose of this document is to give the reader a very general glimpse of the subject. It is not intended to teach Yoga and/or stretching and is not intended to cure any illness or otherwise other than the purpose mentioned above. The writer of this document holds no responsibility toward others from using those materials in any way, those who might find the subject interesting or decide to learn yoga and/or stretching are advised to do so by approaching a professional instructor and be responsible with their choice, this being said, please …enjoy!

THERE ARE MANY PATHS OF YOGA, SOME EXAMPLES ARE:
KARMA YOGA: The Yoga of Action. To serve others with total selflessness so the yogi purifies him/herself.
BHAKTI YOGA: The Path of Devotion or Divine Love. Here the yogi is submerged into praising and chanting of God through prayers and worshiping.
JNANA YOGA: The Yoga of Knowledge and Wisdom. This is the Yoga path that concentrate on theoretical knowledge and wisdom, it is considered the most difficult of all paths of Yoga and requires knowledge and practice of other paths of Yoga.
RAJA YOGA: The Science of Physical and Mental Control. It is also called Astanga Yoga, following the eight limbs of Yoga, the yogi reaches a high level of meditation power to reach the ultimate goal.

There are other paths of Yoga as well such as Mantra Yoga, Kriya Yoga, Kundalini Yoga and Tantra Yoga. What is common among all paths of yoga is the goal, to reach full self recognition and dissolve into God, the perfect Being. We could also observe that those paths are actually different states of the same yogi, the yogi when praying and worshiping God (bhakti yoga), the yogi when serving the society out of devotion towards doing good (karma yoga), the yogi when doing physical and mental exercises (raja yoga), and if the yogi chooses to have a sexual life, then comes tantra yoga, etc. The yogi would mostly have a personal preference of some activity or path that feels right for him/her and so concentrates on it and spends more time doing it, but I see that all those paths integrate to form the total reality of a yogi and lead the yogi toward the same ultimate goal through the state of samadhi.

Putting all that is said together, we could come to an understanding of what a yogi for real would be. A person seeking full understanding and realization of truth, absolute truth in life, a person who has full respect and devotion to God, a person who has a scientific and properly structured path towards reaching the goal. We must not forget here to clarify that it is not necessary for a yogi to leave all social life behind his/her back to be a good yogi. Yoga gurus such as Krishnamacharya and B.K.S. Iyengar and many more are and were examples of people full of life and social activities. They reached their high level of recognition as yogis from this path together with their practice of meditation and other paths of Yoga.

YOGA FOR FREEDIVERS
Have you ever played the Street Fighters game? Did you see the Yogi fighter Dhalsim? A skinny man who can extend both hands and legs metres away into the air into his enemy's face and belly, and has a secret power of exhaling out all his air until his front belly skin sticks to his back skin, then inhales and his chest gets as big as a truck before blowing out a whole hell of fire flames into his enemy's face! Well, let's go back to our point!

THERE ARE NUMEROUS WAYS THAT A FREEDIVER CAN BENEFIT FROM YOGA, AND WE WILL MENTION SEVERAL BELOW:
Developing a high level of muscle and joint flexibility: flexibility is very important for freedivers, a freediver with more muscle and joint flexibility can perform a better dolphin kick, a better frog style swim (for no fins disciplines in both pool and depth) a more streamlined swim with the bi-fins and have less chance of developing injuries. When thinking muscle and joint flexibility, think of a yogi in a complex pose!

Developing a high level of lung flexibility: having the ability to expand the chest allowing more air into the lungs than average and achieving a bigger lung vital capacity volume.

Ability to exhale more air which means two things:
1) adaptation to low pressure in the lungs – high pressure on the ribcage and diaphragm.
2) lower residual volume. A better chance of doing deeper dives without lung injury (such as lung squeeze), a more flexible chest also means deeper inhalations and exhalations and so better breathing outcome. When thinking chest flexibility, what is more obvious than a yogi performing Uddiyana Bandha and Nauli Kriya (Abdominal Contraction and Manipulation).

Developing a deeper and more efficient state of relaxation, we all know how important it is for a freediver to be relaxed while freediving, his/her oxygen reservoir is so important and dear that anything that can help reduce oxygen consumption is very welcome indeed. One important aspect of yoga is relaxation, it is performed before the asanas, after asanas and while practicing asanas (relaxation poses and transition poses). Actually yoga relaxation is required even while executing the most advanced and difficult asana, a yogi's optimum goal while performing asanas aside from performing perfect posture, is to do so while in full relaxation, when you observe a yogi practicing asanas you feel that what he/she is doing is so easy because of how calm and relaxed he/

JANU SIRASANA
Head Knee Pose

MATSYASANA
Fish Pose

PADMA BHUJANGASANA
Lotus Cobra Pose

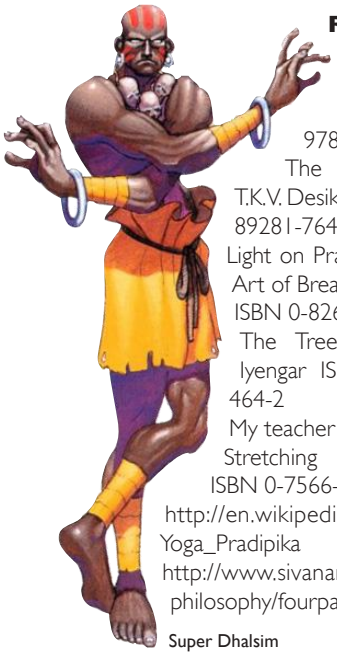
SALAMBA SARVANGASANA VI
Shoulder Stand VI

SALAMBA SARVANGASANA
Shoulder Stand

she is. A good example here is what is called the "free fall phase" in a freedive, when the freediver passes the depth at which he/she is neutrally buoyant (usually double that depth). At that depth, the freediver stops finning and relaxes completely getting into a static rather than dynamic apnea. Without proper training the freediver here will usually (because of getting very relaxed) lose the upright position and his extremities start to bend, waist and lower back loosen and bend and end up in a very in-hydrodynamic body form. This reduces the speed at which he/she descends and so the distance covered into a given time reduces the efficiency of the dive. By practicing yoga, the freediver will be able to make a free fall fully relaxed yet very upright and get the maximum output with the least effort. Look at a yogi doing Salamba Sirsasana (Headstand) or Salamba Sarvangasana (Shoulderstand) and you will further understand the point.

Developing a deeper and stronger state of focus and concentration. Yogis are among the most focussed and goal oriented people in the world, they develop this through different paths of yoga such as Kundalini Yoga. Focussing on the goal helps the person to control his/her fears and get over mental obstacles, it also helps executing the processes in excellent detail. Have you ever seen a yogi performing Salamba Sirsasana (Headstand) for over an hour? Do you think it's merely physical exercise? Well, think again! Have you ever seen a yogi folding his body (legs behind his neck, arms under his back) turning into a small ball and stuff himself into a tiny glass box that does not allow any more air into the box other than what is already in there and hold the position for over 45 minutes?

These are some of the most important benefits a freediver could get from practicing Yoga. In Part III we will illustrate various Yoga postures (Asanas) that are good for freedivers and will go through the benefits briefly.



REFERENCES:

Yoga The Path to Holstic Health, B.K.S. Iyengar ISBN 978-1-40532-235-5

The Heart of Yoga, T.K.V. Desikachar ISBN 978-0-89281-764-1

Light on Pranayama, The Yogic Art of Breathing, B.K.S Iyengar ISBN 0-8264-0048-5

The Tree of Yoga, B.K.S. Iyengar ISBN 978-0-87773-464-2

My teacher: Yogi Palash Bose

Stretching Suzanne Martin ISBN 0-7566-0952-6

http://en.wikipedia.org/wiki/Hatha_Yoga_Pradipika

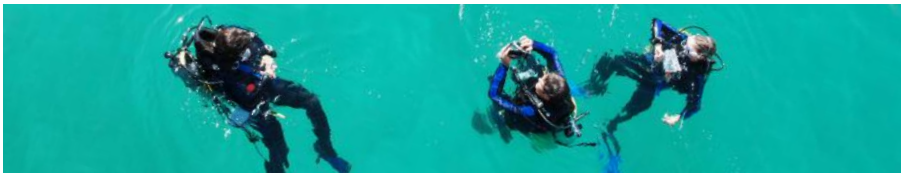
http://www.sivananda.org/teachings/philosophy/fourpaths.html

Super Dhalsim

EDA QUIZ

RENOWNED DIVERS

ANSWERS FOUND ON PAGE 62



1. Who invented together with the French Navy diver Jacques-Yves Cousteau the Diving Regulator (a.k.a. demand-valve)?
   a) Philippe Tailliez
   b) Willard Bascom
   c) Émile Gagnan
   d) Paul Bert

2. What was the name of the first book of Jacques-Yves Cousteau and Frédéric Dumas?
   a) Captain Cousteaus Underwater Treasury
   b) The Silent World: A Story of Undersea Discovery and Adventure
   c) Man under the Sea and His Shipping Empire
   d) World Without Sun

3. Who invented the surface buoy in 1948?
   a) John Lethbridge
   b) Jacques-Yves Cousteau
   c) Yves Paul Gaston Le Prieur
   d) Georges Beuchat

4. Who becomes the first person to deep dive below a depth of 1,000 feet (305 meters) on self contained breathing apparatus?
   a) John Bennett
   b) Nuno Gomes
   c) Pascal Bernabé
   d) Mark Ellyatt

5. Who was the first woman scuba diver?
   a) Evelyn Dudas
   b) Simone Melchior Cousteau
   c) Miranda Krestovnikoff
   d) Zale Parry

6. Who develops and introduces the so-called "wet suit" made of neoprene?
   a) Dr. Hugh Bradner
   b) Augustus Siebe
   c) William James
   d) Jacques-Yves Cousteau

7. What's the name of the first commercially available dive computer (1983)?
   a) Uwatec Aladin Pro
   b) Orca Edge
   c) Underwater Digital Interface (UDI)
   d) Suunto X-Lander

8. In 1878 a self-contained underwater breathing unit was invented by:
   a) Louis Boutan
   b) Yves Le Prieur
   c) Dr. Hugh Bradner
   d) Henry Fleuss

9. The first underwater camera was invented in 1893 by:
   a) Louis Boutan
   b) Yves Le Prieur
   c) Dr. Hugh Bradner
   d) Henry Fleuss

10. Who was the pioneer in the application of hyperbaric oxygen for the treatment of decompression sickness and air embolism in both military and civilian divers?
    a) Dr. Jefferson Davis
    b) Dr. Hugh Bradner
    c) Christian James Lambertsen
    d) George Foote Bond

11. Who produced the first underwater motion pictures in 1912?
    a) Daniel Mercier
    b) Ernest Brooks II
    c) John Ernest and George Williamson
    d) Dewey Bergman

12. Who made the discoveries about the human body and the nature of gases, locked himself in sealed chambers breathing lethal mixes of gases while recording their effect on his mind and body?
    a) Jacques Mayol
    b) John Scott Haldane
    c) Enzo Maiorca
    d) Jacques-Yves Cousteau

REGULARS

COVER PHOTO:

VERTICAL FEEDER

BY **WARREN BAVERSTOCK**

(Underwater Photographer and Aquarium Operations Manager of the Burj Al Arab Aquarium)

Photograph taken using Nikon D2Xs, 10.5mm Nikkor Fisheye, housed in a SUBAL underwater system (ISO 200 – f stop 7.1 @ 1/200s).

www.verstodigital.com

ANSWERS TO **THE RENOWNED DIVERS QUIZ**

1. Who invented together with the French Navy diver Jacques-Yves Cousteau the Diving Regulator (a.k.a. demand-valve)?
   c) Émile Gagnan
2. What was the name of the first book of Jacques-Yves Cousteau and Frédéric Dumas?
   b) The Silent World: A Story of Undersea Discovery and Adventure
3. Who invented the surface buoy in 1948?
   d) Georges Beuchat
4. Who becomes the first person to deep dive below a depth of 1,000 feet (305 meters) on self contained breathing apparatus?
   a) John Bennett
5. Who was the first woman scuba diver?
   b) Simone Melchior Cousteau
6. Who develops and introduces the so-called "wet suit" made of neoprene?
   a) Dr. Hugh Bradner
7. What's the name of the first commercially available dive computer (1983)?
   b) Orca Edge
8. In 1878 a self-contained underwater breathing unit was invented by:
   d) Henry Fleuss
9. The first underwater camera was invented in1893 by:
   a) Louis Boutan
10. Who was the pioneer in the application of hyperbaric oxygen for the treatment of decompression sickness and air embolism in both military and civilian divers?
    a) Dr. Jefferson Davis
11. Who produced the first underwater motion pictures in 1912?
    c) John Ernest and George Williamson
12. Who made the discoveries about the human body and the nature of gases, locked himself in sealed chambers breathing lethal mixes of gases while recording their effect on his mind and body?
    b) John Scott Haldane

UPCOMING **EVENTS**

EDA ABU DHABI EVENT
'The Art of Apnea, The Heritage of pearl divers and future of Free diving'

3rd March

DIVE MIDDLE EAST EXHIBITION (DMEX)

9th-13th March

LONDON INTERNATIONAL DIVE SHOW

27th & 28th March

REEF CHECK TRAINING

16th & 17th April and 4th & 5th June

EARTH DAY MOVIE SOCIAL – 'AGE OF STUPID'

22nd April

DIGITAL ONLINE AWARDS CEREMONY

June (TBC)

EDA AT DMEX

VISIT THE EDA STAND AT DMEX

Show your EDA renewed membership card and get a free Green beach/shopping bag!

EDA VISION

To have a rich and sustainable marine ecosystem for future generations.

EDA
جمعية الإمارات للغوص
Emirates Diving Association

MISSION STATEMENT

To conserve, protect and restore the U.A.E. 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.

CONTACT DETAILS

Emirates Diving Association
Heritage & Diving Village
Shindaga Area
P.O. Box: 33220
Dubai, UAE

Tel: +971 4 393 9390
Fax: +971 4 393 9391
Email: diving@emiratesdiving.com, projects@emiratesdiving.com
Website: http://emiratesdiving.com/

VOTE
BU TINAH
AS ONE OF THE NEW 7 WONDERS OF NATURE

Off the western coastline of Abu Dhabi lies a unique wonder of nature, wild and undisturbed by human activity, known as Bu Tinah Island.

Imagine an island with shallow sparkling blue waters and sandy beaches, visited by critically endangered animals, musical with birdsong and remote from the bustle and noise of human habitation. Add colourful coral reefs and seven metre high mangrove trees to that picture and you'll start to get an idea of the peace and beauty of Bu Tinah Island.

Bu Tinah's thriving habitat is a unique living laboratory, with key significance for climate change research. This distinctive natural habitat hosts rare and globally endangered marine life.

This distinctive natural habitat with its shallow waters, seagrass beds and tall mangroves, set amid extensive coral reefs, hosts rare, beautiful and globally endangered marine life. Seabirds such as the flamingo and the osprey, diverse species of dolphins, and the rare hawksbill turtle are to be found in Bu Tinah. The island's waters are also home to the planet's second-largest population of dugong, a large marine mammal that is globally threatened.

This precious natural resource is part of the largest protected area in Abu Dhabi. Its continued survival and protection must be ensured.

Bu Tinah Island is one of the 28 official finalists for the "New7Wonders of Nature". Vote now and bring Bu Tinah Island into the final seven. It's your opportunity to be part of history. And the future!

Vote Bu Tinah Island. Vote Now!

VOTE by SMS!

Simply text **Bu Tinah** and send to **3888**

Each sms costs only 2 AED and you can vote as many times as you like.

www.BuTinah.ae

هيئة البيئة - أبوظبي
Environment Agency - ABU DHABI