MARCH / APRIL 2015

OZDIVER

IT IS THE JOURNEY AND NOT THE DESTINATION

WORLD WAR II
DIVING TOP WRECKS
PART II

EXPECTING THE UNEXPECTED

SHAPE UP

A LAST GLIMPSE OF THE WORLD

PHOTO COMPETITION

EGYPT

MANTA MAMBO




IT IS THE JOURNEY AND NOT THE DESTINATION - WWW.OZDIVER.COM.AU

MARCH /APRIL 2015

Peter Pinnock

Editors Deco stop

Summer is finally here and all of us can feel the heat. And its not just the temperature that's hotting up, this is the most busiest time of the year if you are part of the diving industry. The last couple of months have been really busy for me for two reasons. Firstly I started training sport divers and tech again, and secondly I finished two big projects that have been on my radar for the past year.

The first project was the OZDiver magazine Apple App, which I am happy to say is now available for FREE on the App store for all Apple devices. Simply download the app and then every second month you will receive an update notification that tells you the new edition is available, then download the edition and browse the magazine on your device anytime, anywhere. But what about Android you might be thinking? We are busy creating the Android app as you read this.

The second project, a book I have titled The Dive Spots of Western Australia, which has perhaps been my biggest challenge over the past year, is also now finished. When I came to Australia just over a year ago I wondered where I could dive but found there were no publications to tell me where I should go, so I decided to write a book on the dive spots of WA. I have written a couple of books in the past and felt that as I was in a new country with new places to visit I would take the challenge on again. It has been a long journey but the last of the edits have come through and soon the book will be with the printers and on the shelves of a dive shop near you.

The Dive Spots of Western Australia is an indispensable guide for all levels of divers and snorkelers, broadening their horizons on places to visit and dive/snorkel in Western Australia. The book has more than 175 dive spots in Western Australia. It includes important guidelines on each coastal dive destination include accommodation, facilities, travelling tips and dive conditions. It is complete with photographs and more than 100 illustrated maps of each dive site. All reefs are star rated and cover depths, marine life and other essential information for the diving and snorkelling community.

So now, hopefully, most of my tasks are done and I can start living the dream again, which is why I moved to this great country in the first place. I also plan to go to the Dive show in September and look forward to meeting some of you there.

I hope that you enjoy this edition of OZDiver, I have included some really interesting articles for all level of divers.

The Editor & Publisher

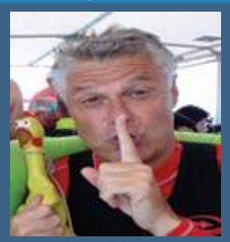
Johan Boshoff

-it is all about the journey and not the destination

Genesis 1

1 In the beginning God created the heaven and the earth. 2 And the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters.

Primary Contributors


Peter Pinnock


Andre Crone


Nuno Gomes


Fiona Mcintoch

OZ DIVER

Editor-in-chief
Johan Boshoff
johan@ozdiver.com.au

Marketing
info@ozdiver.com.au
+ 61 (00) 44 887 9903

Photographer
David Caravias

Contributing Editor
Libby Straughan

Proof Readers
Libby Straughan
Irene Groenewald
Charlene Nieuwoudt
Izak Nieuwoudt

Administration
Amilda Boshoff
amilda@ozdiver.com.au

Creative Director
TheDiveSpot-OZDiver

Web Master
Trianqular X

Publisher
Johan Boshoff
TheDiveSpot-OZDiver

Distribution
In GOD I trust.

Contributers
Christopher Bartlett, Nuno Gomes, David Caravias, R. Bester, JBeulah & Roland Mauz, Pieter Smith, Dr. Jean Vorster, Pieter Venter, Jill Holloway, David Holloway, Quintin de Boer, Neil Wiltshire, Barry Colman, Pieter Herbs, Barry Coleman, Don Shirley, Andre Crone.


Johan Boshoff


Libby Straughan


Amilda Boshoff

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The Dive Spot

it's FREE and it's online

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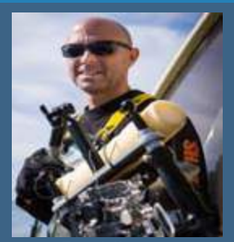
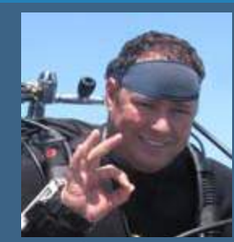

David Caravias


Barry Coleman


Christopher Bartlett


Gerrit Maritz

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COVER PHOTO
Peter Pinnock
www.peterpinnock.com

Peter Pinnock

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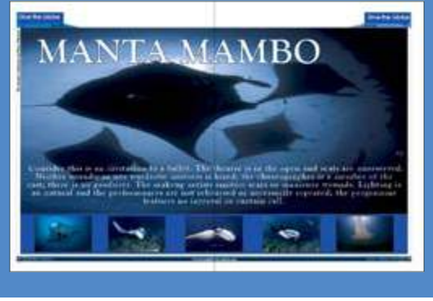

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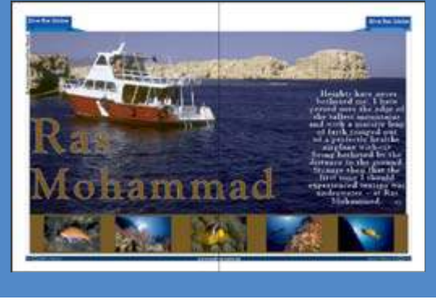

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Photos by Peter Pinnock

The Sunday Morning.

It all started one Sunday morning... ha ha ha ha

Actually before I start telling you about my near death experience.... Let me just share some light on the moral of the story!

1. never do anything on your own
2. Make sure your buddy... knows where you are... At ALL times! (Assumption is the mother of ALL stuff ups!)
3. Don't do shore entry diving... off the rocks... when there are waves!
4. When all the signs show that you shouldn't be diving... DON'T dive
5. And last... but... the most important... Sunday is NOT for diving... it's for church!!

Ok... so... its been nearly 4 months since I have been able to dive... way to cold here in winter... and I still haven't bought my dry suit, which is moving up on the priority list... but I have taken up cycling... and is slowly replacing my love of diving!... well at least during the winter season!

Anyway... in 2 weeks time we will be diving the key bisquin... which is a sunken oil rig out at sea... lying at 42m... so to get ourselves ready for this huge event... we needed to make sure "my" equipment, as my buddy's was fine as he "has" a dry suit, was up too scratch... which surprise surprise.. "was not".... And just to get comfortable in the water again.

Anyway... we were suppose to dive on the Saturday... off the boat... but due to lack of interest and a freezing cold spell... the boat didn't have enough people to launch... so it meant doing a dive on Sunday morning.... Instead of going to church... where I should have been & probably would have been 'way" safer... we attempted to join 4 other friends on a shore entry dive off north mole... east freemantle...

Now yes... it does sound all normal... until you see the entry point... who ever thought of putting abseiling in with diving... was a total adrenalin junky... or never did this entry with waves... which of course is another whole ball game!

So... after kitting up and finding out that my second stage was leaking badly... which should have been the first sign to NOT go diving... We proceeded to blank it off and use my occi...

Then after dressing up in 3 wetsuits... gloves... and the whole toot... we abseiled down the side of the wall... with our gear on... man, I wish I had taken my camara... got to the bottom... put on our fins and waited for a wave... so as to slide over the rocks and into the water... not for a moment... did I ever think of how I was suppose to get out!

The viz was about 2m... and the dive site was still a 150m swim from the rocks... due to the high swell we decided to navigate our way to the site... and then proceed to find the wreck... all good... if you had enough weight! Even though I had put an extra 2kg's on for the muchelin man effect... the lack of diving and crazy entry... murky water... shark infested seas... had made me a little anxious... so of course I couldn't get down... and when I tried to call my buddy... he was gone! No problem... well that's what I thought... until I had to get out!

I swam to the entry... and looked at how I was going to approach it for a couple of minutes.... Then I started to realize... wait a minute... "I look like a seal"... and decided I needed to get out of the water soon! I tried to reach the rope... which was hooked into the rocks... so after being bashed into the rocks for 10 minutes... nearly breaking my arm... panic started setting in.... now you all know that feeling... and it's a snow ball effect... I cant say my whole life flashed before me... but I was starting to FREAK out.... Every time a wave bashed me into the rocks I tried to grip onto something.. but I would just slide down bashing into more rocks below me.... It was hectic... and my prayers started to get louder. I finally manage to pull myself.. gear and all... onto a half submerged rock... but now I was out of reach of the rope and had no way... of getting from this point up, without help.... And it would have been an hour until the rest of the group finished the dive. But as always God was with me through these terrifying moments... and he was watching over me... and someone came to my rescue... after much tugging and pulling... I was saved!!!

Never again... well not when there are waves... and never on a Sunday!

Well.... Just thought I would let you all know... I am safe now... and my regulator is getting serviced and I will be tempting another dive on Saturday... before the key bisquin!... well hopefully... if the weather holds up

The Red Sea Experience

First up, congrats on an awesome magazine, always interesting to read.

Just thought I'd share an experience with you and fellow readers after a trip to Israel.

I had the opportunity to visit Eilat, at the southern most point of Israel and I did some diving at the Dolphin Reef there. I am a diver myself (recreational PADI) and obviously wanted to do some diving on the Red Sea. Visiting Israel with some fellow young travelers, many non-divers, we were all able to dive. Non- divers were able to explore the underwater realm which I thought was amazing. Each diver, qualified or not, was in the water with their very own dive guide (dive masters and instructors). I think that this is a great opportunity to allow people to experience the underwater. It did scare me though when those fellow travelers wanted to dive on their last day in the city, not even 24 hours prior to flying. I expressed my shock and then proceeded to explain about the bends. There is no explanation or cautionary advise about such and with these non- divers being in the water I thought they should be advised about what not to do (skip breathing, breath hold and the bends). All in all the dive experience on the Red Sea was mind blowing, an amazing experience for all divers and non-divers and all should be aware of the potential cautions to prevent an accident.

Just found it interesting! Keep up the great work, look forward to the next magazine.

Natasha

WIN

Send your letter to us and win a Marine Life Species Guide

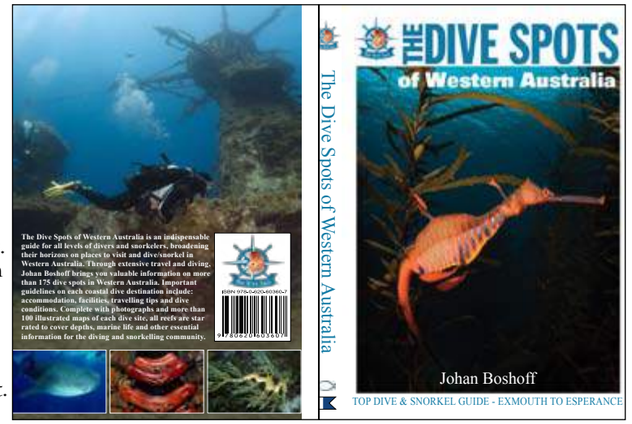
Here is a chance to be heard! If you have anything that you would like to share with OZDiver Magazine and other divers, send an email to Log Book at johan@ozdiver.com.au. Remember that letters have more impact when they are short and sweet. We have the right to edit and shorten letters. In every issue, the winning letter will receive a Marine Life Species Guide.

Photos by Peter Pinnock

OZ News

NEW Book - Dive Spots of Western Australia coming soon.

The Dive Spots of Western Australia is an indispensable guide for all levels of divers and snorkelers, broadening their horizons on places to visit and dive/snorkel in Western Australia. Through extensive travel and diving, Johan Boshoff brings you valuable information on more than 175 dive spots in Western Australia. Important guidelines on each coastal dive destination include: accommodation, facilities, travelling tips and dive conditions. Complete with photographs and more than 100 illustrated maps of each dive site, all reefs are star rated to cover depths, marine life and other essential information for the diving and snorkelling community.
for more information visit www.thedivespot.com.au



World Oceans Day

Although we should celebrate and care for the oceans everyday of every year, the 8th June has been set aside as the official, UN-designated, international day of ocean celebration. Named World Oceans Day, the aim is to educate and help the public make decisions and take on actions that protect the longevity and health of the oceans.
The importance of the oceans cannot be underestimated; they are imperative to all living species on earth. Healthy oceans ensures a healthy planet and the survival of us all.
There are over 400 events already planned for World Oceans Day. You too can host an event; all you need to do is visit worldoceansday.org to register your event.
You can also find an event in your area simply by searching the World Oceans Day website. World Oceans Day are encouraging people to go above and beyond simple awareness raising.

EPA Assessment Agrees Shark Cull is Environmentally Unacceptable

Drum lines will not be deployed off WA beaches this summer after the state's Environmental Protection Authority (EPA) advised against extending the Government's controversial catch and kill shark policy.
The regulator's chairman, Paul Vogel, said the available information and evidence did not provide the organisation with a high level of confidence.
Premier Colin Barnett said the recommendation meant drum lines would not be in place off the WA coast this summer.
Sea Shepherd's WA Shark Campaigner Natalie Banks stated, "This is a tremendous victory for the people that understand the vital and important role sharks play in the health of our oceans. Finally their voices have been heard from all over the globe."
Managing Director Jeff Hansen stated, "The EPA should be congratulated for listening to the people, listening to the science and giving sharks and future generations the respect they deserve. The worlds children need healthy oceans and healthy oceans need sharks."
The WA Government should be acknowledged and encouraged to continue with their other alternatives, to pursue shark mitigation life saving techniques that don't kill marine life.
The WA shark cull caught a total of 172 sharks over the 3-month trial, with the majority of these being tiger sharks. 50 tiger sharks of breeding size (mostly female) were shot and dumped out to sea. Tiger sharks only re-produce every few years and only a small number of their pups survive to maturity. The majority of the so called "alive-released" sharks were in such a poor state that their chances of survival were slim to none. The WA Government had applied for a three-year extension.
Hawaii tried culling sharks for 18 years and it made no difference to shark related incidents.
Sea Shepherd is now urging the Hon. Greg Hunt, Federal Environment Minister to listen to the public, to listen to the science and put forth shark mitigation strategies that assist with human safety without killing marine life.
"To know that we can look out to iconic, world renowned and beautiful places like Cottesloe Beach and not see drum lines this summer is a wonderful feeling. What we have off the Western Australian coast is nature on a grand scale and in todays world, this is rare and unique and should be celebrated", stated Jeff Hansen, Managing Director, Sea Shepherd Australia.
Sea Shepherd would love to have a dialog with the West Australian state government to collaborate on alternatives that actually assist with beach goers safety, without killing our marine life or making our beaches less safe like the drum lines did.
Sea Shepherd's Operation APEX Harmony is committed to seeing an end to drum lines and nets around Australia's coast as they merely provide a false sense of security by killing thousands of marine life, including whales and dolphins. Its 2014, drum lines are archaic, indiscriminate killers should be taken out and replaced, where there is a demand, with non-lethal alternatives.
"We had no choice but to take this challenge on for the sharks, especially when drum lines were placed basically right in front of our office. No matter how hard this fight got, no matter how tired we became, we could never give up, because the alternative was to do nothing. To do nothing would mean the continued destruction of our worlds oceans and to quote Captain Paul Watson, the one thing worth fighting for on this planet, is life!" said Jeff Hansen, Managing Director, Sea Shepherd Australia.

www.seashepherd.org.au

THE OZTeK 2015 DIVING CONFERENCE

Saturday 14th March 2015: 09.00 - 18.00
Sunday 15th March 2015: 09.00 - 17.00

SPEAKER PROGRAM
All the latest developments in equipment technology and training coupled with gripping tales of underwater adventure and exploration. With more than 60 presentations, seminars and workshops focussed on the very best of diving 'info-tainment', the OZTeK2015 Conference offers an inspirational voyage of discovery into all of diving's future possibilities.

THE SPEAKERS
Be Inspired! Meet, talk with and learn from more than 40 of modern diving's most accomplished personalities at one of the world's largest gathering of diving celebrities.

CONFERENCE TICKETS
The complete passport to the world of diving excitement, Gold (two-day) and Silver (single-day) Conference Passes give full access to all the presentations, as well as exhibition entry. Session Passes give entry to the exhibition and two presentations. Entry tickets to the Exhibition on sale at the door. Details will be posted soon. Pre-purchase a Gold Pass and be automatically entered into the Opening Ceremony draw to win an overseas dive trip.

PHOTO COMPETITION & EXHIBITION
The OZTek2015 photo competition focusses on wrecks, caves and open categories - with the opportunity to win thousands of dollars in prizes - The Call for Entries is open - check the Photo Comp page to enter.

Winning images will be displayed in our Photographic Exhibition open during the weekend along with some of the impressive images from past competitions.
To see some of the awesome images from previous comps - take a peek at our website image galleries
Bookings for this increasingly popular highlight event are essential.

THE VENUE
One of Australia's premier event facilities, the Australian Technology Park.

An Inspirational diving event devoted to Information, Education, Exploration and Adventure, OZTeK2015 will again prove that:

Mark OZTek March 14/15th, 2015 in your diary today!

OZTeK Dive Conference & Exhibition

Australia International Dive Expo (AIDE) 2015

AUSTRALIA INTERNATIONAL DIVE EXPO
AIDE 2015
DIVE & DISCOVER

12 – 13 SEPTEMBER 2015 – SYDNEY
The first ever Australia International Dive Expo debuted at the Royal Hall of Industries in Moore Park, Sydney on 22-23 February 2014. It was successfully concluded with dive enthusiasts attending from eight different countries including Australia.

The show was a great the stepping-stone for the consumer market interested in recreational diving. At the Expo, exhibitors introduced new dive gear, dive destinations, tours and camera products to the visitors.

AIDE is back for 2nd year with exciting exhibition and activities for keen divers and to be divers. Scheduled for 12 - 13 September 2015 at Royal Hall of Industries, Moore Park, Sydney, the show will continue to promote the sport of scuba diving, snorkeling, free diving, dive equipment and gears and dive travel as well as ongoing conservation efforts and practices.

Approximately 5,000 visitors anticipated and a total of over 100 booths to be taken at the expo with floor space of 5,000 sqm. Sessions for presentation will be allocated on first come first serve basis.

AIDE 2015 will see even more experts from the diving community taking the stage to share their knowledge, vast experiences, travel advice and valuable diving tips. Product demonstrations will also be held at the event for those interested in learning about the latest marine gadgets and diving technology.

A trade session will be included as parts of AIDE 2015 to better engage with industry suppliers and partners. The expo will be one stop center to promote and showcase your product and services.

Also, not to be missed is the Underwater Project, the world's first perpetual underwater shootout. Visitors are encouraged to join this project and be part of the exciting shootout competition at www.underwaterproject.org.

AIDE2015 is open for registration with the early bird package ending on 28 February 2015.

Information on Speakers, Activities and all details for the show will be updated from time to time. Kindly visit AIDE's website at www.australiadiveexpo.com and join our Facebook page to get the latest news

Dive Schools / Operators / Organisers / Instructors

Do you have any interesting, newsworthy info to share with the industry? If so, we would like to invite you to send us your OZ News section for possible inclusion in the magazine (please note that inclusion is FREE of charge).

Here's what we need:
- Newsworthy stories (promotional material will not be accepted)
- Word limit: 100 words
- Text prepared in a Word document
- Accompanying high-resolution image(s) are welcome (please supply caption and image credit)

Please send to info@ozdiver.com.au

AUSTRALIA INTERNATIONAL DIVE EXPO (AIDE) 2015

AUSTRALIA
INTERNATIONAL
DIVE EXPO
AIDE 2015
DIVE & DISCOVER

ROYAL HALL OF INDUSTRIES
MOORE PARK, SYDNEY
12 - 13 SEPTEMBER 2015

JOIN US ON BUSINESS FOR DIVING AT AIDE 2015

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- SEMINAR ON PRODUCT KNOWLEDGE
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- POOL TRY-DIVE FOR NON DIVERS
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- B2B MEETING FOR TRADE
- FACEBOOK CONTEST FOR VISITORS

FREE ENTRANCE FOR UNDER 17 YEARS OLD, DISABLED DIVERS, SENIOR DIVERS ABOVE 60 YEARS OLD

Photo: "Blinded By The Light" By Matthew Shepherd
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Organizer :

ASIAEVENTS EXSIC PTY LTD
Suite 201/272 Pacific Highway
Crows Nest, NSW 2065.
EMAIL : info@australiadiveexpo.com

www.australiadiveexpo.com

DIVE &
DISCOVER

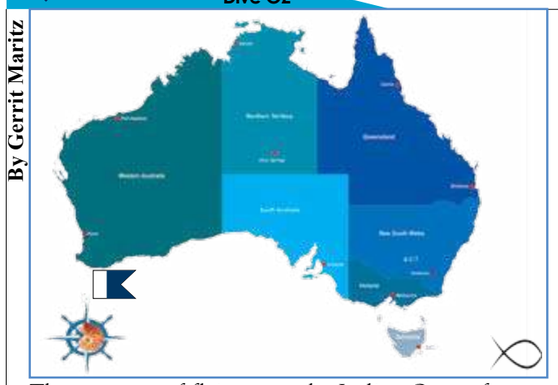
Dive the Continent
Dive OZ

By Gerrit Maritz

Port Kennedy to Esperance

I decided to visit some very good friends in Australia, and specifically in Western Australia. They had recently decided to call Australia home and our arrangement was that once they had settled in I would visit for at least four weeks. Not being one to go back on my word, I made a plan and booked some tickets to Perth, applied for the obligatory visa and off I went.

By Gerrit Maritz



The prospect of flying over the Indian Ocean for nine hours for the first time ever was a bit daunting but I was very excited nonetheless. The flight, as you can imagine, was nothing to write home about and I kept myself busy watching movies and listening to music.

After what felt like an eternity we neared the West Coast of Australia and my excitement started growing exponentially as we got closer and closer. As we got nearer, the first thing I was able to was Rottnest Island – I know this as it was pointed out to me by the person next to me. I was also told to plan a visit to the island as there are some nice dives spots around the island. As we made our descent to Perth International Airport I noticed that, from the air, the area was very dry and arid. I don't know what I was expecting to see but this was not it. I was decidedly underwhelmed.

The landing was uneventful and we were soon allowed to disembark the plane and here my other fear took hold; going through passport control and customs. Having watched the reality program "Border Security" on many occasions I was pretty nervous, even though I made doubly sure before I left home that I had nothing even remotely questionable in my possession. Understandably no one was overly friendly as it was pretty early in the morning, but I made it through passport control without a problem and customs was also navigated with equal ease (and yes, those sniffer dogs really are as cute as those in the programme).

With a sigh of relief I eventually emerged out of the international arrival gates and waiting there was my good old friend. I was relieved that they were there, because as a first time long haul traveller in a new country, I did not know what to expect. What I did expect though, was the heat, and boy was it hot, even relatively early in the morning it was quite toasty. I very soon realised that long pants and a long sleeve shirt were good for the airplane but not the best for walking around in in the heat of day.

On our way to Port Kennedy the time was used to catch up on what had happened in the time since Johan had left South Africa and what he had done up until that point, which seemed like a lot. The transition seemed to have gone smoothly and he was very excited for their future in his adopted country.

Of course I did not go to visit my buddy only to help him settle in, but also to do some diving and I had set aside two weeks for this specific activity. During the last ten years we had built up a very good friendship after he, in 2002, introduced me to the world beneath the water. I seemed to take to diving like the proverbial fish to water, and since then he has trained me from open water diver to trimix diver, Cave Diver level 2 and Instructor. During all this time and many expeditions I have been his preferred dive buddy and close friend.

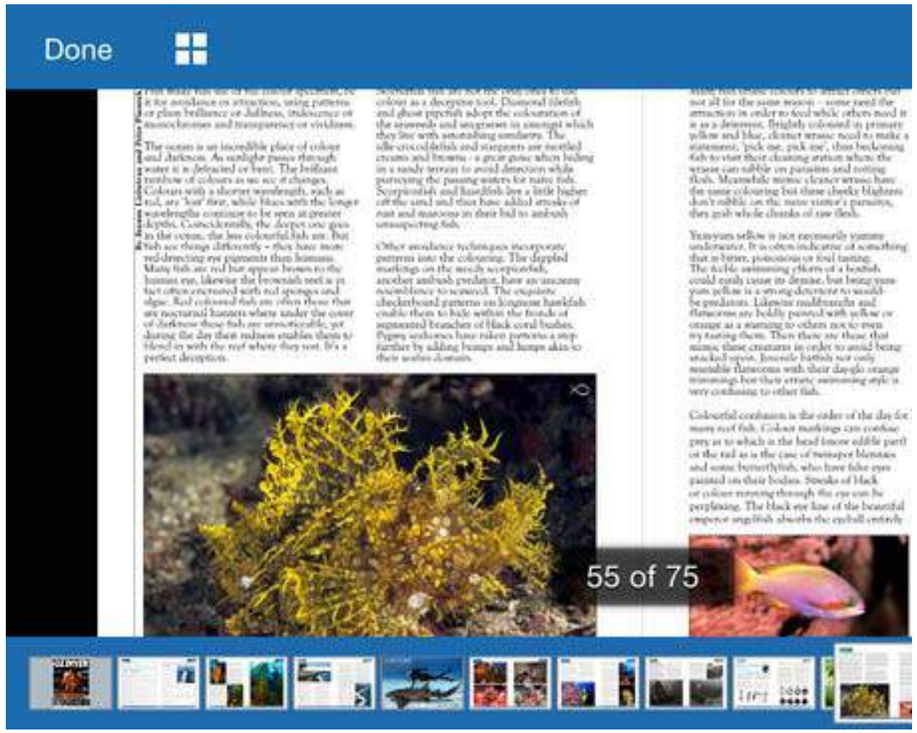
After sorting out what still needed to be done at his house and getting his diving shed squared away, the exciting part of my visit started; planning our journey to the south coast of WA. One thing that I had always wanted to see was a coelacanth and a close second on my list was the elusive sea dragon followed by whale shark, although I maintain that after many dives I have yet to see one and that it's a made up fish that does not actually exist. During our 2011 expedition to Sodwana Bay on the south coast of South Africa, I was lucky enough to spot two coelacanths so the next item on my list was the leafy sea dragon, and as luck would have it, I was on the right continent and in the right place to make it happen.

After asking around at the dive shops in the Perth area it was clear that our journey had to start in Esperance, as this we were told was a must-see place with unrivalled beauty and very good diving. I immediately started scouring the internet for information regarding places to stay and sites to see, while Johan had done some ground work with regards to people to contact on route with information on the towns, and more specifically, the diving in the areas we intended to visit.

After all our administration was completed we set about getting our equipment ready for the trip and the dives. As we intended on camping, that was first on our list and then all our diving equipment and cylinders. We were not sure when or where we would be able to fill our cylinders, so we made sure that we took enough for at least a couple of dives.

With all our equipment sorted and camping gear packed we eventually set off for Esperance. I was quite excited as this would be the first time I would get to see the interior of Australia. We set out and no trip would be a proper road trip if you don't visit well known sites en route, so our trip also included a stop at Wave Rock. Once we started to head inland I was amazed by the extent of the wheat fields. We continued for miles and miles, and being from SA I am not unaccustomed to farming activities and maize and wheat farms, but these wheat farms never stopped. After what felt like a couple of hundred miles of wheat fields, we arrived at Wave Rock.

OZDiver App available on the App store for FREE



Available on the App Store

By Gerrit Maritz

Wave Rock is one of those places that you see pictures of, but never actually dream of visiting, but as this was a fact-finding mission of sorts, we could not let this opportunity slip past us. What struck me the most during my time in Australia up until then was the condition of the public amenities and infrastructure, as well as the effort put into making visitors feel welcome. All personnel were always friendly and helpful and willing to assist where they could, and Wave Rock was no exception as we were soon sorted out with a map and some information on the area. Wave Rock was a great experience and we spent a couple of hours roaming around and taking in the sites such as Hippo Rock and the reservoir.

As we still had some distance to travel we headed off in the direction of Esperance, but Esperance would have to wait for the next day because we needed our beauty sleep and we decided to stop over at a small town called Ravensthorpe. After a good night's rest we awoke the next morning with renewed vigour; we had a quick bite to eat and then we hit the road to Esperance. We had an appointment with one of the stalwarts in the diving community to get to and he was going to give us great insight into diving in Esperance.

Upon our arrival in Esperance we immediately realised why so many people had said we needed to visit this most exquisite place. It was unlike anything I have ever seen. I know that South Africa has some pretty beaches and seas, ranging from the wild to the not so wild, but this was something else. The colour of the water and the white as snow beaches took my breath away, and even my friend, who in his own right is a world traveller, did not have words to describe it.

We managed to arrive in time for our meeting with Rodney from Esperance Diving and after a short discussion about our mission, he imparted some knowledge onto us. We were quite shocked at the news... How could it be that there was almost no diving taking place in this most beautiful of places? The answer came as no surprise; great white sharks or as they refer to them, white pointers. Of late some concern had arose as to the safety of divers due to some white pointer attacks on divers (mostly spear fishermen) and this had done incredible damage to the reputation of the whole South Coast of WA as a diving destination. They informed us of some areas to visit around Esperance and we were eager to go look for ourselves. This, however, did not deter us in the least – we had a mission and we were diving, end of story

First we had to book ourselves into one of the local caravan parks overlooking the bay. We found ourselves a nice, out of the way camping spot and set about settling in for a couple of days. This was also the first time we decided that, when in Rome you must try a kangaroo steak on the 'barbie', so we did and I must say that I quite enjoyed it. With meat prices as they were it made more sense to go for some nice cuts of rump for the remainder of our stay in Esperance though.

The next morning we awoke to a lovely day and we decided to go to the must-see place according to Rodney. He gave us some directions and after visiting the local Visitor's Centre we were now armed with a map of the area and a possible area in which to find the elusive sea dragon. The bay in question was Lucky Bay, situated in a Cape Le Grand Nature Reserve. The bay got its name when Matthew Flinders took shelter there from a summer storm with his vessel HMS Investigator in 1802 when he sailed the dangerous route through the Recherche Archipelago.

We found our way to the reserve, followed the route markers to Lucky Bay and boy did we get the surprise of our lives. Put simply – it was beautiful; the colour of the sea, the view of the bay and the whitest beach I have ever laid my eyes on. We stopped our van on the crest of a hill and just sat in awe. Trying to take pictures of such a place to portray its beauty is impossible, yet that did not stop us from trying though. We came away with

Dive the Continent
Dive OZ

By Gerrit Maritz

some beautiful pictures but the best ones were committed to memory.

We quickly found a spot to park and after a stroll down to the rocks we formed a plan of action. We were going to enter the water near the rocky section to the west from where we were going to make our way around the outcrop and would search amongst the sea grass for the leafy sea dragon and the weedy sea dragon.

After kitting up and sorting out our cameras to take some pictures of the wonders of the underwater world, we made our way down to the water. We were soon ready to dive and so it happened that we did our very first dive on the South Coast. As far as dives go, it is hardly a challenging one but not knowing what to expect made us cautious. After a couple of minutes we realised that the diving was good if a bit 'surgy' and this made it difficult to spot any dragons because the sea grass and seaweed was being moved around a lot. Nevertheless, we enjoyed our dive and got some nice footage and pictures. After our dive we packed up our kit and made our way back to Esperance; we still had some sightseeing to do.

Fortunately for us we had great weather during our stay in Esperance, which made visiting the lookout

points a pleasure. There are some great ones around, especially the Esperance Rotary Lookout with unrestricted 360 degree views of the area which was quite impressive. On a good day you can see for many a mile and you are also able to see the many bays of Esperance and rocky outcrops in the bays in the distance. It is very pretty indeed.
Our next order of business was to dive the Tanker Jetty. During the time of our visit the Shire was busy with a project to renew the shorefront and to try to save the jetty as some of the piles needed urgent attention in order to keep it safe for use by the community of Esperance. The Tanker Jetty, as it is now known, was originally known as the Esperance Deepwater Wharf built by the WA Government Railway between January 1934 and February 1935 and was officially opened by State Mines Minister, Selby Walter Munsie, on April 13, 1935.
The jetty was 11,2m in depth and it extended 842m into the Esperance Bay and was used to unload bulk fuel and load grain for export. The last tanker to unload bulk fuel from the Jetty was the BP Enterprise in 1977. The Tanker Jetty fell into disrepair to the extent that, in 1985 a portion of the jetty beyond pier 124 was so unsafe that seven piers were removed, separating the head of the jetty, and in 1988 the Apex Club of Esperance took over an initiative of Jaycees from the year before when the Save the Tanker Jetty Association was formed. With assistance from the Goldfields and Esperance local governments, community groups, service clubs and the dedicated citizens of Esperance and State Government, funds were raised to preserve the jetty. It is now a venue for recreational activities such as fishing and diving as the artificial reef attracts a variety of fish species. It is also the home of a resident sea lion named Sammy!
Initially we thought that we would not be able to dive the jetty as it seemed to be fenced off, however, Rodney informed us that we could in fact still dive the jetty and that we just needed to follow the path between the fenced off areas. One problem, however, was of concern to me. During the work on the jetty the dive platform at the end of the jetty had been removed and you now had to jump from the jetty to get into the water. Sure enough, the next morning we were there bright and early. We kitted up and once again sorted out our cameras and then the long walk started. As previously stated the jetty is almost 800m long and it took more than one rest stop to reach the end where we intended to enter the water. Doing a giant stride usually is not a problem from a boat or small jetty, but this, however, entailed us jumping from the jetty into the water that was a good 3 or 4 metres away.

Now I have to admit that I am not one for jumping off stuff; during my Commercial Diver training

Dive the Continent
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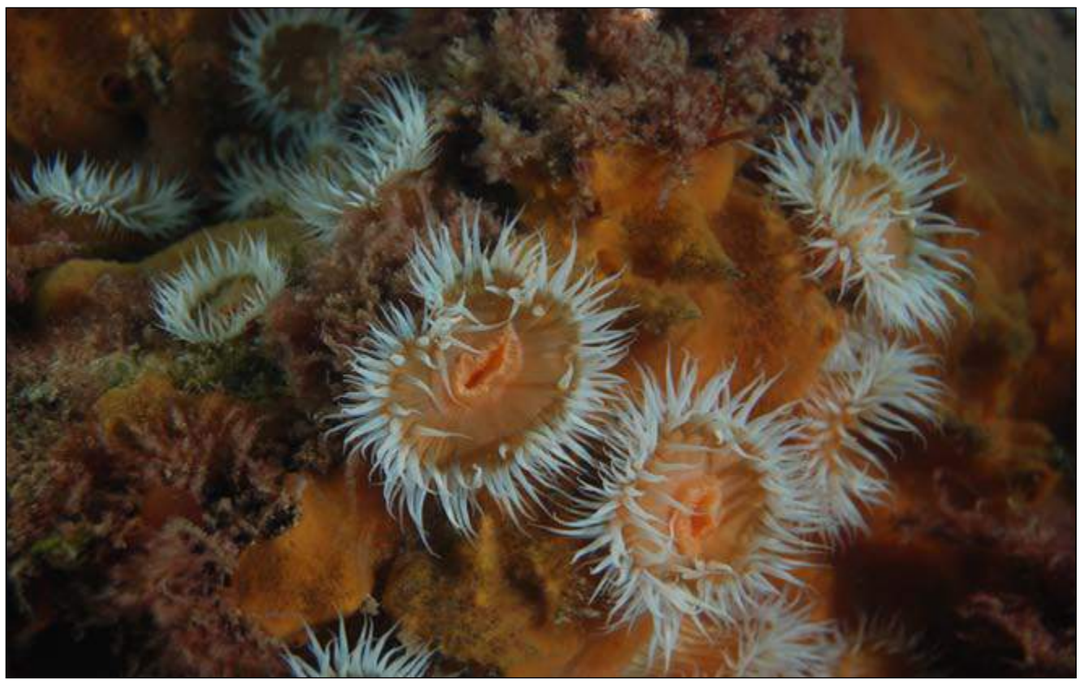

Dive the Continent
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we jumped of harbour docks but this jump seemed higher than what I was used to. Maybe it was the helmet that I wore before; but there was no other way of getting into the water and after a good couple of countdowns I eventually did it. And you guessed it, it wasn't all that bad and I felt quite embarrassed for making such a big deal out of it. Johan passed me his camera and he too made the jump and we were ready to dive this jetty and the artificial reef constructed underneath it. The visibility was good and fish life was abundant. We soon found the markers that indicate the dive trail and we were impressed by the efforts made by the local divers to make this a worthwhile place to dive. After swimming around for some time and passing the same markers more than once it was time to head back to shore and we began to swim underneath the jetty towards the shore. We saw many types of fish on this dive, such as old wifes, but Sammy eluded us.

Thankfully getting out of the water was a much easier affair; we simply had to locate one of the ladders on the jetty and it was pretty easy from there. We were really impressed by the diving so far and although we did not find any sea dragons this was a good learning experience and we were certain that even better diving was on the menu for later on in our trip.

All too soon our time in Esperance came to an end, and as some rainy weather gathered we packed up our camp and readied ourselves for the next leg of our trip. Bremer Bay lay in the distance and we were planning on taking the long road there in order to take in more of this incredible country, and this included visiting the famous Pink Lake. I had seen some pictures and this was one of the must-see places on our itinerary. After taking a closer look at the wind turbines just outside of Esperance we turned away from the ocean and headed inland to find the famous lake. After driving for a couple of kilometres we found what we were looking for; the Pink Lake. At first we thought we were duped and that the signs could surely not be right – the Pink Lake had lost its colour. We were, in fact, a couple years late to see the lake in all its pinkness. You see, only once the lake water reaches a salinity greater than that of sea water and the temperature is high enough, the algae begins to accumulate the red pigment, pink halobacteria, also grown in the salt crust at the bottom of the lake and this gives the lake its remarkable colour. We missed the algae and bacteria bloom but at least we made the effort to see it for ourselves.

After this slight letdown we turned west and headed for Bremer Bay. We did not know what to expect but things could surely only get better from here and we were excited to see what the road and the country had in store for us.

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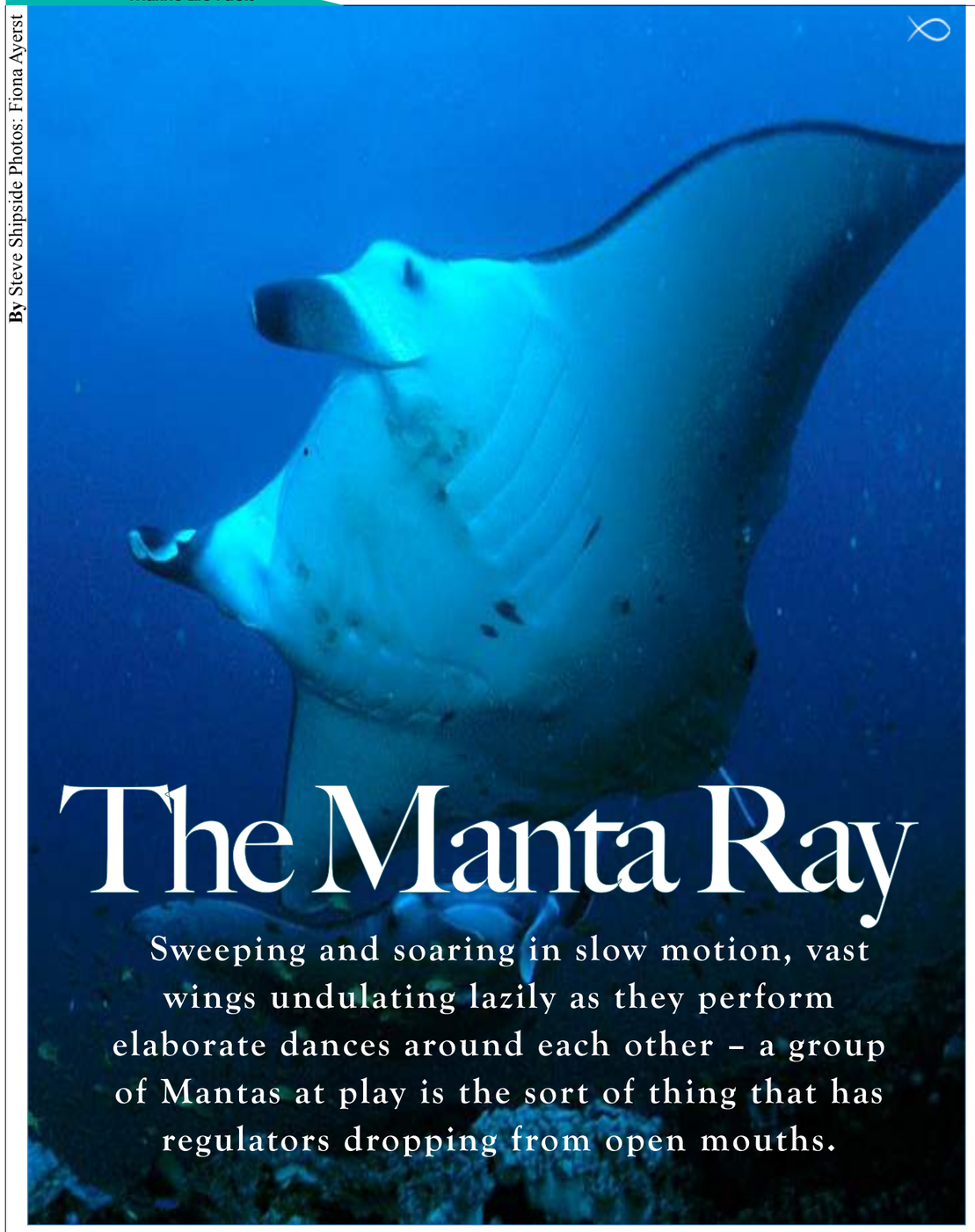
DEEP DOWN YOU WANT THE BEST

By Steve Shipside Photos: Fiona Ayerst



The Manta Ray

Sweeping and soaring in slow motion, vast wings undulating lazily as they perform elaborate dances around each other – a group of Mantas at play is the sort of thing that has regulators dropping from open mouths.

Ask anyone who's visited a Manta dive site about the elegance of the Mantas.
Come to think about it, you probably don't have to ask. Anyone who's seen Mantas will usually let you know all about it without any encouragement.

When it comes to identification you're more likely to confuse the Manta ray (Manta birostris) with a low flying airplane than another fish but over the years it has been confused with Mobula (Mobula mobular), a type of giant Devilray up to 5m across and usually found in the Mediterranean – or at least it was before fishing devastated its numbers. Other Mobula species can be seen in the Gulf of California and the Eastern Atlantic but of the three that are found in our waters the Sicklefin devilray (Mobula tarapacana) and Bentfin devilray (Mobula thurstoni) are very rarely encountered. The Shortfin devilray (Mobula kuhlii) is occasionally found in the KwaZulu-Natal nets but it's usually not much more than a metre across. In fact, of the three Mobulas, the largest, the Sicklefin devilray, grows up to about 3m. So if you see a ray bigger than your car – Mantas can grow to 7m or more across – then chances are it's a Manta.

The other way of being 100% sure is to take a look at the mouth. Unlike similar looking Mobulas the Manta has it's mouth right on the leading edge of its face – instead of underneath its head like other rays. The protrusions on each side of the mouth are the cephalic lobes – extensions of the pectoral fins – that stick out and forward being rolled up into spirals when the Manta swims, and uncurled into flattened paddles when eating. The cephalic lobes help funnel food towards the mouth of the Manta where tiny (we're talking pin-head size here) peg-like teeth in the lower mouth do the rest. As you can guess from the teeth, the Manta is a filter feeder so it nourishes its vast bulk on plankton and small fish. It's obviously a high protein diet since not only do Mantas grow huge and live long (+25 years), they are surprisingly athletic and are often seen breaching entirely from the water and even somersaulting.

The most common place to see these elegant creatures is at cleaning stations (which is what the famed Manta Reef is) and there they will commonly follow set patterns – seemingly playing 'follow-the-leader' as they sweep smoothly through their regular routes.

For all their size and strength they are completely harmless to divers and are often curious enough to come right up to us – a photographer's dream. This is because their sheer size, and the relative armour plating of the dermal denticles that give them the classic rough 'sharkskin' means that the only real predators they are likely to encounter are the very largest of the sharks. However curious and even tame they may seem, please resist the temptation to reach out and touch the gentle giants. It's not because they are a threat to us but because the mucus layers of their skin can be damaged

Weird and Wonders
Marine Life Facts

by contact with our hot little paws, resulting in discolouration and lesions.

On the subject of colour, Mantas come in a variety of dark and light patterns – so much so that for a long time scientists were unsure as to whether they were a single species or formed a number of subspecies. The fact that their range includes pretty much the tropical and semi-tropical waters of the entire globe helped support the theory that there might be entirely different species in different areas. DNA data, however, doesn't suggest that there is a major difference between, for example, the Atlantic and Pacific Mantas, or the mainly black or mainly white ones.

The IUCN Red List assigns the Manta 'Near Threatened' status in recognition that while populations seem relatively healthy, it is a slow moving target and one that even the most short-sighted fisherman is likely to notice. Mantas are hunted for their skin, liver oil, meat or for the Asian medicine market, and like a lot of big sharks and rays, the Manta doesn't reproduce quickly. In fact, while there's some debate about the gestation period, it is thought that the female Mantas are pregnant for between 10 and 14 months before giving birth to just one or two pups at most. That makes it hard for the Manta to come back if its numbers are depleted.

There's another concern about the Manta... it goes by many names (Devil fish, Blanketfish, Eagle ray, etc.) and is often lumped in with Mobula or Eagle ray counts by fishermen so that precise data on population figures is hard to find.

For such an instantly recognisable fish it would be a bitter irony if it became threatened simply because we couldn't be bothered to tell it apart from its cousins.

Climate change & coral reefs Part I

By Neville Ayliffe Photos : Peter Pinnock

As Scuba divers, it should concern us greatly that coral reefs all over the world are in the process of dying. This is due to a phenomenon known as “bleaching”. This is when corals begin to lose their natural colours as shades of green, brown, purple and yellow turn a ghostly white – the result is that the corals look as though they’ve been bleached.

Most coral polyps contain millions of tiny algae within their tissue, called zooxanthellae. As they’re plants, these algae photosynthesize and produce food that is used by the coral polyps. Most corals are wholly dependant on the algae, deriving 80 percent of their nutrition from them.

The loss of colour is the result of the coral expelling their zooxanthellae, a phenomenon believed to be triggered by a marked and prolonged increase in water temperature. At high temperatures, the zooanthellae produce excess energy that can lead to a build-up of toxins in the coral polyp, and to avoid being poisoned, the algae are expelled.

Without their essential energy producers, the corals begin to die and are soon grown over by algae, preventing new coral larvae from settling. The coral skeletons are weakened by the algae and are soon broken up by underwater storms - reducing a beautiful healthy reef to a heap of coral rubble!

Fortunately, due to lower average temperatures at present, the reefs off our coast only experience relatively minor bleaching each year, with many of the bleached colonies recovering as the water cools. The Seychelles, Maldives, Madagascar and East Africa are not as fortunate, though, with up to 95 percent of their corals dying in some areas. This is a result of a particularly bad bleaching event that happened in 1998.

Over the last century, the average global sea temperature has risen by 1°C and could rise by a further 2°C in the next 50 years.

Ironically, there is a chance that the reefs off our coast may even improve for a while, as the increasing water temperatures could encourage tropical coral communities to establish in areas that were too cold in the past. Rising sea temperatures, though, will result in rising sea levels as polar ice caps melt. To survive this, the corals will have to keep pace with the rising sea levels and stay at a depth where there is sufficient light penetration for photosynthesis to take place.

What causes these increases in sea temperature? Carbon dioxide is a colourless and odourless gas that makes up about only 3 parts per 1000 in our atmosphere. It’s one of the Greenhouse gases that play a critical role in maintaining the balance necessary for life to exist on the planet.

The Greenhouse gases allow radiation from the sun to pass through the atmosphere unchecked, as most of the radiation is of a short wavelength. This radiation then heats the earth’s surface, which then releases heat. The heat is of a much longer wavelength and is blocked by the gases in the atmosphere. They are re-radiated back to earth, trapping the heat near the earth’s surface and warming our world.

Read more about this climate change and what you can do about it in the next issue of OZDiver Magazine.

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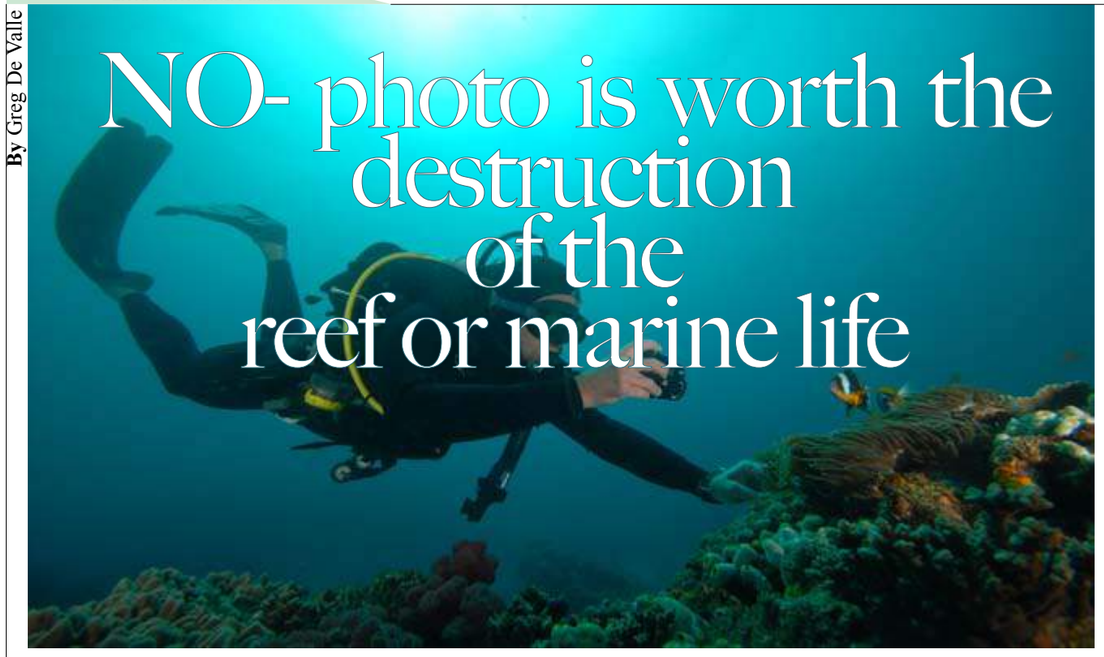
NO- photo is worth the destruction of the reef or marine life



By Greg De Valle

After experiencing the amazing world under the sea, many divers are prompted to take photos to share the experience and beauty with family and friends. Over the years, photographers have got a bad name for damaging reefs and the environment through poor diving practices or the "get the picture at all costs" attitude. Underwater photographers are ambassadors for the underwater realm. Very few people ever get the opportunity to see exactly what's under the sea. By sharing our images we educate others about the marine environment. With this in mind and with first hand knowledge of the fragile, if not threatened, state of the marine environment, we should not only be ambassadors but environmentally friendly ambassadors.

In order to be an ECD (environmentally correct diver) and underwater photographer, we need to consider two things: does my photograph portray a positive conservation message, and do I behave in an environmentally friendly manner underwater while taking photographs? Remember that on each dive boat there are at least 10 other divers watching you.

Positive photos show the subject in its natural environment, where it would normally be found behaving as nature intended it to. When we use models in our photos, it's important to ensure that the model looks like an ECD, with the gauges and octo tucked away while not touching the reef with any part of their body or gear. If they're interacting with an animal, make sure it's positive - no chasing, touching or riding.

The key to taking good photographs and being an ECD is having good diving ability – this means effortless buoyancy. All aspect of diving should be automatic before you even attempt to take photos. At the start of the dive, ensure all your diving practices are taken care of before you start taking photos. If it's been a while since you've dived I recommend you take 10 to 15 minutes just to get used to your equipment and get your buoyancy right. The first time you're going to use a camera underwater, I recommend that you take the housing down without the camera inside so you can test the housing is watertight and get used to the extra equipment. You must "practice" taking photos to learn how to position yourself without causing any damage to the corals. Refrain from using gloves (unless it's really cold).

In ideal conditions it's possible to hover motionless and take photos without touching the reef. The majority of the time our coastline conditions don't allow for motionless hovering, with factors such as currents and surges making this nearly impossible. Where possible, try using the surge when taking wide-angle shots by finding the lull between sets and using the lesser surge to push you into place. If this proves impossible, locate your subject and survey the area around the subject looking for a piece of solid reef that is bare or dead to use as a hand hold. Remember, all you need to hold on is two fingers – your thumb and index finger. Position yourself with your fins in an upward position, head down and kick with your fins to push your body against your finger hold. This helps to keep you in place when the surge is pulling you away.

Ensure that your fins and body aren't touching the reef. A good rule to remember is "right hand camera, hand left reef". Don't hold the camera with both hands. If you can, it's always best to position yourself on a sandy bottom. Make yourself negative by letting all the air out so you can stay on the bottom, but beware of the surge pushing you onto the reef. Many animals live in the sand, so always check that there's nothing under you before you settle down. Rubble areas are home to many animals, so settling on the bottom in these environments can hurt or kill them. A point to note is that corals are extremely slow growing, with soft corals averaging 1cm and hard corals averaging 5cm per year. Causing physical damage by breaking or kicking a coral can be removing year's worth of growth. Ever notice how things don't grow over one another on the reef and that there seems to be an order? This is achieved by each reef dwelling organism having toxins that repel the others. When we touch something and then touch another organism, we transfer these toxins which cause them to expend unnecessary energy to survive this chemical warfare.

When we take photos we try to "capture" the animals in the picture. We can be likened to hunters by the marine animals. Our body language and eagerness make us appear as dangerous animals – slow, steady approaches make us seem less threatening. This is applicable from the smallest critter up to the large mantas, sharks and dolphins.

The general rule of "do not touch" also applies to photography. By moving something to give you a better picture, you may be exposing it to being eaten or injured. Ask your local dive guide for advice, but remember when in doubt, there should be no doubt. Don't mistake a guide's eagerness to please for experience. Rather shoot your subject where it is or leave it for another dive. No photo is worth the destruction of the reef or marine life. However, some subjects are hard to shoot without human intervention, like shark chumming. Ensure that you use operators who have sound conservation ethics. It's your right to question them as to their justification for interfering in the animals' natural behaviour.

We're discovering new practices all the time and understanding our role in the reef community as divers, so always try keeping up to date with the latest practices. What may have been acceptable behaviour in the past may be unacceptable today.

Remember, Green Peace is a mind set, not something you smoke!

Hypertension– the silent killer

By Dr Jean Voster Photos : Peter Pinnock

Hypertension is one of the most common human afflictions. The prevalence of hypertension increases with age, rising exponentially after age 30. Eventually, by age 75, almost 90 percent of the population will have hypertension. Often the diagnosis is made for the first time when a person presents with one of the devastating complications of this condition, such as a stroke, heart attack or heart or kidney failure.

In 90 to 95 percent of hypertensive patients, a single reversible cause of the elevated blood pressure cannot be identified. In the remaining five to 10 percent, a more discrete mechanism can be identified, for example disorders of the kidneys and major blood vessels.

Hypertension is a disease which cannot be cured, but can only be controlled with a variety of anti-hypertensive medications and lifestyle changes. Thus, once this condition is diagnosed, it is a chronic disorder (similar to diabetes) that requires lifelong treatment to prevent the morbidity and potentially life-threatening complications associated with it. The fact that it is a chronic and asymptomatic disease makes treating it challenging. It requires exposing an asymptomatic patient to the potential side-effects of anti-hypertensive drugs for many years to prevent the possibility of complications that may develop in the future. For these reasons, compliance with these drugs is often poor and it takes a considerable amount of effort from the treating physician to keep a patient positive and involved in his treatment.

The implications of hypertension and diving

Firstly, submersion in water is associated with a slight elevation in blood pressure. The increased water pressure forces blood from the extremities and abdomen into the central circulation, therefore increasing blood flow to the heart and central organs. The constrictive effect of the cold water on the blood vessels of the skin intensifies this even further. A compounding factor is a degree of anxiety, which physiologically, leads to an increase in blood pressure through the release of stress hormones by the adrenal glands.

Secondly, because it is so common, everyone should be screened to identify the disease in an early phase, so as to treat it aggressively, and in doing so prevent the potential complications of the disease. Screening is done by way of a simple blood pressure measuring (hypertension is diagnosed by a blood pressure reading that is persistently above 140/90mmHg). The identification of hypertension in a patient may also lead to the diagnosis of conditions commonly associated with hypertension, namely high cholesterol, diabetes and obesity. These conditions often cluster together (known as the Metabolic Syndrome) and increase the risk of future cardiovascular complications (strokes, heart attacks and heart failure). Routine screening for hypertension and associated conditions can therefore lead to the institution of lifestyle changes and treatment to combat these feared complications.

Thirdly, there is no reason why an individual with well controlled and uncomplicated hypertension cannot participate in diving activities. Ideally, one should only dive once the blood pressure is adequately controlled (and the potential side-effects of the anti-hypertensive drugs are known). This obviously does not apply to diving alone, but to future health and wellbeing in general. Patients with resistant or complicated hypertension should refrain from diving until such time as their blood pressure is stabilised or the associated complications addressed. This may require consultation with a Specialist Physician or Cardiologist.

Lastly, no anti-hypertensive drug is specifically contra-indicated with scuba diving. The more important issue, as previously stated, is blood pressure control and the prevention of its complications. Although there are seldom, if ever, drug interactions between anti-hypertensive medications and malaria prophylaxis or vaccinations for foreign travel, it is prudent to consult with your physician regarding such a possibility.

Know your numbers (blood pressure, cholesterol, glucose and weight) for safe diving and living!

Global News

Lewis Pugh to Swim the Seven Seas for Marine Conservation

Renowned endurance swimmer, Lewis Pugh, will be swimming the seven seas in August in order to put marine protected areas on the glob al agenda.
Pugh will officially be the first man to undertake long distance swimming in each of the seven seas: The Mediterranean, Adriatic, Aegean, Black, Red, Arabian and North.
The seas are among the most polluted and over-fished in the world and Pugh's campaign, Seven Swims in Seven Seas for 1 Reason, aims to raise awareness about the urgent action required to save them.
The United Nations has called on nations to set aside at least 10% of the world's oceans as effective Marine Protected Areas (MPAs) by 2020.
"Land-based pollution, poorly managed coastal development, overfishing and climate change are all major threats which can be reduced if governments work together and set ambitious targets," said UN Environment Programme Executive Director Achim Steiner.'
"The UN applauds Pugh's latest expedition," he said.
Pugh will be welcomed by Prince Albert II of Monaco as he completes his first swim in the Mediterranean Sea.
"I'm very grateful that Prince Albert II will be on the beach as I finish my Mediterranean leg. Prince Albert is also passionate about protecting the world's oceans. In fact he's set aside 100% of his national waters as an MPA. What he's achieved is inspiring," said Pugh.
Desmond Tutu joined Pugh at his final training session to wish him well and said "When we damage the environment and don't protect our resources we create the conditions necessary for conflict. However, when we protect the environment we bring peace. I salute Lewis in his efforts."

Giant Croc Eats Bull Shark

The 5.5 -metre crocodile pictured with a bull shark between its jaws a few days ago has made international headlines and become a reptilian celebrity.
But this is not the first time the 80-year-old two-tonne beast called Brutus, has attracted international attention.
Photographs of him lifting his two-tonne frame out of the Adelaide River in the Northern Territory to gnaw at some kangaroo meat during a 'jumping crocodile' tour made headlines in 2011.
The giant crocodile is known on the river tours for his huge size and the fact that he is missing his right foreleg – believed to have been torn off in a fight with a shark.
'We get a lot of requests about Brutus,', said Harry Bowman from Adelaide River Cruises. 'We get many phone calls, are you the one who has Brutus? Have we got the right tour to see Brutus? You could say he's a local celebrity.'.
'He's been with us for quite a few years, we can't guarantee that he'll come out at every cruise, but he makes appearances pretty regularly.'
Brutus's appeal, he says is his 'sheer size and the fact he's missing a leg.'
When tourists see him 'they're pretty awed', said Mr Bowman. 'It's pretty gobsmacking for them. A lot of people who come on these cruises haven't seen a crocodile before. To see them in the wild up so close, I think they're awed. It's like seeing a dinosaur really, that's what a lot of them say'..'
The crocodile attracted international attention when pictures emerged of him eating a shark on Tuesday.
The photograph was snapped by Sydney man Andrew Paice who was on a cruise down Kakadu's Adelaide River on Tuesday with his partner Nikki and seven-year-old daughter Madison.
'The tour guide had Brutus jumping at some meat the first time we went past him. Brutus is quite well known up here... he jumps really high for an old crocodile,', he told Daily Mail Australia.
'We were near the end of the tour and we'd fed all of the crocodiles along the river. We were on our way back to the jetty when we saw (the crocodile) had something in his mouth.'
Brutus the crocodile has been a key attraction on river cruises in the Northern Territory for years, with many people calling up Adelaide River Cruises to see whether they'll get to see the famous beast.
It is believed that Brutus lost his right leg in a fight with a shark years ago, although he clearly came out the winner in his fight with a bull shark on Tuesday
The tour guide, Morgan from Adelaide River Cruises, backed the boat back just as Brutus the crocodile was on the river bank with the shark in its mouth.
'The shark was definitely alive... it was still wriggling. The crocodile slid back into the water and the shark started to flip around a bit. The the crocodile swam into the mangroves, I guess to protect his catch,' Mr Paice said.'
'I never even thought about a crocodile catching a shark before. It was absolutely amazing to see. Everyone was astonished. I was amazed I even caught it on camera.'
Mr Paice, who lives in Sydney, is four months into a year long trip around Australia with his partner and daughter.
'There's some amazing sites to see up here. To see the jumping crocodiles was pretty amazing but then to see this... I think it will be pretty hard to top,', he said.
They have already travelled through Queensland and are now part way through the Northern Territory, before they head down into Western Australia.
Brutus the killer crocodile is believed to be around 80 years old - and has a front leg missing which he is believed to have lost during a fight with a shark.
By Kate Lyons and Emily Crane
View the original article on the dailymail.co.uk

Underwater Robot Sheds New Light on Antarctic Sea Ice

Underwater Robot Sheds New Light on Antarctic Sea Ice.
The first detailed, high-resolution 3-D maps of Antarctic sea ice have been developed using an underwater robot. Scientists from the UK, USA and Australia say the new technology provides accurate ice thickness measurements from areas that were previously too difficult to access.
The results, published Nov. 24, 2014, in the journal Nature Geoscience, step up the pace of research in the polar regions aimed at understanding the dramatic sea ice changes in the context of climate change.
Scientists use a range of technologies and techniques to measure sea ice thickness. Satellite observations can measure large-scale thickness from space, but interpreting the data accurately can be difficult due to snow cover on the ice. Measurements made on the sea ice by drilling holes, together with visual observations from ships are critical for building a more complete picture, but difficulties in getting access to thicker areas of sea ice leaves gaps in the data. Now, with the Autonomous Underwater Vehicle (AUV) known as SeaBED, scientists have an invaluable new tool to fill this gap.
While most oceanographic survey instruments look down at the seafloor, SeaBED was fitted with an upward-looking sonar in order to measure and map the underside of sea ice floes. The AUV operated at a depth of 20 to 30 meters and was driven in a lawnmower pattern. These lines of data were merged to form high-resolution 3D bathymetric surveys of the underside of the ice.
The yellow SeaBED robot, which is approximately two meters long and weighs nearly 200 kilograms, has a twin-hull design that gives the robot enhanced stability for low-speed photographic surveys.
"Putting an AUV together to map the underside of sea ice is challenging from a software, navigation and acoustic communications standpoint,", says Hanumant Singh, an engineering scientist at the Woods Hole Oceanographic Institution (WHOI) whose lab designed, built and operated the AUV.
"SeaBED's maneuverability and stability made it ideal for this application where we were doing detailed floe-scale mapping and deploying, as well as recovering in close-packed ice conditions. It would have been tough to do many of the missions we did, especially under the conditions we encountered, with some of the larger vehicles.".
"The full 3-D topography of the underside of the ice provides a richness of new information about the structure of sea ice and the processes that created it," adds co-author Guy Williams from Institute of Antarctic and Marine Science. "This is key to advancing our models particularly in showing the differences between Arctic and Antarctic sea ice.".
The data from SeaBED, combined with airborne measurements of sea-ice surface elevation, ice coring surveys, and satellite observations, vastly improves scientists' estimates of ice thickness and total sea ice volume.
"The AUV missions have given us a real insight into the nature of Antarctic sea ice – like looking through a microscope. We can now measure ice in far greater detail and were excited to measure ice up to 17 meters thick," says co-author Jeremy Wilkinson from the British Antarctic Survey.
The team deployed AUVs as part of two Antarctic cruises (IceBell and SIPEX-2) in 2010 and 2012 in the austral spring. The first expedition was on the British Antarctic Survey's RRS James Clark Ross and the second on the Australian icebreaker the RSV Aurora Australis. Three locations around the Antarctic Peninsula were mapped –– the Weddell, Bellingshausen and Wilkes Land sectors covering an area of 500,000 square meters.
The next steps are for the scientists to do large-scale surveys that can be compared to large-scale observations from aircraft and satellites.

"What this effort does is show that observations from AUVs under the ice are possible and there is a very rich data set that you can get from them," says Ted Maksym, a WHOI scientist and co-author of the paper. "This work is an important step toward making the kinds of routine measurements we need in order to really monitor and understand what's happening with the ice and the large scale changes that are occurring.".
The research was carried out by scientists at the Institute of Antarctic and Marine Science (Australia), Antarctic Climate and Ecosystem Cooperative Research Centre (Australia), Woods Hole Oceanographic Institution (USA) and British Antarctic Survey (UK).
Funding for the work came from the Antarctic Climate and Ecosystem Cooperative Research Centre, the British Antarctic Survey, and the Natural Environment Research Council. The U.S. National Science Foundation, which funding the SeaBEd development, manages the U.S Antarctic Program.
The Woods Hole Oceanographic Institution is a private, non-profit organization on Cape Cod, Mass., dedicated to marine research, engineering, and higher education. Established in 1930 on a recommendation from the National Academy of Sciences, its primary mission is to understand the ocean and its interaction with the Earth as a whole, and to communicate a basic understanding of the ocean's role in the changing global environment. For more information, please visit www.whoi.edu.

Rare Huron Pottery Found in Laurentians Lake

Divers Jean-Louis Courteau and Jacques Lech were exploring a Laurentians lake for an old truck that broke through the ice nearly a century ago when they came across something just a tad older. In fact, their find in November was likely a once-in-a-lifetime discovery. What they saw on the gravel lake bottom in just 33 feet (10m) appeared to be a rusted old pot but closer inspection revealed an intact piece of original pottery. Though they gave the object little attention at the time, they photographed it and brought it along for later inspection. Little did they know they were the first humans to lay eyes on the clay pot in nearly half a millennia.Only during the boat ride back to shore did the divers start to realize the magnitude of their find. Once in the open air, the handmade vessel appeared unlike anything they had ever seen. Unnoticed by them in the lake's dark green waters were intricate motifs etched on the outer surface of the pot. Other distinctive characteristics included a single, spout-like feature on its rim, which was marked all around with linear impressions.
The first archaeologists to examine the artefact say it appears to be of Huron (Wendat) design and likely predates European contact. Such vessels were used mainly for preparing and cooking corn soups, to store food and to carry water and other goods. Further study will permit researchers to better determine its origin and age, since Huron lands were far west of the discovery site until about 1609 when a number of Wendat traveled east to negotiate an alliance with the French. The rare artefact is now in the hands of government authorities for appropriate care, and later exhibition, of the unique piece of First Nations history. An artist, Courteau fashioned a clay replica as a memento of the astounding discovery.

By Jeffrey Gallant

Send us your news.

Do you have any interesting, newsworthy info to share with the diving world? If so, we would like to invite you to send us your Global News section for possible inclusion in the magazine (Inclusion is FREE of charge).

Here's what we need:
- Newsworthy stories (promotional material will not be accepted)
- Word limit: 150 words
- Text prepared in a Word document
- Accompanying high-resolution image(s) are welcome (please supply caption and image credit)

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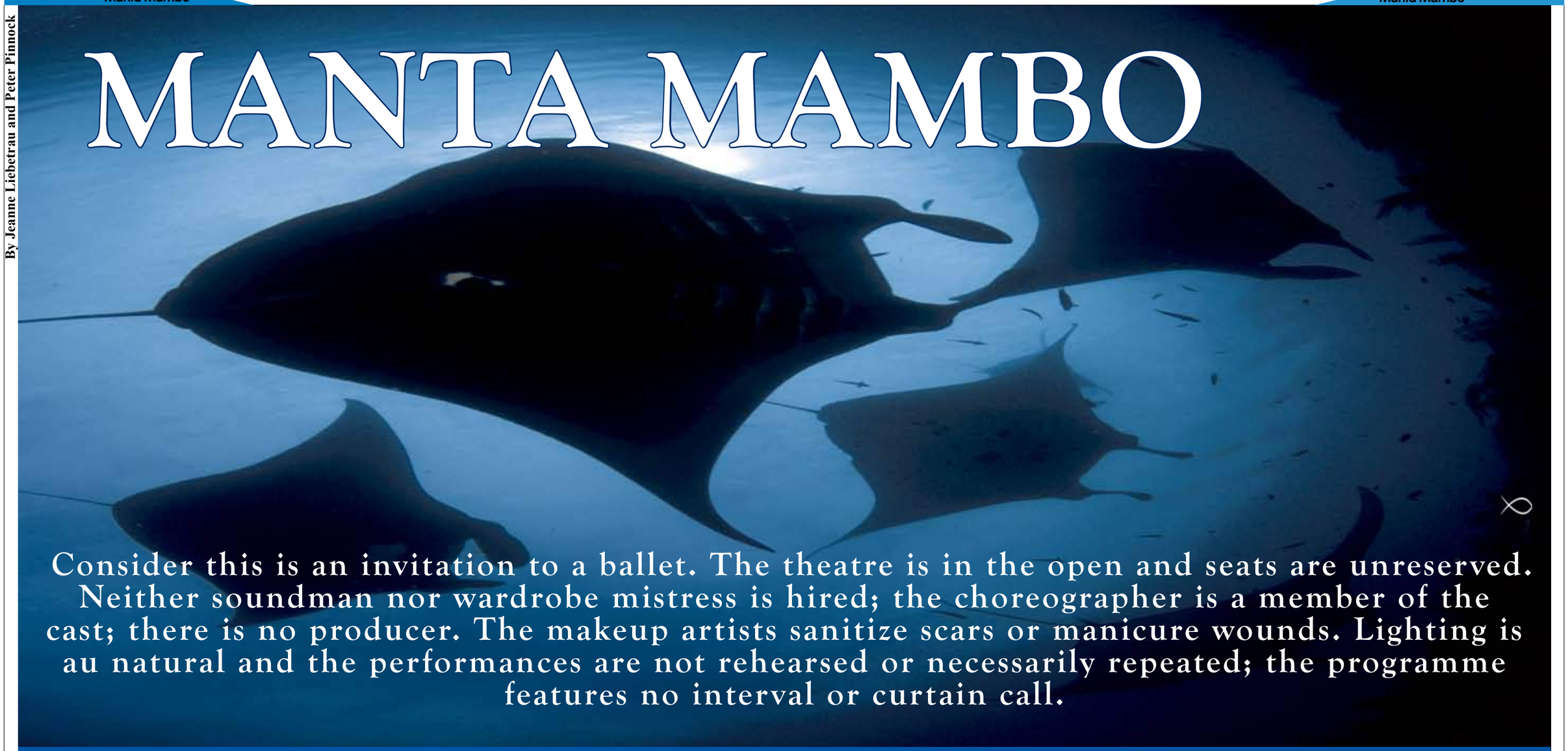
Dive the Globe
Manta Mambo

By Jeanne Liebetrau and Peter Pinnock

MANTA MAMBO



Consider this is an invitation to a ballet. The theatre is in the open and seats are unreserved. Neither soundman nor wardrobe mistress is hired; the choreographer is a member of the cast; there is no producer. The makeup artists sanitize scars or manicure wounds. Lighting is au natural and the performances are not rehearsed or necessarily repeated; the programme features no interval or curtain call.

By Jeanne Liebetrau and Peter Pinnock

The show is called the Manta Mambo and it is hugely popular. It is so mesmerizing that most audience members only leave when they are forced to, and they inevitably are.
(Pardon a bad pun, but as an audience member one's breath is literally taken away.)

The Manta Mambo is never advertised and the cast only takes to the stage when instinct tells members that conditions are right. They perform worldwide circum-tropically, and the principle actors are the ever-graceful manta rays, gentle giants of the ocean.

Manta rays resemble giant underwater butterflies. The large disc-shaped body is flanked by huge pectoral fins, which are fashioned like wings. On each side of the cavernous mouth are strange flaps (cephalic fins), which curl and uncurl, depending on the presence of gourmet delights. In order to feed, the fins uncurl, forming a giant funnel that channels plankton, shrimp and small fishes into the mouth. Here gill rakes sift through the water and extract nutritious elements. Mantas are massive vacuum cleaners of the ocean. Mantas' teeth have evolved to become dentricles or scales, which no longer have any feeding functions.
The tail is typical of most rays, but it lacks a sting. It is thought that mantas evolved from stingrays – sandy bottom dwellers – to become midwater and surface inhabitants. Since the sting's main function was to deter those disturbing the sand dwelling, it was no longer required. The stingray's flattened body shape was retained, but the wings grew to accommodate a new, nomadic lifestyle.

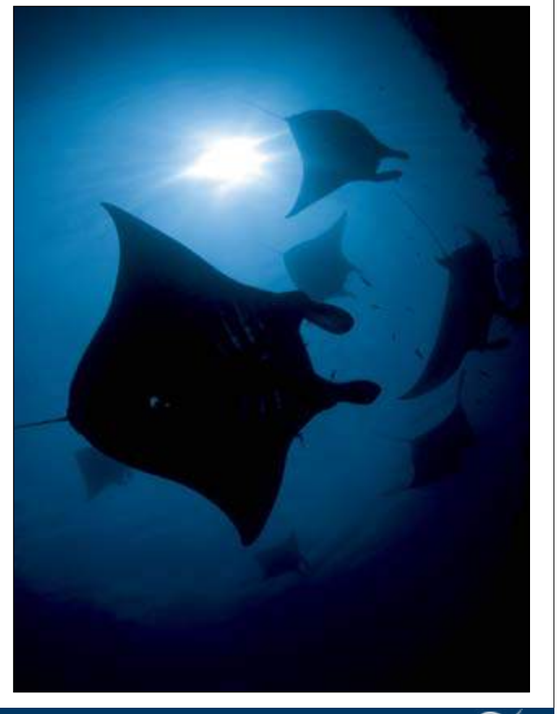
Manta rays' wingspans can be as great as 9 m, although they average around 4,5 m. Mantas

can cover great distances and attain good speeds with just a few gentle flaps of these wings, whilst the flick of a wingtip enables them to perform a delicate pirouette, or change direction on a tiekie. Even though they can weigh up to 1 350 kg, an effortless ripple of the wings enables them to hover effortlessly, as if motionless.

Manta rays are an enigma. Little is known about their lifestyle – where they come from, where they go, how long their gestation is and how long they live. Scientists have accumulated few facts and many of these are disputed. One birthing theory arose in North Carolina, when a harpooned manta tail-walked across the surface whilst being dragged towards the boat, giving birth in the process. Soon tail-walking became an accepted theory of how mantas give birth, yet this was the only known occasion on which a manta birth was witnessed – and no thought was given to the stressful situation. However, it is known from the dissection of mantas that only one or two pups are born, with a wingspan of approximately 1,2 m.

Manta sex, on the other hand, has scientists talking. It has been established that only those mantas with a wingspan greater than 4 m partake in sexual activities. Mantas' sex-shows present some impressive moves, which could include a repertoire of aerial aerobatics, break-dancing, tail-walking, and even a mix of twists and boogies. A male performs brilliantly in order to win a female's interest. The happy couple then pair off in a pas de deux towards the surface. The male uses his dentricles to grasp her body firmly as he inserts a clasper to transfer sperm in the grand finale of the act. The couple separates and the male continues his ballet, hoping for a brief duet with yet another lady.

Little is also known about the mantas' nocturnal habits, largely because humans themselves are diurnal. Off the Kona coast of Hawaii, the lights



By Jeanne Liebetrau and Peter Pinnock

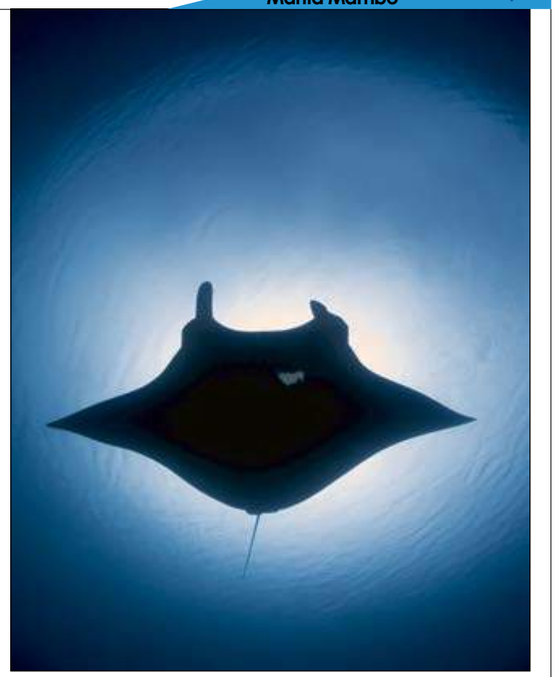
Dive the Globe
Manta Mambo

By Jeanne Liebetrau and Peter Pinnock

cast from Kona Surf Hotel lure huge swarms of plankton to the surface. Once, at night, manta rays were seen as they hungrily fed on the plankton. The feeding continued well into the night, but soon boatloads of curious divers arrived to witness the free show. The mantas were overwhelmed by the noise made by humans and eventually cancelled their nightly show at this venue. No other documented research has taken place at night since.

The supporting cast members of Manta Mambo vary per show. Remoras or suckerfish frequently grip onto a manta's belly. As the manta swoops and twists, the remoras' tails sway like curtains blowing in the breeze. The manta's dance continues regardless the amount of remoras that have latched on. Trevally kingfish sometimes make unannounced appearances, too. Juvenile golden trevallies, on the other hand, prefer to swim in the pressure wave in front of the mantas.

Swimming in the slipstream beneath the giant cloak of wings, the cunning kingfish use this guise to launch ambush attacks on prey. Bi-coloured cleaner wrasses, a.k.a. as make-up artists, generally exhibit stage fright. These fish are tiny in comparison to the mantas and prefer to stay close to the reef. The cleaner wrasses enhance the mantas' ballet by preening the mantas and ridding them of parasites and algae infestations. They dart about frantically near their dressing rooms, advertising their grooming services. As a manta arrives, several diligent wrasses congregate and work swiftly and thoroughly, preparing the mantas for their next act. Their labour is so appreciated that many mantas rehearse their steps near wrasse studios whilst waiting their turn.



Swoops, waltzes, limbos and even break-dance moves and somersaults are practiced with precision. Although the mantas wear no elaborate costumes for their performances, each one is

By Jeanne Liebetrau and Peter Pinnock

Dive the Globe
Manta Mambo

By Jeanne Liebetrau and Peter Pinnock

distinguishable. Their colouring varies across the oceans, from predominantly phantom-black underneath to albino white. Emblazoned against these backdrops are simple designs, reminiscent of fingerprint markings. The tails are also very distinctive – some are short, some are long and others are kinked or even non-existent. Ladies often bear scars from aggressive lovemaking by men.

Not every patron at the Manta Mambo is friendly. Sadly, in some countries, mantas are hunted and not revered for their majestic performances. The wings allegedly contain tasty meat; the livers are rich in oils; the skin is used as primitive sandpaper. For many years, fishermen feared mantas, often referring to them as evil killers. The only logical reason for this is a live manta landing on a small fishing boat, since it can cause a lot of damage thrashing around. But it is mantas that should fear fishermen. Mantas snared in fishing nets die a slow death. On the other hand, natural enemies of these underwater ballerinas are limited to killer whales and tiger sharks, which have gourmet preferences, apparently.

Today's Manta Mambo is performed near a school of cleaner wrasse. The current is running strongly, allowing the mantas to feed whilst being stationary enough for the make-up artists to do their work. Backstage, mantas that their turn in the dressing room glide through the ocean twisting and turning, spinning, swinging and doing the shimmy. Some acrobatic moves are performed as they execute cartwheels and tumbles mid-water, or jeté right out of the ocean, doing a somersault before plunging back in. These mantas are excited about the presence of the opposite sex. The ladies lead the dances and the males vie for position and attention. Gracefully the mantas turn, loop the loop and glide across our fantasy stage in the ocean. This ballet is a beautiful rendition of majestic underwater manoeuvres. For more stories and underwater images, please visit www.PeterPinnock.com.

Dive the Globe
Manta Mambo

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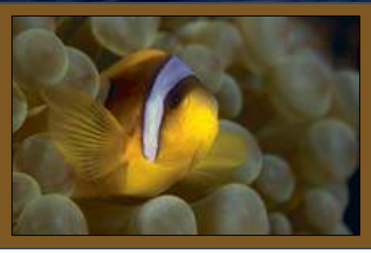
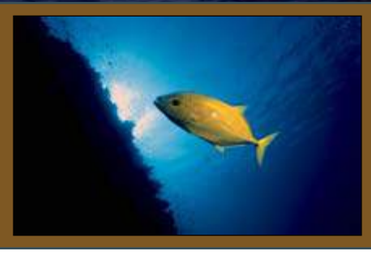
Dive the Globe
Ras Mohammad

By Jeanne Liebetrau and Peter Pinnock

Ras Mohammad

Heights have never bothered me. I have peered over the edge of the tallest mountains and with a massive leap of faith jumped out of a perfectly healthy airplane without being bothered by the distance to the ground. Strange then that the first time I should experienced vertigo was underwater – at Ras Mohammed.





By Jeanne Liebetrau and Peter Pinnock

The Sinai Peninsula separates Africa and Asia, thrusting like a prehistoric finger south into the Red Sea. The Gulf of Aqaba flows down its east coast and the Gulf of Suez sweeps up the west coast. At the very tip of the continent the two oceanic giants converge, flex their muscles and indulge in a bit of arm wrestling. Host to the feud is one of the Red Sea's richest dive sites: Ras Mohammed.

I will never forget my first experience of diving Ras Mohammed. Its underwater cliff face plummets vertically into the unknown depths. Drifting away from the edge of the reef into the deep blue realm was a nerve-wrenching experience. Looking down, the reef vanished into suicidally deep water. Your head spins and quickly you fin back to the safety of the drop-off. A lost diver could never be recovered here. In blue water like this it is the easiest thing to lose track of time and depth – a diver needs to pay very careful attention to his diving profile.

Now I am returning. Flying high above Africa in the cabin of a dimly lit 747 I could not sleep. I dreamt of schools of barracuda and giant Napoleon wrasse.

Far below me the lights of Africa twinkled like the lights on a Christmas tree.

A day later on a cool winter's morning we slipped out of Sharm El Sheikh harbour. The throbbing of the boat's diesel engines cut through the crisp morning air. We headed south along the Sinai Peninsula toward Ras Mohammed, a speck on the distant horizon. Egypt is a land of contrasts. The new mixes with the ancient, old traditions are practised alongside the modern and the barren desert landscapes give little hint of the wealth of marine life lying just below the surface. On the tip of the Sinai, the barren khaki slopes of Shark Observatory towering above Ras Mohammed are bleak and uninviting. The vertical cliff face plunging into the sea below gives some indication of the underwater topography we are about to experience.

We don our wet suites and walked like frogs to the stern of the boat – then step off the edge of Africa. Breathing compressed air we descended to the reef below. Ras Mohammed has several dive sites, most of which can be visited in one dive. We start at Anemone City, a patch of reef blanketed by enormous anemones undulating in the current. Hovering above the anemones are swarms of Clownfish and juvenile Dominofish. Approaching closer they take refuge in the stinging tentacles of the anemone. This is one of nature's many fascinating symbiotic interactions between reef organisms that are obligatory for the existence of the animals involved. The Clownfish gains protection

from larger fish that would receive a sting from the anemone, and in turn the anemone feeds on the Clownfish's leftovers. With the light from a torch we look for the eggs of the Clownfish that are laid under the anemone. Instead we startle a pair of translucent Glass shrimps that quickly claw their way to safety.

Ras Mohammed is well known for currents,

By Jeanne Liebetrau and Peter Pinnock

Dive the Globe
Ras Mohammad

By Jeanne Liebetrau and Peter Pinnock

particularly in the summer months. Gently tugging at us, the current pulls us over a sandy ledge that fades away into the depths. In front of us looms the most spectacular dive site at Ras Mohammed – Shark Reef. From a distance the reef seems to shimmer with life. Reaching the vertical reef face I dive deeper, beckoned by the void, I fall into the blue depths. The wall became a blur as I pass by, going ever deeper. Free falling to 50m I stop my descent at a huge gorgonian coral, it's branches extended against the current like an enormous oriental fan. A tiny goby has made the gorgonian his home. Perfectly camouflaged, it darts up and down the spines of its host. Looking up, the sun is a bright dot on the distant blue surface. I can feel my heart pounding and have to force dense air into my lungs. My bubbles sound like crystal champagne glasses breaking as they rush for the surface.

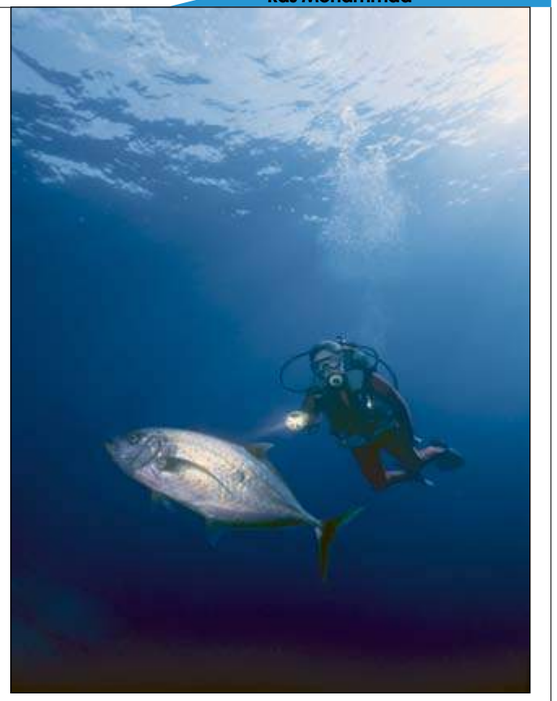
A school of barracuda appear out of the open water, their silvery streamlined shapes forcing them effortlessly into the current. Leaving the reef face we swim out toward the barracuda. They gather together in a flourish of motion, dissolve and then gather again. Slowly they perform large sweeping pirouettes, oblivious of their strange audience. Soon they disappeared – on a mission to nowhere. We are left suspended, alone in an azure ocean, the sea floor lying hundreds of metres below us. Descending deeper, vertigo and the pressure from the water above starts to play games with my mind. I become dizzy and my head starts to spin. Instinctively we return to the reef face and begin our slow ascent to the surface.

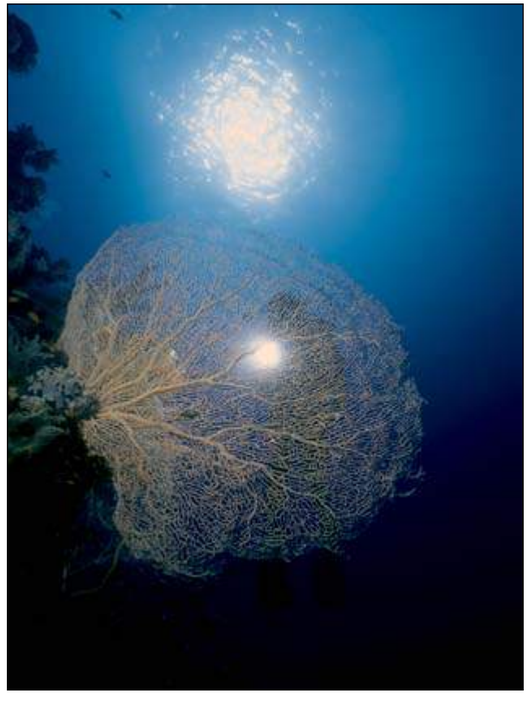
Ras Mohammed is far more that a spectacular wall dive. The abundance and richness of the reef is often missed by making the mistake of diving too deep. The shallow waters ooze with life and colour as the occupants of the coral reef go about their daily business of feeding and fighting for space. A Napoleon wrasse joins us as if to keep a secret rendezvous. His chameleon eyes never leave us. A suckerfish – best described as the hitchhiker of the open ocean – clings to its host. Firmly attached by the sucker on its forehead, the remora waits patiently for the wrasse to feed so that it may devour any leftovers. Blizzards of silvery Kingfish patrol the open waters, swooping in to capture their prey with the stealth and speed of a Samurai warrior. Hanging and drifting with the current we pass through schools of brightly coloured goldies swarming above the reef. When we come too close they converge into the reef's nooks and crannies, emerging in unison moments later. Soft corals bloom in an array of colour like underwater broccoli painted by Disneyland. Their tiny mouths are open to extract nutrients from the water. We pause at a cleaning station to watch as an Emperor angelfish hovers patiently as a cleaner wrasse scours its body, removing bits of damaged skin and parasites. The exquisitely coloured angelfish leaves, well groomed and ready for a mate.

Propelled by the current we glide like soaring birds, using only our fins to steer ourselves. Eventually we are sucked over Jolanda Reef. The reef takes its name from a freighter that ran aground in 1980. The abyss has since swallowed the wreck, but on the reef you can still see its cargo – a bizarre conglomeration of toilets and baths. I smile quietly to myself. One of the Red Sea's finest dive sites is littered with nothing less than toilet seats!

All too soon we run out of air and it is time to leave. We surface onto a corrugated sea and I look around.

Dive the Globe
Ras Mohammad





By Jeanne Liebetrau and Peter Pinnock

Climate
The climate remains dry all year round with June to September being the hottest months. Temperatures peak above 40°C in summer. Egypt gets cold in winter – temperatures can drop below 15°C between December and February.

Currency
The local currency is the Egyptian Pound. Keep lots of small change for tipping – it is a well-practiced custom.

Language
Arabic is spoken throughout Egypt, yet communicating in English is generally not a problem.

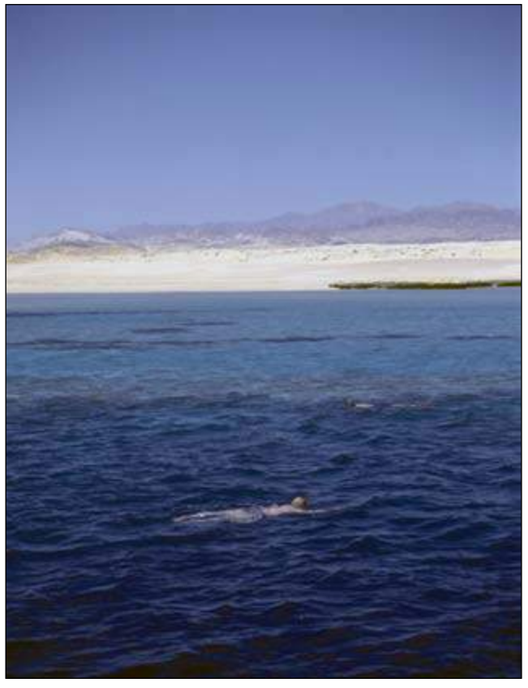
Health
Drink and brush your teeth only with bottled water. Wash any fresh produce bought at markets thoroughly.

Diving
Ras Mohammed can be dived all year round but visibility is generally better in the Northern Hemisphere's summer months.

Qualifications
An advanced open water certificate is recommended.

When to go
The best time to dive the Red Sea is during the northern hemisphere's summer months (June to September). Because this is peak holiday season, the resorts can be exceptionally busy. Strong winter winds from December to January often affect visibility and water temperature drops to 22°C.

For more underwater images and stories, visit www.peterpinnock.com



Dive the Globe
Ras Mohammad

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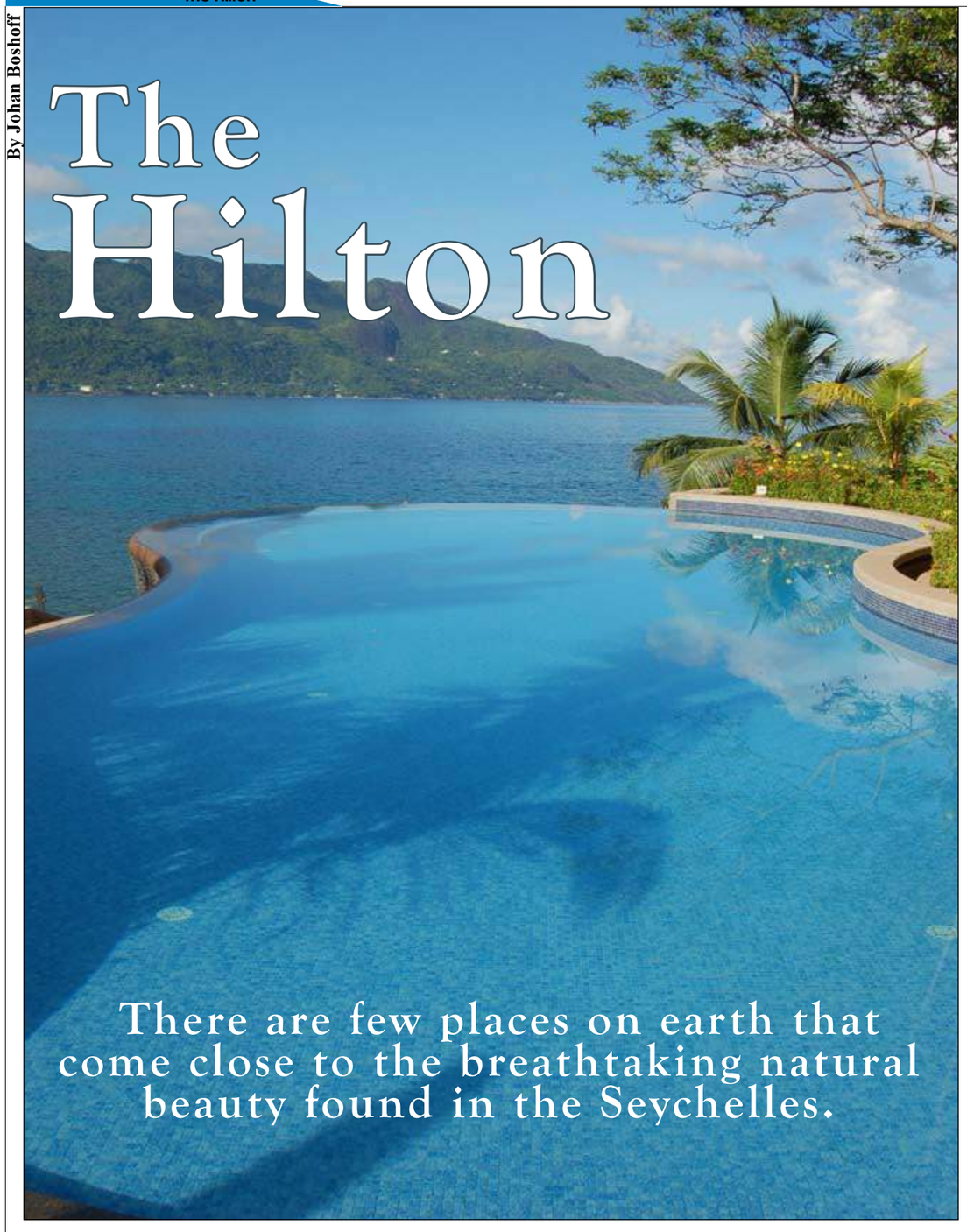
By Johan Boshoff

The Hilton



There are few places on earth that come close to the breathtaking natural beauty found in the Seychelles.

The Hilton Seychelles Northolme Resort & Spa is situated on the beautiful island of Mahé and is a dream destination for many travelers. They say that a picture is worth a thousand words. If this is true, then the view from your room in the five star resort is priceless. The rooms have a breathtaking view of the most popular beach in the Seychelles and guests can watch the sun disappear into the Indian Ocean in the afternoons.

The resort comprises of 40 comfortable and spacious villas - 14 deluxe oceanfront villas and 26 ocean view hillside villas – all of which have spectacular ocean views and are elevated above the ground on stilts. The deluxe villas are all single-storeys, while most of the hillside villas are double-storied. Large private balconies are found on all of the villas and include oversized double daybeds, sun loungers and outdoor dining facilities.

The villas' interior design showcases an elegant and modern décor of natural materials and fabrics from the Far East and are among the most spectacular units you could find anywhere in the world. Each item and feature has been specially chosen for the units and is of the highest quality. White slippers and brilliant carmines, along with marker bathrooms and jet baths will leave you feeling like a king or queen – the way a proper holiday should make you feel.

The white-sand beaches and palm trees finish the tropical island feel. And what would an island holiday be without snorkeling, kayaking and many other water sports that are available at the Beau Vallon Bay resort. This bay is world-renowned, as well as being the most visited beach on the island and is always busy with some form of activity. For complete relaxation and luxury Duniye Spa is the perfect sanctuary

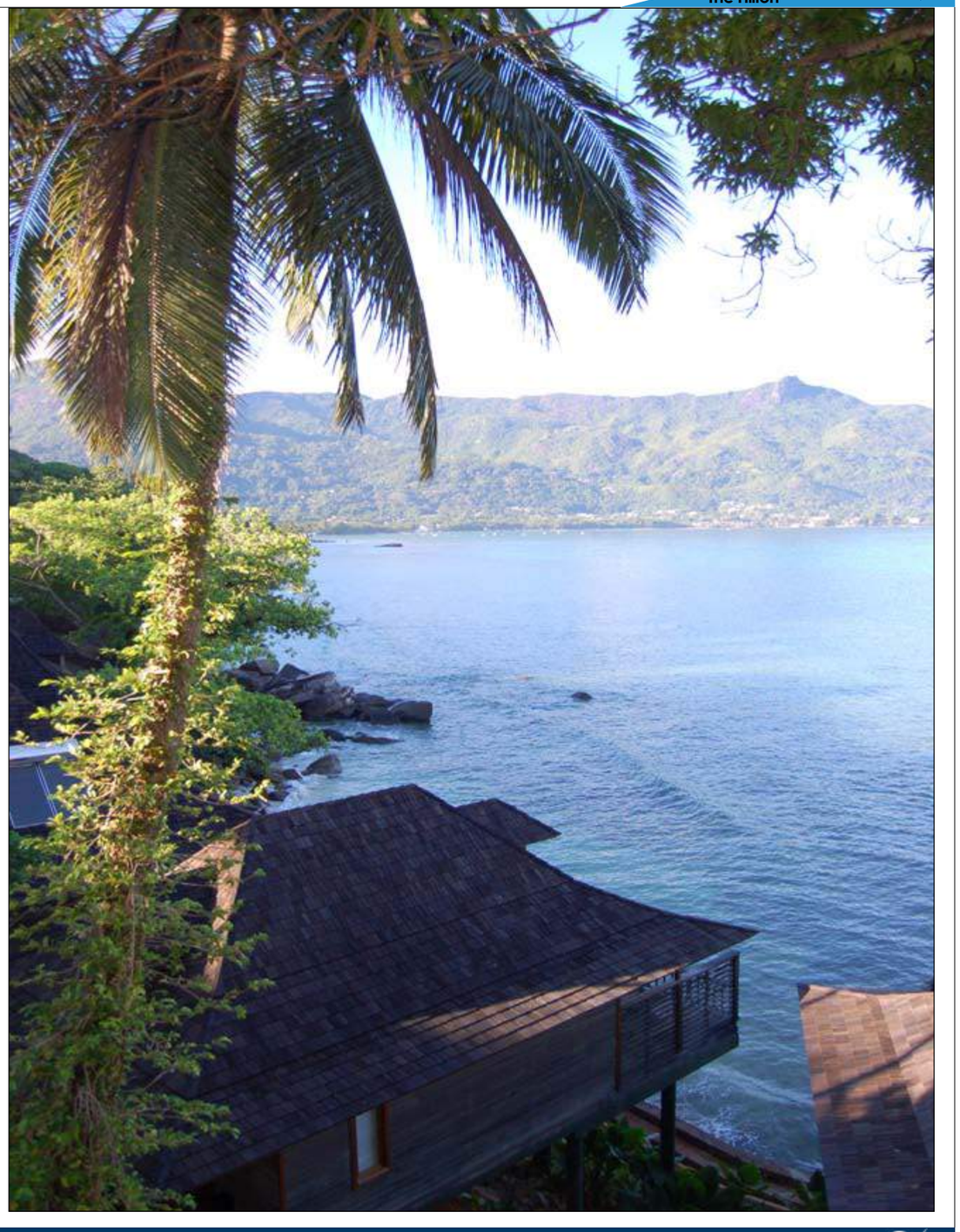
By Johan Boshoff

to soothe your body and mind with a wide selection of health, beauty and wellness services.

The ideal place to take in the magnificent Seychelles' sunsets is the Ocean View bar. They have a fully stocked bar and you can enjoy your favourite beverage as the night approaches. The structure comprises of a handful of timber decks - one of which is set at the water's edge and is a popular venue for weddings and cocktail parties.

The resort offers a wide range of facilities, including a swimming pool, fitness and well-being centre, internet café and the compulsory gift shop.
An exciting range of guided excursions, sunset cruises, Mahé sightseeing and island hopping can all be arranged from the resort, as well as fishing trips and the exciting Robinson Crusoe picnics.

Dive the Globe
The Hilton

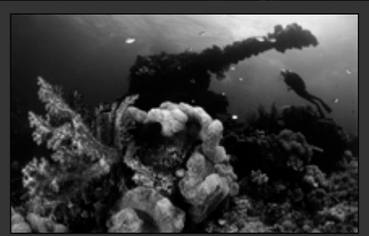


Wreck Explorations
World War II Wreck Dives

By Jeanne Liebetrau and Peter Pinnock

Compelling World War II Wreck Dives

Part II

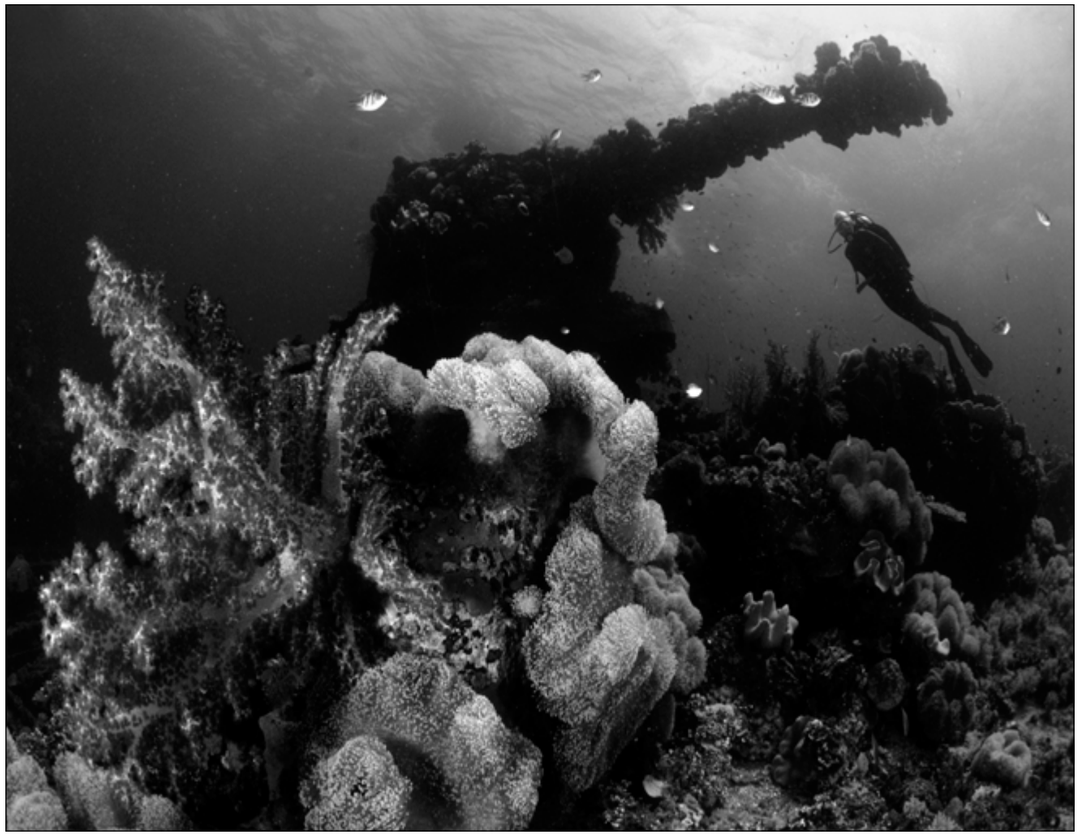




By Jeanne Liebetrau and Peter Pinnock

The The Pacific was the biggest battleground in the Second World War. Naval battles raged from Pearl Harbour down to the Solomon Islands up through the Philippines and ultimately culminated at Iwo Jima in Japan. Distances covered were immense. Thousands of tons of ships and aircraft were lost in the Pacific by both the Americans and Japanese.

Today, very few remnants of the War remain on land where six decades of corrosion and human expansion has taken it toll. Yet underwater the Pacific is littered with wrecks. Most of them are in deep water out of view, but a few of them lie within reach of the sport diver. Knowing the story behind the wreck brings the wreck to life. It's like touching the face of history. Here are the stories behind a few classic wreck dives in the Pacific.



Fujikawa Maru – Chuuk Lagoon, Micronesia

The Fujikawa Maru was built in 1938 by Mitsubishi. Originally she was used by the ship's owners for liner service to North American ports on the Eastern Seaboard. She was taken over by the Imperial Navy in December 1940 and converted into an aircraft ferry. Semi-assembled planes were shipped in her hold from Japan to Chuuk Lagoon and there they were assembled on the island and made ready for warfare. Just before Operation Hailstone, the Fujikawa Maru had discharged 30 Jill torpedo bombers onto Eten airfield.

During the early phases of the War, America

Wreck Explorations
World War II Wreck Dives

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learnt the value of torpedoes launched from fighter aircraft. A bomb landing on a ships deck can cripple a ship, but a torpedo exploding below the waterline will certainly destroy it. This was the fate of the Fujikawa Maru. She was hit by a single torpedo starboard amidships, while still at anchor. Slowly she sank landing almost perfectly on an even keel.

This wreck is an all-time classic and the most famous of the sunken fleet at Chuuk Lagoon. There are several Japanese Zeros in the second hold along with propellers, fuselages, engines and wings. Large-calibre bullets and gas masks litter the other holds. Most impressive is the engine room – it down three flights of narrow stairs, with an electrical shop that looks like it was used yesterday. Watch out for the air compressor affectionately known as "R2-D2".

Wreck Explorations
World War II Wreck Dives

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USAT Liberty Glo – Bali, Indonesia

This steam-driven cargo ship was built in 1918 but for the war effort she was armed with two guns and sent to carry cargo between Australia and the Philippines. On January 11, 1942 she was torpedoed by Japanese submarine I-166, 15 kilometres southwest of Lombok while carrying a cargo of railway parts and rubber. US destroyer USS Paul Jones and Dutch destroyer HNLMS Van Ghent took the damaged ship in tow attempting to reach Singaraja, the Dutch port and administrative centre for the Lesser Sunda Islands, on the north coast of Bali. However, she was taking too much water and so was beached on the eastern shore of Bali at Tulamben so that the cargo and fittings could be salvaged.

Over the years anything salvageable was removed. Here she remained until 1963 when the tremors associated with the eruption of Mount Angus caused the vessel to slip off the beach coming to rest in 30m of water. She is now Bali's most popular dive site. The wreck is broken up, but guns, toilets, boilers, an anchor chain and other features are clearly visible. It is encrusted with coral and sea life and is a popular spot for photography and night diving. This is an easy shore dive with excellent fish life.

Wreck Explorations
World War II Wreck Dives

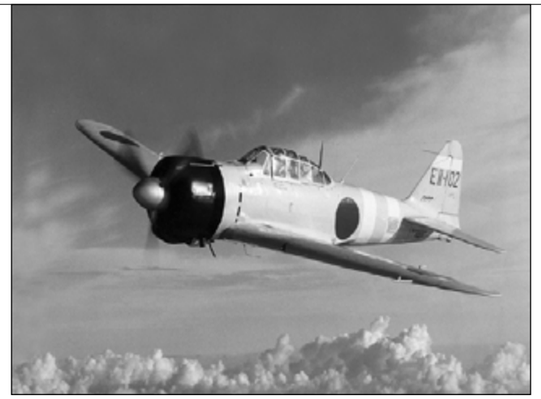
By Jeanne Liebetrau and Peter Pinnock

Mitsubishi Zero – Kimbe Bay, Papua New Guinea

The Japanese Zero was probably the most outstanding plane in the Pacific theatre. Early in the war, nothing could out-turn and out-speed the Zero. Although matched, and later outclassed by US fighters, it still represented a formidable weapon. The reason it performed below par in the later years was that it was manned by pilots who lacked experience, training and the skill of the early aces. Up to the Battle of Midway, the Zero dominated the skies. Yet, it was this battle that the losses of aircraft, pilots and carriers struck the heavy blow from which the air-arm of the Imperial Japanese Navy could never recover.

The Zero was responsible for destroying at least 1 550 American aircraft between 1941 and 1945. Never substantially updated or replaced, the Zero remained the Imperial Japanese Navy's primary fighter throughout the war. With the arrival of new Allied fighters, such as the F6F Hellcat and F4U Corsair, the Zero was quickly eclipsed. Faced with superior opposition and a dwindling supply of trained pilots, the Zero saw its kill ratio drop from 1:1 to over 1:10.

The Zero at Walindi was flown by Honda Tomiharu out of Rabaul, the biggest and



most significant Japanese base in the South West Pacific. On the December 26, 1943 it partook in a major air battle to defend Cape Gloucester on the western coast of New Britain Island. Returning to Rabaul, it is suspected that the Zero ran out of fuel. The pilot was faced with the choice of trying to fly across Kimbe Bay and possibly run out of fuel before he made Hoskins Airfield or ditching the Zero in the very protected and calm water waters of Kimbe Bay. It is found only 50m away from the shore and is in perfect condition.
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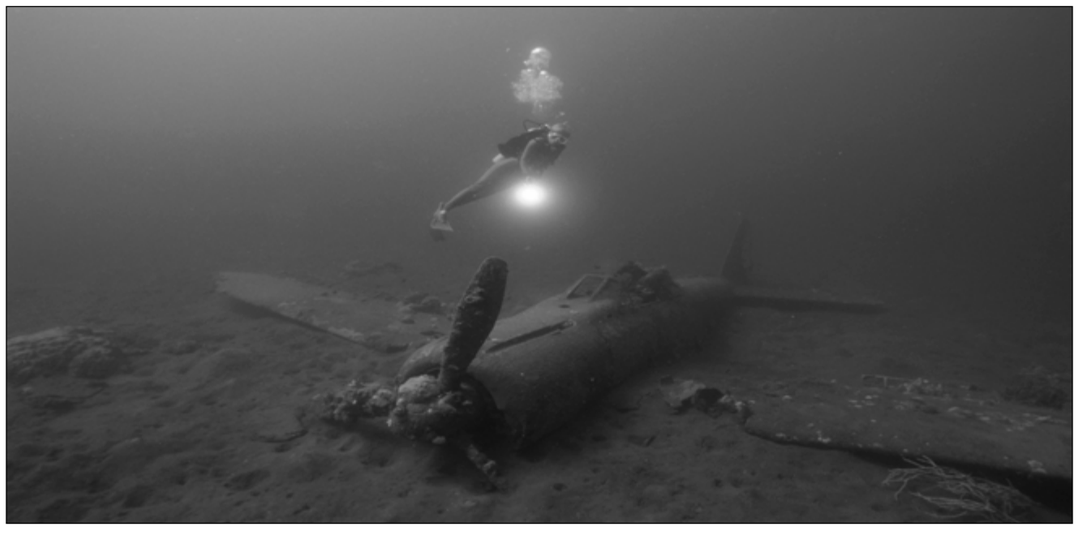

Through the Lens
Photographic Competition

Photographic Competition

Alina Botha took this photograph of an octopus with a Sea&Sea 8000 and YS27 strobe.

Christo Smit took this photograph of a Moray Eel with a Sony Cybershot DSC.

This photograph of a nudibranch was taken by Dave Martin with a Canon Powershot G9.

Jacques Vieira took this photograph with a Sea & Sea 8000.

Jaque Vieira took this photograph of a Featherstar with a Sea & Sea 8000.

This photograph of a sea fan was taken by Michael Chang with a FinePix F31FD.

Nicholas Marchand took this photograph of an anemone with a Panasonic DMC-TZ2.

Ray Shaer took this photograph of a Frog fish with a FUJI Finepix F30 and a strobe.

Winning Photograph

Jan Botha used a Nikon D70 to take this photo of a Nudibranch laying her eggs.

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– The Name of the photograph must be the photographer's name.

– Photographs must not be bigger than 5 MB per photo.

– Submit your snaps in high-resolution (at least 150 dpi) in jpeg format.

Visit www.ozdiver.com.au, click on the "photographic competition" link and follow the steps.

Through the Lens
Photo School

By Rian Bester

Photo School

Expose it right underwater

In part three of this series we are going to look at shutter speed. I previously mentioned that the aperture controls the amount of light that reaches the 'film', now the shutter controls the length of time the 'film' is exposed to light. Moving the shutter speed dial from 1/60th to 1/100th of a second means that the exposure time has been halved. If we change from 1/60th to 1/30th of a second, then we have doubled the exposure time. A change in shutter speed is the same as changing the exposure either up or down by one f-stop.

Shutter speeds are numbers that represent fractions of a second – 1/500 is a fast shutter speed and 1/8 is a slow shutter speed. When you set a slow shutter speed, the shutter will stay open for a longer period of time – this is useful for low light conditions. The problem with slow shutter speeds is that you will probably need additional support for the camera to steady it. If you consider the diving conditions we experience or the marine life we often want to photograph, a slow shutter speed will cause a lot of blurring. Remember, this is as a result of the shutter being open for a long period of time. To solve this problem, we set a fast shutter speed and by doing so, we can freeze the image and eliminate the blurring. It is generally accepted that 1/60th of a second with an aperture of f8 is a good start in underwater photography – this is accepting that 18% grey is the perfect exposure. We also need to remember that when we change the shutter speed, we will need to change the aperture as well. Confused? No problem – read on...

So what settings will get the correct exposure? To control exposure we need to have an idea of the relationship between shutter speed and aperture. The camera light meter system that measures the reflected light always tries to set the camera to get the perfect exposure. This is actually pre-programmed into the camera and is how the camera is able to determine various settings in 'auto', otherwise it makes use of an exposure scale usually found in the viewfinder or on the display. We are now left with the option of how we would like to control the exposure – how we set up the camera is determined by a couple of factors, such as natural light or artificial light, depth-of-field, camera or subject movement.

Let's look at some examples of settings you could try with your camera. If you were trying to take a photograph of a fish that is constantly moving, you would be more concerned about freezing the movement. In this case, you would consider a fast shutter speed and a large aperture. On the other hand, if you were trying to photograph a nudibranch, you could consider a slightly slower shutter speed and smaller aperture. Then there is the use of artificial light – check to see what the manufacturer's synchronisation speed is of the strobe you are using. Set the shutter speed accordingly and just use the aperture to control the exposure. One thing you must always remember when making use of artificial light is the distance you are from the subject. If it is at all possible, try and set your camera either to shutter priority or aperture priority and then play around with various settings while photographing the subject. Note the results and you will get a better understanding of how your camera operates. Remember that making use of the camera light meter is the key to getting good exposure.

In the next issue, I am going to talk about 'film' sensitivity and different methods of getting the correct exposure.

By David Caravias

Photo Editing

Backscatter is when the internal flash or strobe of your camera underwater highlights particles in the water between the lens and the subject. This may even happen in seemingly clear water with good visibility. Many particles are not visible to the naked eye and when using a flash/strobe the photographer must always bear in mind where the strobes are pointing.

Even if the visibility is fairly poor, a good photographer should be able to take stunning photographs using the right lenses and careful strobe positioning. The key is to light up the subject without forcing particles around and in front of this to reflect. Unfortunately the bulk of the compact cameras on the market use the standard built-in flash when underwater. The flash is normally directly above the lens, in line with the point of view, so all photographs taken with the flash will light up everything between the lens and the subject. Camera manufacturers supply diffusers to attach to the housing to help soften and spread the flash to prevent backscatter and these tend to work fairly well, but definitely do not eliminate backscatter completely.
The answer is to use external strobes which can be positioned in a way to light up the subject indirectly. There are dozens of positions to choose from depending on what type of lens and picture you are after. Below are the most commonly used strobe positions for the type of shot required.

The ideal position when using a fish eye lens/wide angle lens is slightly behind the camera and facing slightly outwards. Fish eye lenses capture 180°, so if the light from the strobe is pointing forwards or inwards then the edges of the picture may show scatter.
If you want to capture something close up with this lens then the strobes will have to be moved closer to the housing, otherwise the subject will have a shadow cast over it.

There are a few ways to light up subjects when taking macro photographs. A good way to light up small, stationary objects such as nudibranchs is to move the strobe over and on top of the subject. This position will light up the subject without lighting particles between the lens and subject. This is the best position when you have only one strobe. With macro photographs, other positions may be required as subjects may be tucked into a hole or partially obscured by their surroundings. For these photographs you will have to get in close to the subject anyway so you can move the strobe close to the lens, pointing directly at the subject. Backscatter is not normally an issue for these photographs.

Keep the strobes out wide of the subject, turned slightly out. The light will then evenly project towards the subject. If you only have one strobe, then position this either high above the housing or wide outside and then point it at a 45° towards the subject.

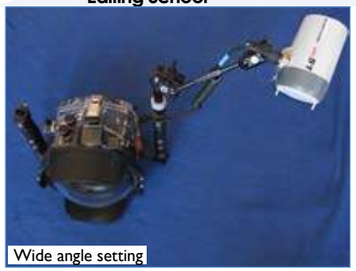
Fixing backscatter
We have selected free and easy software to explain to you how to fix your backscatter problems.

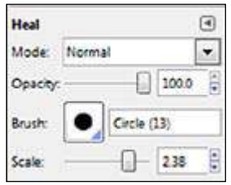
Gimp is a versatile, free programme which offers similar tools to Photoshop, the Rolls

Before adjusting

After adjusting

Editing curves






Clone Tool

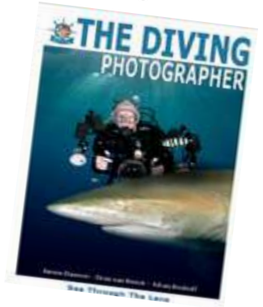

Heal Tool

Royce of the industry. You may have read many Photoshop articles on how to fix your images, but the reality is that many people cannot afford to pay thousands of rand for software to fix their diving photographs. Let's leave Photoshop to the professionals and show you that similar results are possible to achieve with free software.

The Heal Tool is a close relative to the Clone Tool, but it is very smart when removing small particles from the water. The Heal Tool not only copies pixels from source to destination, but the area around the destination is taken into account before cloning is applied. The Heal Tool is very easy to use and quick to learn. The best combination, however, when clearing up Backscatter is a combination of the Heal and Clone Tools. The Clone Tool is a little more brutal and replicates a selected area into the new 'target' area. This is especially useful when working close to edges such as the edge of the jellyfish in the picture below. The Heal Tool tends to use some of the edge when healing, resulting in smearing.

Click on the Heal/Clone icon and you will see the crossed plaster attached to the cursor with your selected pen shape (a circle as default). Select the source area to be cloned by left clicking Ctrl. This will leave a circle where you clicked to show you the area which will be used for the cloning. The cursor will now have a second circle (the target) attached. Position this circle in the area to be healed and left click. You will see the spot miraculously disappear. To heal or clone a line, just left click and drag the cursor over the line to heal this.
(heal-menu.jpg)
An important feature to use is the opacity of the cloning or healing. By reducing the opacity you will have control over the strength of the clone or area to be healed. This will allow you to heal the area in a much more accurate and controlled manner. You can also select the scale of your brush which is very important, especially when clearing up very small specks which are close together.

Download Gimp - www.gimp.org



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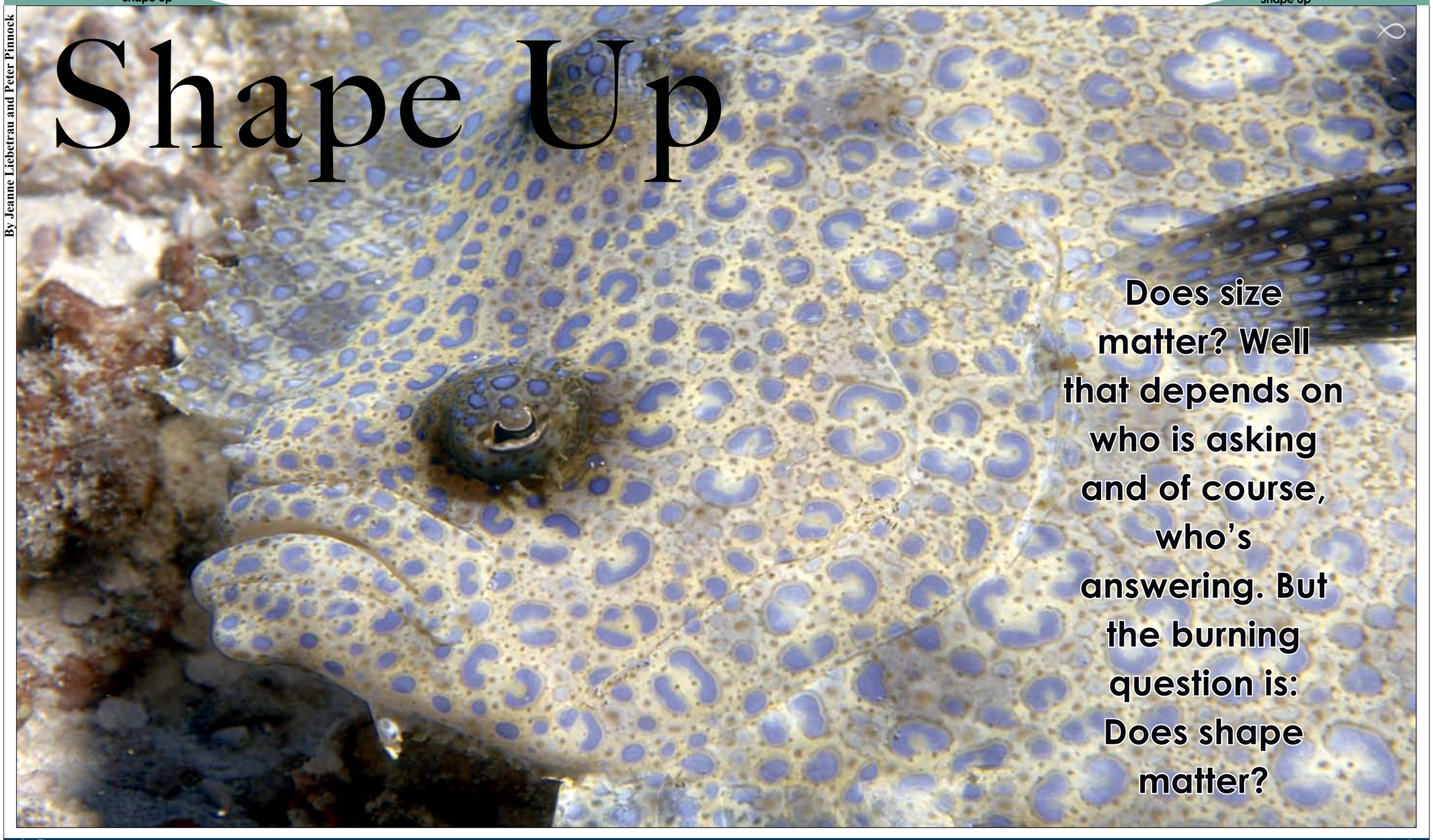
Giant Stride
Shape Up

By Jeanne Liebetrau and Peter Pinnock

Shape Up



Does size matter? Well that depends on who is asking and of course, who's answering. But the burning question is: Does shape matter?

By Jeanne Liebetrau and Peter Pinnock

Shape must have some implications; otherwise the 'weight loss remedy' wouldn't be worth the billion-dollar industry it is today, not to mention the recent upsurge of sports nutrition products. Both industries challenge one to change body shape to achieve a certain effect. Being a certain shape or size can certainly have its advantages. Just think of it – diminutive Pigmies can follow deer tracks in dense jungles, the tall Masai warriors can see for kilometres as they tower above the grasses on the plains, heavy Sumo wrestlers use the extra weight to bolster the battle while the smaller jockeys have the winning edge. One could speculate endlessly on the merits of shape and size. Ask any woman or look at the numerous glossy magazines on your newsstand. It's much the same in the underwater realm: shape matters.

If John Doe represents the average human – medium build, neither tall nor short, neither fat nor thin, then John Dory represents the average fish: vertically compressed or flattened from side to side. Blacktail snapper, bream and Soldierfish all fit this common fish shape, albeit with some modifications such as colour variations, fin design and eye size. The adults are all average shape – neither fat nor thin and average size. They are average swimmers and have average strength. They are your basic fish. The good looking fish are often the radically compressed – skinny fish. Radically compressed fish like the Butterflyfish and Angelfish don't need designer clothing to show off their figures. Instead their flattened bodies are emblazoned with brilliant patterns in bright colours to ward off predators. Swimming isn't their forte. Instead they use their slimness to fit into crevices in the reef to hide from predators – proof that shape does indeed matter.

Some radically compressed fish aren't swimmers at all. Paperfish and Waspfish rest on the reef, and as a result of their extreme thinness, the gentlest movement of water rocks their body as a guise resembling drifting debris. The strangely vertical swimming Shrimpfish are both radically compressed and elongated, a shape so extremely thin that if threatened, a mere half turn of their body renders them magically invisible. These fish use their radically compressed shapes for survival.

Those John Dorys that aren't so slim have more body power and hence more speed to escape predators, but often it's not sustainable power. Triggerfish and Coral rockcods expend their energy reserves mock charging trespassers in the defense of their territory. Following these short sprints they recuperate in the sanctity of a rocky outcrop, revitalising themselves for the next intrepid trespasser. No matter how small the intruders are, they will challenge any newcomer – even scuba divers as many of you might have already experienced.

The more athletic types, the real sports fish of the underwater world. are not only slightly compressed but also elongated. The extra length adds muscle power to the body. The official term for this shape is fusiform but the more apt description is 'torpedo-like'. Tuna, Barracuda, Kingfish and Mackerel are fusiform in shape and built for speed. These streamlined fish have evolved

By Jeanne Liebetrau and Peter Pinnock

Giant Stride
Shape Up

By Jeanne Liebetrau and Peter Pinnock

to rip through the water as they patrol the open oceans. Sharks are also fusiform in shape, and theirs is the ultimate body shape that has withstood the test of time.

Taeniform shaped fish are usually small. These ribbon-like shaped fish may not have athletic speed, but they have grace and style. Dartfish, Fire gobies and Mimic cleaner wrasse bear the taeniform shape. Dartfish are interesting as they often mate for life. The couple hovers a few centimetres above the sand, rippling their bodies in perfect unison while keeping their heads perfectly still. Every now and then they break formation to nibble on passing zooplankton. Their taeniform shape is perfect to execute a nose dive into the sand to escape predators. Pipefish are extended taeniform versions – their bodies are too long for their small fins to propel them effectively. As a result Pipefish tend to slide over the reef or hide away from any currents inside caves, their shape perfect to fit into the smallest of reef crevices.

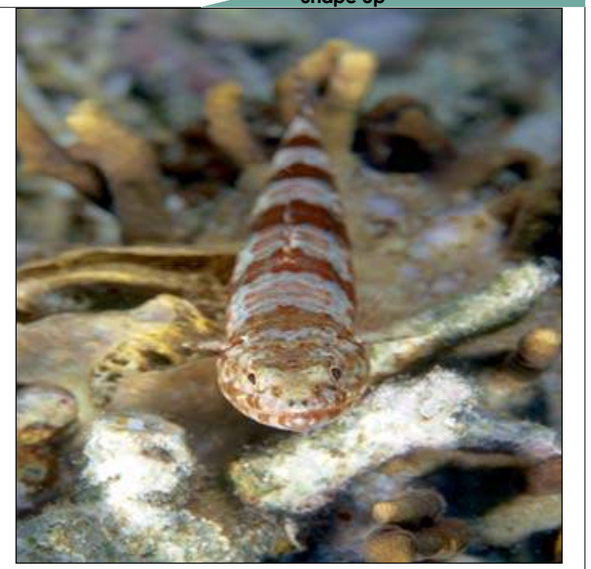
Fish may even be considered depressed – in shape that is. This is known as horizontally flattened. These fish are frequently bottom dwellers living on sandy substrates. The body design is perfect for their habitat as sand cover their bodies, deceiving both predators and prey. Rays, soles and flounders are good examples of horizontally challenged fish. These fish prefer to lie just beneath the sand while the cryptically camouflaged Crocodilefish and Wobbegong sharks lie openly on top. These fish do not bother to swim far at all, yet they are capable of short bursts if need be.

Finally there are the seriously disadvantaged – the big fat globular shapes. Water is not an easy medium to move through (as any diver will agree). Add to that an awkward shape and the result is a fish that has just not got the physical abilities to move. Frogfish and Stonefish are examples of this sedentary lifestyle, squatting on the reef spending most of the day watching their surroundings like couch potatoes. They only move if pushed or shoved and, of course, if food is around. Other clumsy shapes are those that are box-shaped or triangular such as Boxfish, Trunkfish and Cowfish. These shapes are impossible to fit into a slit-shaped crevice and cause serious locomotion difficulties. This affects their lifestyles – if they don't swim close to the reef the currents will take them for a ride.

Pufferfish feature a bulbous, elongated body which is the exact opposite of streamlined. While they can get around they are neither fast nor slow. When frightened, the Pufferfish inflates, essentially losing all ability to flee –it's newly acquired balloon shape is incapable of any movement other than floating around, yet it is an essential survival technique. Other underwater oddballs such as Seahorses, for example, don't fit into any shape category. And yet their shape is perfectly designed for clutching onto their living quarters.

The shape of fish may determine lifestyle as in the globular shapes, or influence habitat choice in those who are clumsily shaped. The fusiform shaped are capable of swimming at high speed to obtain food, while radically compressed and horizontally flattened fish shapes are critical in the fight for survival.

For more underwater images and stories, visit www.peterpinnock.com



Giant Stride
A last glimpse

By Paul Walden

A last glimpse of the world

– Documents of a vanishing wildlife

The fight to save the environment is far from lost. But in spite of all the efforts being made, we, the divers of today, may well become some of the very last people to ever see many of this planet's most fascinating creatures alive. In the words of cameraman Pawel Achtel, "Encountering rare wildlife often feels like a farewell". All that will be left for our children are the recordings of what we have experienced. Join us on an expedition to document one of the world's few remaining bastions of true wilderness – Australia's legendary Raine Island and the Great Detached Reefs.

By Paul Walden

My photographer, marine biologist Justin Gilligan and I, meet up with Pawel Achtel in the tourist Mecca of tropical Cairns. Pawel has chartered M/V Kalinda out of Townsville for a filmmaking trip to the far north. Headed by skipper and marine scientist Dave Stewart, this vessel caters specifically for clients who want to explore outside of the commonly dived sites of the Great Barrier Reef – and for this expedition, Pawel has invited a few paying passengers. With provisions for a fortnight away from civilisation, we left the holiday resorts in our wake. Raine Island and the Great Detached Reefs are in a very remote location. In fact, the area is still largely uncharted.

Officially, the reefs here are part of the Great Barrier Reef. Ecologically, however, they're really something else. Raine Island and the Great Detached Reefs are located outside the continental shelf, where extremely deep waters meet the relative shallows of the Great Barrier Reef. It's a reef system that hosts not only the rather coastal fauna of the Great Barrier Reef, but also pelagic species usually associated with Coral Sea atolls. Scientists speculate whether strong tidal currents and shelf upwelling of nutrient-rich deep sea water contribute to the special ecology here. Whatever the reason, the result is quite exceptional diving conditions.

Our first destination is Stapleton Island, where Pawel is planning to shoot Green sea turtles feeding. It's a couple of days' steaming to get there, and as we cruise north, Pawel keeps his camera and a rebreather set up on the dive deck for any eventuality, such as bait balls. Just about anything might happen in these waters; recently, a large Spanish mackerel jumped clear out of the ocean and landed some 3,5m up on the canopy of another boat here. You've got to wonder what was chasing it.

On our way

Our journey is uneventful, however, and we arrive at the island for an early morning dive with the turtles. Pawel dons gear that makes you wonder whether there's a war going on; his closed-circuit O2 rebreather is an impressive bit of restricted-issue military kit. It's extremely compact, black and camouflage-patterned and apparently gives of less acoustic echo than a fish. Very handy when you're filming shy wildlife. The drawback, naturally, is that because of oxygen toxicity under pressure, you can only use it down to a depth of six metres.

His camera gear is equally imposing. In a custom-built stainless steel and titanium housing, he keeps a state-of-the-art high-definition camera; the Sony HDW-700A. Halogen lights are mounted on long arms to the sides, and, for absolute control under water, a BCD is mounted on top. It's the sort of camera that, when pointed at you, makes you feel famous.

As it turns out, rebreather or not, the turtles will have none of it. We see plenty from the tender, but as soon as we're in the water, they're gone. And for good reason. It's the middle of the turtle-nesting season, a bonanza for predators. From the turtles' point of view, anything big and bulky is likely to be a Tiger shark thinking about lunch. They are extremely wary, especially in the shallows, where they have less room to navigate. Filming them is more difficult than expected. We will have to hope to get the turtles at Raine Island, where they can usually be found resting on shelves along the drop-offs.

Next stop is a sand cay, where we step ashore for Pawel to do time-lapse photography of the sunset. The dunes are absolutely packed with Brown boobies and Crested terns. Watching us with their reptile eyes, they let us come right up to them. Their lack of fear is testament to how seldom they have contact with humans, and it highlights one of the main challenges of conservational work. How are people to know what to protect when they've never seen it? Out of sight, out of mind. It's a problem that's even more evident when it comes to the underwater world, which few people ever get to see with their own eyes. Studies show that coral reefs are currently disappearing twice as fast as the rainforests.

The remedy, of course, is education through mass media, and Pawel intends to contribute with a full-length documentary on Australian marine life for cinema. He's hoping for a result akin to that of Jean-Michel Cousteau's feature on the Hawaiian Islands, which led to the creation of the world's largest marine park.

Giant Stride
A last glimpse

By Paul Walden

As the sun sets on the busy seabird colony, he adds a few thousand frames to the project.

Working our way up to Raine Island, we enjoy one great dive after another. The reefs here are generally characterised by sheer walls covered by soft and hard corals, Gorgonian fans and sponges, and a huge diversity of fish, both great and small. Usually, the visibility ranges from 30 to 60m, but unfortunately a cyclone has recently passed, so on some of the sites we have to make do with around 20m.

A surprisingly large number of baby Whitetip reef sharks, Grey whalers and Silvertip sharks joined us on many dives, and occasional chunky adults checked us out before going back to patrolling the reef edge. The frequent shark sightings here are a reminder that the Coral Sea, sadly, is one of the world's last strongholds of sharks; something WWF is underlining in its current campaign, 'Save the Coral Sea'. We will have encountered seven different species before the expedition is over.

Slowly finning along the drop-offs, we make it a habit to cast an eye out into the blue every now and then – many of the dive sites are situated right next to fissures with depths of 600m or more, and you never know what might rise from there. At Tijou Reef, I was thinking just that when a huge Dogtooth tuna suddenly raced past. Together with the sharks, barracudas and Spanish mackerels, these silvery tanks keep all the little reef fish on their toes, or fins, rather. It's a highly active ecosystem we're seeing. A battle zone.

All alone

Ecology isn't the sole drama, though. On our way north, we plough the waters of Wreck Bay, named after the numerous ships that have foundered in this area. At least 21 vessels sank here during the 18th and 19th centuries, and only three of the wrecks have been located. One of them is that of HMS Pandora, which rests north of Raine Island. This ship had been sent out from England to capture the mutineers from Captain Bligh's HMS Bounty. With a few prisoners still in a holding pen, she went down north of Raine Island in 1791.

At an unnamed solitary bommie, we got a feel for what the shipwrecked sailors must have experienced. There was little to see there but the vast expanses of ocean and the turquoise speck of the bommie. Not a single other vessel had been sighted for days. We were alone. There weren't even any birds in the sky.

It's a curious situation: above the surface, the ocean is a desert; below, it's an Eden. Like a fairy tale tower, the bommie rises from the bottom at maybe 120m or more, its walls covered in soft corals, sponges and Gorgonian fans, with caverns opening up like windows, wide-eyed and colourful inhabitants peering out from the darkness inside. There's very little parking space left for any more life forms. It's what scientists call a hotspot – an area of extraordinarily high biodiversity. These reefs are situated close to the renowned Coral Triangle – the region with the greatest number of coral species in the world.

With a summit at 16m, the bommie isn't marked on the charts, and had it not been for the experience of the Kalinda crew, we wouldn't have found it. It's probably never been dived before. You can tell by the pristine coral – and by the way the sharks look at you. It's wild.

Due to remoteness and usually rough weather, Raine Island and Great Detached Reefs are only visited by two regular tourist boats for a few weeks of the year. That makes for a completely different kind of diving than you get at the popular dive sites further south. At Mantis Reef, we find out exactly how different.

A close encounter

Pawel, Justin and I have just gone in when Pawel realises that he's low on camera batteries and surfaces. Now it's only myself, Justin and the ocean. The other divers onboard won't be entering for another 30 minutes.

We drift along a drop-off. Every now and then, the sharks cruise by to investigate. A school of barracuda hangs about and sponges and soft corals punctuate the reef wall with splashes of colour. Flowery cods shoot out from crevices here and there, whilst the Damsels and Anthias stick to their coral homes. It's a pretty normal dive. But something doesn't feel right.

Giant Stride
A last glimpse

By Paul Walden

A dark shape looms at the edge of our field of vision. We are being followed.

All of a sudden, the chunky Silvertip rocks up again. This time, it's more than curious. It makes pass after pass at us. However, I don't take it too seriously – until Justin, the marine biologist, signals for me to stay close to him. That means trouble. With the shark making bolder and bolder moves on us, I eventually get my gear off and hold it out in front of me like a battering ram. It's very tense; there's no telling when the shark will attempt a bite.

To our relief, the shark disappears after a number of close passes. We figure that it'll stay down at depth and we go up a bit to continue the dive. We even joke about the incident. Then the shark returns. At around 10m, it starts to make increasingly worrying approaches. Sharks aren't supposed to do this to divers, they're supposed to show off their beauty and get intimidated when you try to get closer to take their photograph – they are not supposed to treat us as if we're part of the food chain. But this one is.

My gear comes off again, and I free-flow my two spare regs. It doesn't seem to impress the shark. Neither does shouting at it or staring it down. It's time to leave. Sticking like glue to the reef wall, we basically climb the last eight metres to the shallows of the reef flat. We surface hundreds of metres from Kalinda, and can do little but inflate our safety sausages and hope that the shark stays off the wall. Luckily, it does. This is wild enough for us.

For all the marvellous and adventurous diving we enjoy on the way north, Raine Island stays in the back of our minds. This sand cay hosts the planet's largest known rookery for the endangered Green sea turtle; between 14 000 and 22 000 turtles have been recorded on a single night during the breeding season which lasts from November through to January. It's also the most important seabird sanctuary in the Great Barrier Reef Marine Park, with 84 species recorded, including 16 breeding. And tropical Australia's oldest European building tops it all off; the Raine Island beacon, built by convicts in 1844, can be seen from miles away.

This is what appears in the binoculars at the crack of dawn – the beacon surrounded by a cloud of seabirds, and the heavy breakers off the island being painted in gold by the rising sun. A pod of Bottlenose dolphins escorts us in, as if to herald our arrival. Frigate birds and boobies level out by the wheelhouse to check us out before flying off to dive-bomb a school of bait fish in the distance. It's a grand welcome.

At the island

We're soon reminded that tens of thousands of tonnes of guano were mined here in the early 1890s. Kitting up in our dive gear downwind from the island, we can tell that the stocks have been replenished since the mining ceased. Today, Raine Island affords full protection as a marine sanctuary.

Entering the water, we soon come upon several large Green sea turtles. One of them has had a big chunk taken out of a front flipper; the turtle-breeding colony at Raine Island has a loyal following of Tiger sharks. Mapping of the movements of Tigers fitted with GPS tags suggests that the sharks are basically in orbit around the island. They are not likely to miss out on the easy pickings provided by turtles worn out by digging and egg-laying.

The topography varies from plateaus that form steps into the blue to sheer drop-offs plunging to 40-50m. Numerous Grey, Whitetip and Silvertip reef sharks cruise up and down the reef, whilst a coral-munching school of Humphead parrotfish is hard at work, creating future sandy beaches. A Bull ray spreads out like a rug on the seafloor below while Giant oceanic medusae jellyfish hover about like UFO's. An Epaulette shark peeks out of a crevice, and a large Tawny nurse shark suddenly emerges from a cave and slowly swims off into the deep. It's a lively menagerie.

After a day's diving at Raine Island, we turn around to start the journey back to Cairns. Pawel wants to capture some time-lapse photographs of nesting turtles at Sandbank 7, further south. This is a protected nature reserve, and only a select few scientists and filmmakers are granted permits to step ashore.

Giant Stride
A last glimpse

It should provide excellent photo opportunities.

We arrive in the afternoon. From our mooring, we can see what looks like tank tracks running at right angles from the water up the beach. The turtle-nesting is apparently well under way.

Making landfall and lugging loads of camera gear up a sand berm, we soon discover the remains of several turtles. Flaking carapaces and whitening skulls dot the dunes. Digging and egg-laying are arduous tasks, and studies on Raine Island have shown that around 5% of nesting turtles perish in the process. They only come on land in the cool of the night, and if they're not back in the water by sunrise, they run the risk of being cooked alive.

We were lucky enough, however, to witness the success of one turtle that night. It was a massive female that slowly pushed herself up the beach and started digging out an egg chamber. She was slow but relentless, toiling for hours in front of Pawel's cameras. It was early morning before she finished and laboured her way back into the sea.

We know that this turtle is only one of many, many around here; in one exceptional nesting season, the number of turtles visiting Raine Island and nearby Moulter Cay alone was estimated to be in excess of 103 000. That's a lot of turtles – and they're relatively safe in Australian waters. But as they migrate into the domains of Indonesia, Papua New Guinea and the Solomon Islands, the Australian legislation can't protect them any more. Keep in mind that the Green sea turtle is named for the colour of the fat inside its shell; turtle meat is a highly sought after traditional food in many places. It is not a stretch to imagine that generations to come will find it overwhelming to see that single turtle nesting on the beach. We have very mixed feelings when Sandbank 7 recedes in our wake the following morning.

Hopefully the footage will one day find its way into the hearts of voters and politicians, so that maybe, just maybe, future generations will be able to see the wonders of Australian marine life for themselves. Pawel kept his camera rolling, the last few frames of the expedition registering the love of two iconic fishes.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By Annatjie Rademeyer

Micro infiltration

As an ex-food technologist, microbial organisms are not a new phenomenon, but when I read that they are bugging up my favourite sport, I had to investigate.

Communal rinsing bins are used at every dive resort, school or liveaboard boat around the world. This simplifies cleaning of equipment and saves water to boot. Sometimes there is a separate bin for regulators, even for cameras, but these are not often found. Yet what we haven't taken into consideration is the hygienic quality of that water.

The facts below are from a study done by Michael R. Miller, a professor of biochemistry at West Virginia University, and Tammy S. Miller, a senior office administrator of the department of microbiology and immunology at West Virginia University in 2007 and partly reported in Microbe magazine in December 2007.

Only a few studies have been conducted which indicate that these rinse tanks might contain pathogens and carry diseases. The first report was from communal rinsing bins in Roatan, Honduras, which contained different types of micro-organisms at considerable levels. The fresh water could not be tested at this specific facility and the results could not be compared with the results taken from the equipment rinsed in the tanks.

A report on the spreading of conjunctivitis (an eye disease) on two dive boats off of Fiji's Vitu Levu Island, were published in 2008. With further investigation, it was found that the origin of the conjunctivitis was a dive master who had the disease and rinsed his mask in one of the communal tanks. This caused an outbreak on the dive boat which infected 14 of the 29 guests. It was also spread to other boats of the same fleet, unbeknown to the dive master.

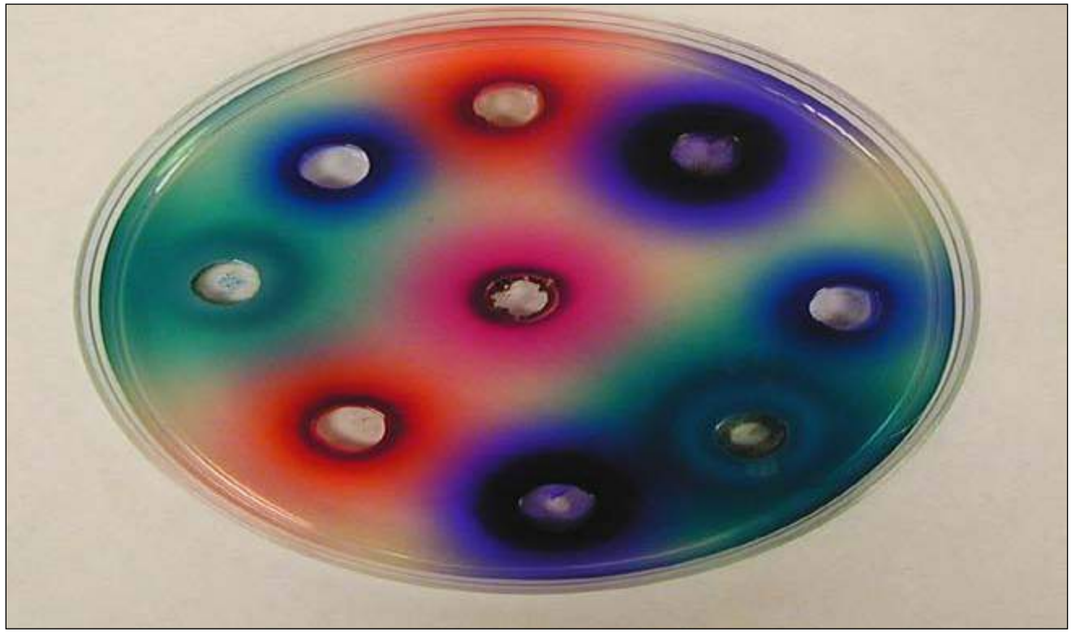
A study was completed in 2007 with a participating, anonymous dive centre in Bonaire, which had three rinse tanks. One tank was used for regulators and another two for general equipment. Early each morning one of the equipment rinse tanks was emptied and scrubbed with undiluted bleach. After rinsing out the bleach, it was filled with fresh tap water. The regulator rinse tank was never bleached. Samples were taken at 8am, 1pm and 5pm. These samples were refrigerated and taken to a lab after 12 hours, where they were photographed and examined for colonies.

The water from the tap did not show any bacterial colonies. Both the bleached and non-bleached equipment tank samples did not show any growth at 8am on all three of the days that samples were collected. The water in the regulator rinse tank, which was not bleached or cleaned regularly, showed a very high level of bacterial contamination on all three days the tests were conducted. This tank was presumably used the whole day and for some night dives as well. The 1am and 5pm samples, however, did show growth in both the bleached and unbleached equipment tanks.

It could be concluded safely that bleaching the rinse tanks did not reduce the level of bacteria throughout the day. Water samples from the mask rinse tanks, which were located on the boats, were only obtained once the boats docked for the day. The samples were taken at 4pm and both showed very high levels of many types of bacterial contamination.

On further investigation it was found that some bacteria in the rinsing bins were from the ocean, but the majority were from the divers themselves. These latter bacteria are opportunistic pathogens and could be problematic if a diver has an inadequate immune system or cuts on his or her body. Although only tests for bacteria were conducted, it can be accepted that viruses for common illnesses such as the common flu, mononucleosis (glandular fever), diphtheria and streptococcal infections can also be transmitted by these communal rinsing tanks.

In conclusion, we must, where possible, rinse our regulators and masks with fresh water or take along some alcohol spray (70% isopropanol or 70% ethanol) to clean your own gear after rinsing in the communal tank. This will reduce the potential spreading of diseases. Studies are now being conducted to identify the little critters that are bugging up your rinsing water.



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DIVE & DISCOVER

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DIVE & DISCOVER

Dive Planning Expecting the Unexpected

Inherent in technical diving is the word risk. For some, this translates directly to danger, but not for technical divers. Fundamental to technical diving is the understanding that risks, if recognised, can be mitigated and in so doing the danger reduced. As technical divers we need to expect the unexpected.

Dive planning is not only my passion but the reason why I continue to dive deep and in caves, a lethal combination if there ever was one. Whilst always hard to define, the challenge of technical diving is perhaps contained in this rather innocuous activity that for most technical divers is so basic it is invisible. Dive planning in its purest form, is about transforming something complicated and risky into something that is elegant, simple and most importantly do'able, not only by me, but by anyone.

Yet for some reason, dive planning is not something we seem to spend a lot of time talking about. Our attention is focused on our definition of what technical diving is, namely dives in excess of 40m, in overhead environments, on gases other than air. We are missing the point that diving has inherent risk that sport diving take for granted.

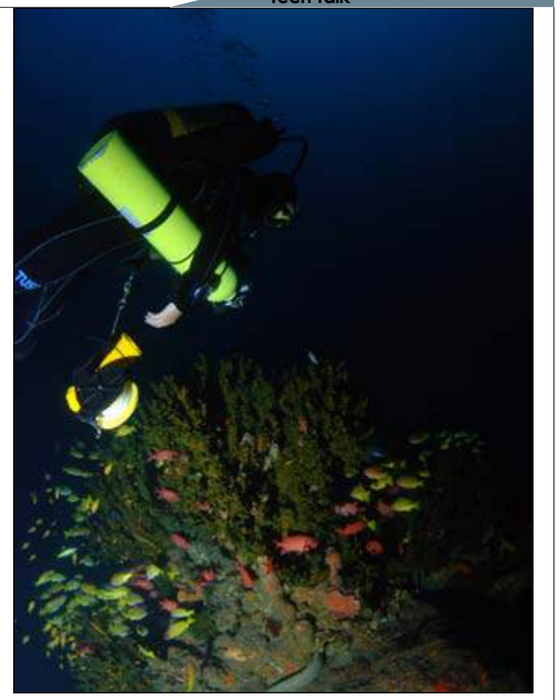
We do not seem to understand that technical diving is a stage in the natural evolution of diving. What

we call a technical dive today will tomorrow be another aspect of sport diving. In fact, nitrox is already headed in that direction. If we define technical dives as dives requiring pro-active risk management we can place dive planning in its appropriate place.

Technical diving today is in an uncomfortable space, caught between two definitions. There is the main stream technical dive in which dive practices are well established, having come from a solid base of accidents and deaths. Then there are the explorers, still pursuing the boundaries of what we know, discovering new risks and learning new ways of taking the basic skills and making them work for us. The difference is that the latter community acknowledges the risks involved and are pro-active about understanding and managing them. But, do the main stream technical divers ?

Are we properly managing the conversion of a sport diver for whom risk is invisible into a technical diver for whom risk is crucial ? Are we teaching technical divers to think and plan their dives and more importantly, to be able to identify the risks so that they can apply the appropriate mitigation strategies? Or are we teaching them to apply practices with no understanding of the motivations behind them and therefore no ability to safely do anything other than the dives they were trained for ?

Learning how to plan a technical dive takes time and experience. Firstly all technical dives are not equal. Therefore it is hard to set down a list of guidelines that apply to all technical dives all the time. Unless of course you understand the fundamental risks and are able



to identify them in the many forms they appear in. Secondly, there is a gradient of complexity is not linear and related only to depth.
As a technical diver, you need to be able to identify the inherent risks that pertain to a specific dive. Then you need to assign the appropriate mitigation strategy to those risks.
In reality, dive planning is just a comforting term that describes the process of learning what we do not know without killing yourself finding out.

Nor is dive planning restricted to single dives. It is an attitude and philosophy that applies to all your dives. To safely increase the dive complexity you need to isolate the risks and simulate the planned dive in an environment that is inherently safer. This approach means I rarely add more than one new thing to a dive. As I perfect aspects of the main dive I start to combine the skills, slowly increasing the complexity thereof.
As a technical diver I have a completely risk averse approach to diving, I can never guarantee my safety. All I can do is reduce the risk! I long ago accept the fact that I might die on a dive. Then again, the one thing I am sure of is that I will die one day. The point of living is to not fear your death, but to live the best life you can.

In a nut shell, if you have gas to breathe you are alive. If you are alive you have time. If you have time you can solve the problem and get back to the surface.

If you can get back to the surface and if you have the right medical facilities at hand, the chances are good you will live.

But first you need to be able to breathe.

Q & A

What are your thoughts on deep air diving?

Nuno Gomes

According to CMAS international standards, diving on air should be to a maximum depth of 50m, although there are other international agencies that promote diving on air to 60m and even deeper. I personally feel that it is not safe to dive on air beyond 50m.

Only divers that have completed the appropriate advanced diving courses should contemplate dives down to 50m on air. Divers that are considering diving deeper than 50m should do so on trimix, only after having completed a course on trimix.

Diving beyond 50m on air is extremely dangerous because of nitrogen narcosis and oxygen toxicity. Many divers have died at Wondergat in South Africa and the Blue Hole in Egypt because of deep air diving.

Barry Coleman

Deep air diving – how deep is that? 30m, 40m or more? For a rebreather, diving deeper then 40m on air diluents is not a wise decision and the risk is exponential from 40m and downwards. For open circuit, divers often dive deeper then 40m on air – whether this is a wise decision or is safe is very much dependent on the diver, their experience and their training level. I would go as far as saying that with few exceptions it is not a wise choice for the majority of divers to dive deeper than 40m on air, and for those few who are diving deeper on air, the question is rather when will there be a problem

rather than if there will be a problem.

I am sure many have completed a chamber dive below 40m and have funny stories following such an event, but few realise that the effects are amplified underwater and coherent thought is lost. Unless basic skills are learnt to such a level that they are reactionary without the necessity for logical thought, then the diver does not have much chance and the odds are very much against the deep air diver. Reactionary skills require hours and hours of repetition that few recreational or even technical divers would consider. For me, the risk to benefit/fun ratio is against deep air diving

Pieter Smith

Some years ago, deep air was part and parcel of scuba diving. It was taught and practiced as part of preparation for diving deeper and mixed gas diving. Today, with the influence of technological development, it is perceived to be insane and extremely dangerous.

Training in general is much more 'student friendly' and divers progress through the qualifying levels at a rapid pace. Divers are taught these days with more and more focus on equipment and what equipment can do for you, thus divers now depend more and more on their equipment. One can see it in the frantic quest to purchase 'better gear' if, "I want to become a better diver" or I, "I want to do the next level course". It is the same with depth and the perfect gas to use – consider a nitrox and/or trimix mix that will be best for that specific depth.

Air is old fashioned – it's the gas the old generation used to dive with, yet it remains a gas with a very wide range of uses with regards to depth – especially in emergency situations.

Pieter Venter

Deep air dives have become old fashioned and frowned upon by some in light of new technologies which allow you to dive at shallow maximum air depths to any practical depth. It seems unnecessary to take the risk of diving deep on air, however, I believe it is good to experience and know the effects of narcosis as it may hit you at any time, even when you are diving at a shallow depth or equivalent air depth. Typically narcosis will hit you at shallow depths or shallower equivalent air depths in the case of an emergency which requires hard work and causes stress. Adding the unfamiliarity of narcosis to an emergency may be the straw breaking the camel's back. I believe deep air dives are useful and I have to say that I have, and still enjoy, deep air dives. Obviously deep air dives should be controlled and approached with the necessary preparation and caution, not with wild abandon or to reach personal deep air records.

NITROX IT'S A GAS

PICTURE OF NITROX IN ACTION, TAKEN WITH WIDE ANGLE LENS

START YOUR COURSE ONLINE TODAY!

There was a time when the use of NITROX was viewed as extreme by many in the recreational dive world. Now it is fast becoming the gas of choice for mainstream diving and is available for all divers. Like so many changes to the industry it is driven by the top echelon of the technical diving community. That's one of the things that makes RAID different, the owners are real divers and in fact two of the directors are considered among the best technical divers in the world (see their profiles below). That means RAID training programs are at the cutting edge and in a class all of their own.

So what is NITROX and how does it work? It is essentially oxygen enriched air, it has many benefits over the use of traditional air, including potentially longer bottom times, less risk of decompression sickness and many people report increased energy levels. That's why all RAID dive centres actively promote the use of NITROX.

Paul Toomer

Paul is a force of nature in the diving world and his unique approach to training is legendary. Paul has reached the pinnacle of the world's leading diver training agencies writing the technical programs for a major training agency before becoming a partner in RAID. He is a sort after speaker at technical events and dive shows around the world and an expert in all facets of technical and rebreather diving. Paul is the International Training Director for RAID.

Barry Coleman

Barry is a pioneer in technical diving. Barry conceptualised the design of the world's first recreational rebreather and working closely with the design team at Poseidon, the Mk VI Discovery Rebreather was born. To support the diver training required for Mk VI, Barry wrote the initial training program which ultimately became RAID dive training, clearly demonstrating the power of adapting traditional technical products and training to the recreational market.

www.diveRAID.com

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Just like RAID there are loads of benefits to NITROX, the more you use it the more you'll see it.

An Introduction to Diving with NITROX

Want to Dive on NITROX? - This may be a familiar question

So what exactly is **NITROX** and how may it be of benefit to me diving?

Contrary to what many people believe, NITROX is not a deep-diving gas mixture.

In the SCUBA diving community NITROX refers to any SCUBA diving gas mixture composed of nitrogen less than 78% and oxygen greater than 22% and less than 40%. The trace gases are ignored. As you can see from the picture above, NITROX is a colourless and odourless gas and is available for all divers.

NITROX will extend your allowable no decompression limits or bottom time. It does this simply by reducing the amount of Nitrogen gas you are exposed to under pressure.

These benefits do of course have conditions associated with them and like everything can be abused. You will learn about these conditions and how to safely dive whilst breathing NITROX in RAID's NITROX course.

NITROX is known by many names: Enriched Air NITROX, Oxygen Enriched Air, NITROX, EANx or Safe Air.

If you see "NITROX32" or "NITROX36", the number is referring to the percentage of oxygen content in the gas mixture and in turn the diving cylinder you are using.

So "NITROX32" or "EANx32" or "Oxygen Enriched Air 32" contains 68% nitrogen and 32% oxygen. "EANx36" contains 64% nitrogen and 36% oxygen etc…

The two most popular blends are EANx32 and EANx36, developed by NOAA for scientific diving, and also named NITROX I and NITROX II, respectively.

It is very important that you check the gas mixture in your cylinder before each dive, because you need to know what mixture you have for calculating your dive times and to find out the maximum depth you can dive. You will learn how to do this in your RAID NITROX course.

Oxygen is toxic at depth for us humans! Yes the increased pressure at depth will increase the partial pressure of oxygen (PpO2) and this increased pressure can become toxic. With NITROX diving we have to stay within two limits, the NDL limit which as a diver you already know about and the other is the oxygen toxicity limits. Staying within these two limits will allow you to dive underwater longer than an equivalent AIR diver at the same depth and more often than an AIR diver to the same depths.

It is all about balance!

When you complete your NITROX course you find how NITROX will be of benefit to you. You will use it as a means to help you diving, not as a macho status!

For example if you are planning 3 or 4 dives a day whilst on holiday then use NITROX, because of the benefits, but if you are doing one dive in the day to a shallow depth, there is little need for NITROX. This is a generalisation, and there are always reasons for and against. The important issue is to understand it and plan for using NITROX if it will be of benefit which you will learn more about on your course.

History

NITROX gas mixture is nothing new and has been in use under differing names since before the Second World War.

The history and development is well known and risks associated with well documented. NOAA is perhaps the best known authority and has developed tables and working parameters that are still in use and followed today.

Myths

- NITROX does not remove the risk of decompression sickness.
- NITROX does not remove the risk of pressure related injuries.
- NITROX does not reduce Nitrogen Narcosis

The RAID NITROX Diver course is designed to introduce you to the procedures and skills to safely dive NITROX. There are many benefits of diving NITROX and the course will give you a good grounding in the use of gas mixtures other than pure air.

This course is also a grounding set of theory and skills that will help you through the rest of your RAID journey. All other levels above the RAID Open Water and NITROX courses have gas analysing and calculations embedded. This means the information and skills you learn in your RAID NITROX course are valuable through all your RAID training programs.

Sign up for RAID's NITROX course today in just 3 easy steps.

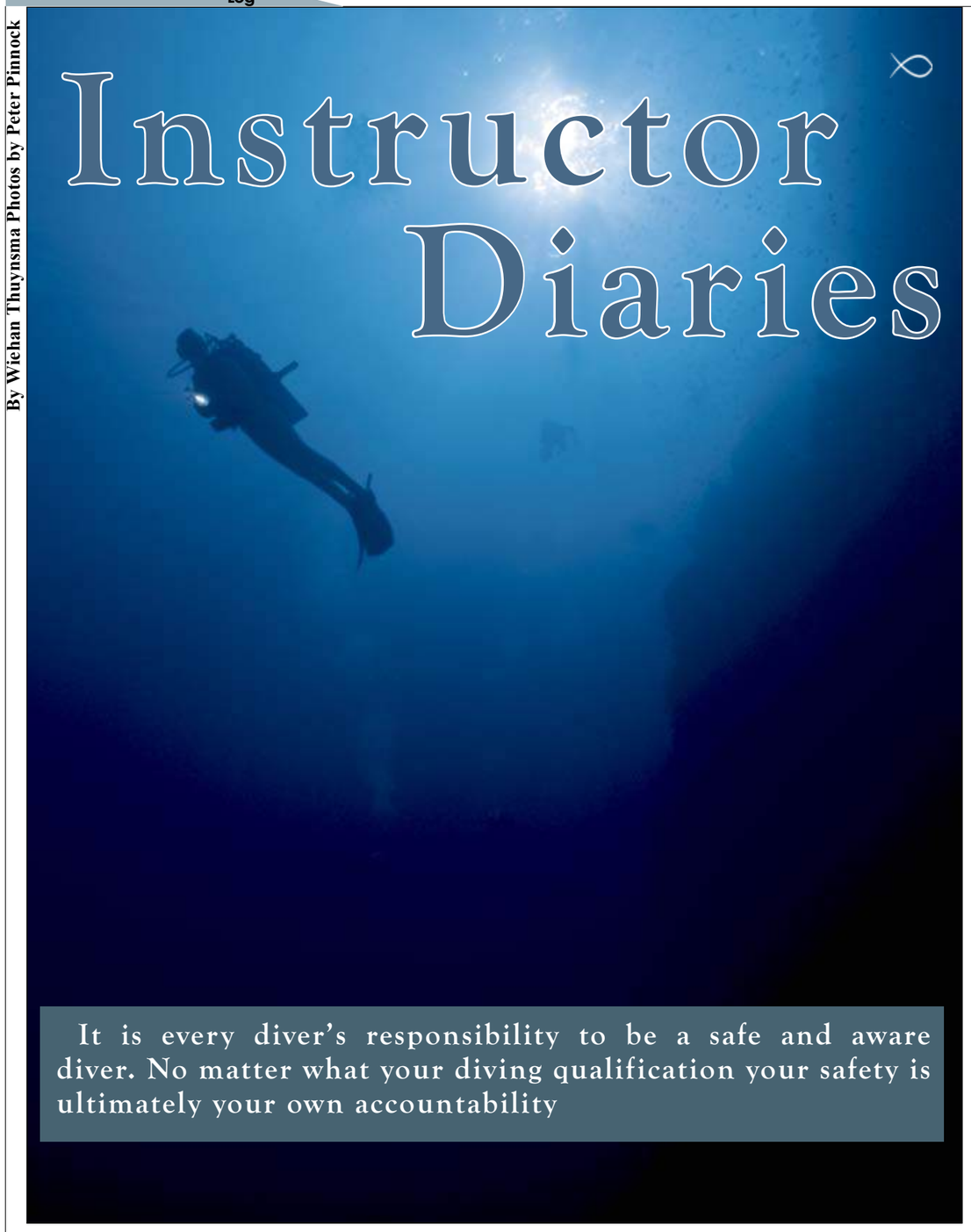
STEP 1 head to www.diveRAID.com and click the button REGISTER at the top right. Then complete the form and wait for an email from RAID. STEP 2 on receipt of your registration confirmation email, open and follow the instructions. Step 3 complete the forms. You are now registered! Once you have completed your online training successfully you will have a great understanding of diving with Nitrox. Your RAID Dive Centre can then complete your training and issue your certification, this may include diving on Nitrox. For more information contact RAID at admin@diveRAID.com or call 02 4088 0560.

RAID™

Dive Training in a Class of it's Own

By Wichan Thuynsma Photos by Peter Pinnock

Instructor Diaries



It is every diver's responsibility to be a safe and aware diver. No matter what your diving qualification your safety is ultimately your own accountability

When arriving at a dive charter for the first time, find out where the emergency room is, who is responsible for it and what medical assistance can be offered in case of a accident or emergency.

Get your own first aid kit when travelling to dive spots and have this readily available when needed – this means that you must know where it is and tell your buddy about it as well. Another good idea is to have the Divers Alert Network (DAN) emergency hotline number on your phone. If you are not yet a member of DAN it is worthwhile looking at their various membership options – the day you need DAN you will be glad you are a member. Check out www.dansa.org for more information.

Furthermore, find out what medical supplies are provided on the boats before you head out to the reef. Usually 100% Oxygen is on the boat and it might be useful to have something that can help with stings that might be picked up under water on the boat, such as vinegar. Make sure that someone else other than the skipper knows how to administer Oxygen. These units assemble different to normal regulators and cylinders and someone will have to manage this while the skipper heads home.

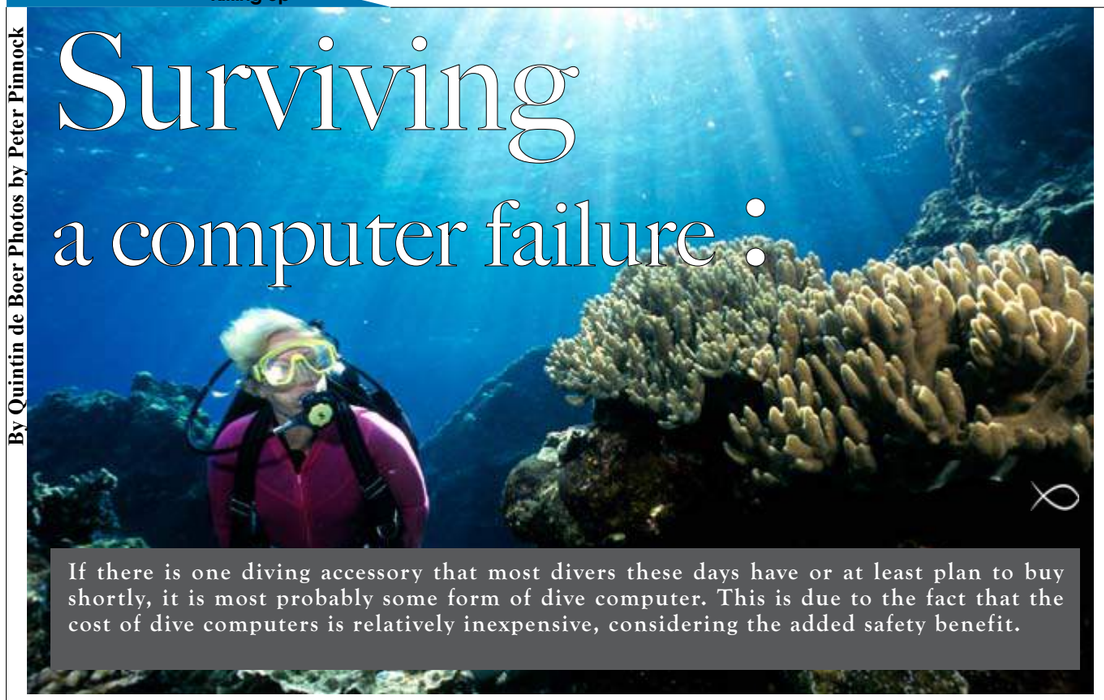
If an emergency or accident occurs, know who will take charge and do what you can to help if asked to help. This is why it is important to know the qualifications of each diver before leaving for the boat. The dive master must explain not only lost diver procedure, but also emergency procedures. This will give everybody a clear understanding of what has to happen and needs to be done to ensure proper treatment during an accident or emergency. If your dive master does not give you the information, ask him, it might just be you with the sea urchin barbs in your hand that needs treatment on the next dive.

Another consideration, and this is aimed more at dive masters, know how the boat works or at the very least the boat's radio. Remember that although the skipper may have thousands of sea hours behind his name, he is human after all and what happens if something happens to him while you are 15km from the beach?

There is quite a bit that can still be said about dive safety – I have not even spoken about safety in the technical diving environment – but it all starts with your own responsibility and training. Take your own training to the next level and become a rescue diver with first aid and CPR skills or complete a few DAN specialised courses and you will be an asset on every dive. If you think you know all there is to know about diving and are not bothered about safety, please pick another boat and don't think about diving with us.

Lastly, remember to "Stop, breath, think, breath and act," in any emergency. I would like to end off by saying that if you become a more 'aware' diver and person, it will prevent unwanted situations and diving will remain a safe and fun hobby.

Surviving a computer failure :



If there is one diving accessory that most divers these days have or at least plan to buy shortly, it is most probably some form of dive computer. This is due to the fact that the cost of dive computers is relatively inexpensive, considering the added safety benefit.

By Quintin de Boer Photos by Peter Pinnock

Dive computers also allow divers to dive longer due to their ability to sample every five seconds (some even more often) and calculate a multi-level profile as compared to when a diver uses a square profile to plan a dive using a dive table or some of the available dive calculators. So with the above taken into account, many divers may ask the question; "Is there even a need to plan for a dive using a calculator or table?"

The answer is of course, there is definitely a need to plan a dive (even if just high level using a table or dive calculator), but let's explore why as many divers these days (including instructors,) seem to do quite the opposite and just head for the water directly after having donned their dive computer.
Firstly, all divers should realise that a dive computer is a highly sophisticated, electronic (that is right, it runs on batteries if you did not think about it before now) diving instrument that is also prone to failure. So have you ever when you have been diving asked yourself how you would survive the dive if your computer were to fail? Is it even possible to survive the dive when a computer fails? You can survive in one of two ways; Firstly would be by sheer luck (or maybe dumb luck would be a more accurate description) and the second would be by planning and knowing beforehand what to do in such a situation.

A computer failure is of course a lot more critical in a technical or decompression dive than in a standard, run of the mill, recreational or sport dive, but it is still an undesirable event. Luckily technical divers are well aware of this fact and have adapted their diving practices accordingly,

By Quintin de Boer Photos by Peter Pinnock

for example there is hardly a technical diver alive that only dives with one dive computer. They usually have at least one back-up computer and a bottom timer to ensure that they can still accurately perform their required safety stops in order to avoid decompression sickness in these extended range dives. These dive computers and bottom timers are of course used in conjunction with a slate which usually contains five (you read correctly: five) dive plans to cover all possible contingencies.

These plans include, at a minimum, the follow alternatives:

- Actual Dive Plan (Plan to be dived under normal circumstances)
- Time Overshoot (Contingency plan if the diver spends five minutes more at depth than the original scheduled dive time)
- Depth Overshoot (Contingency plan if the diver overshoots the depth by 5m)
- Loss Gas (Decompressions schedule if a diver is to lose some of their deco gasses)
- Bailout (A five minute plan to allow a diver to surface when a critical equipment malfunction occurs)

I think you would agree whilst looking at the above that technical divers do a huge amount of planning before entering the water and this is definitely something

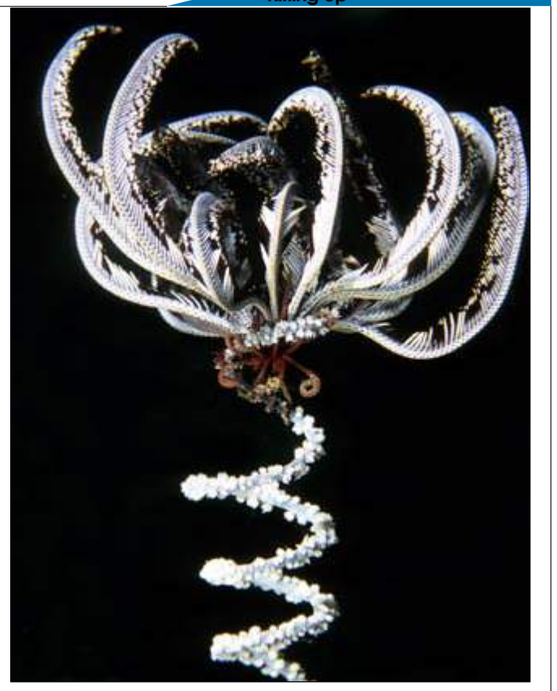
their counterparts in sport diving can learn from, as essentially, in my opinion, the ability of a diver to survive a computer failure, although a lot less of a risk in sport diving, can be directly related to the amount of planning the diver does before the dive.

The planning, in combination with certain, dare I say, 'best practices' such as glancing at your gauges and dive computers often and remembering your last reading will put you in the best position to survive a computer failure.

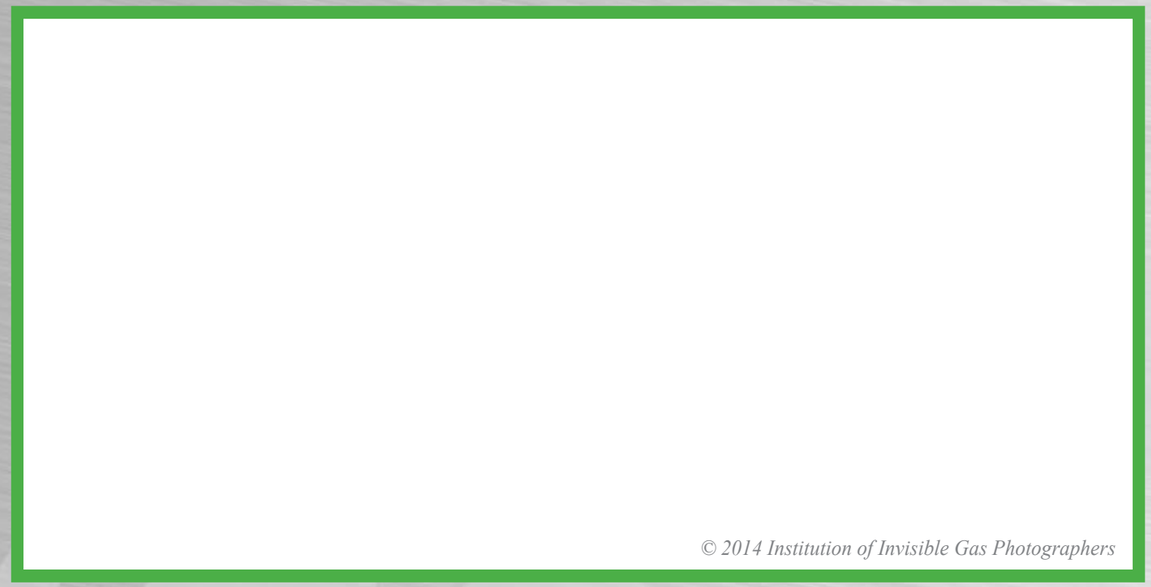
This will allow you to at least have some idea of your dive time should the computer fail during the remainder of the dive, which in turn should allow you to know if you will have, or can expect to have, any compulsory stops on the way to the surface. It is of course highly recommended that you terminate your dive immediately in such an event and make your way to the surface as quickly as possible while honouring all compulsory stops as best you can. Safety stops can, of course, be omitted, but in my opinion, if you have the gas to complete them, I would recommend it.

In summary, surviving a computer failure is quite possible in any type of diving, but your ability to do this is directly related to the amount of planning that you performed prior to the dive. It is also a good idea (a must in technical diving) to have a back-up dive computer or bottom timer to reduce reliance on a single mechanical device.

It is also advisable to have your dive computer serviced and battery replaced at least annually to minimise the risks of such failures occurring in the first place.



NITROX IT'S A GAS



PICTURE OF NITROX IN ACTION, TAKEN WITH WIDE ANGLE LENS

START YOUR COURSE ONLINE TODAY!

There was a time when the use of NITROX was viewed as extreme by many in the recreational dive world. Now it is fast becoming the gas of choice for mainstream diving and is available for all divers. Like so many changes to the industry it is driven by the top echelon of the technical diving community. That's one of the things that makes RAID different, the owners are real divers and in fact two of the directors are considered among the best technical divers in the world (see their profiles below). That means RAID training programs are at the cutting edge and in a class all of their own.

So what is NITROX and how does it work? It is essentially oxygen enriched air, it has many benefits over the use of traditional air, including potentially longer bottom times, less risk of decompression sickness and many people report increased energy levels. That's why all RAID dive centres actively promote the use of NITROX.

Paul Toomer

Paul is a force of nature in the diving world and his unique approach to training is legendary. Paul has reached the pinnacle of the world's leading diver training agencies writing the technical programs for a major training agency before becoming a partner in RAID. He is a sort after speaker at technical events and dive shows around the world and an expert in all facets of technical and rebreather diving. Paul is the International Training Director for RAID.

Barry Coleman

Barry is a pioneer in technical diving. Barry conceptualised the design of the world's first recreational rebreather and working closely with the design team at Poseidon, the Mk VI Discovery Rebreather was born. To support the diver training required for Mk VI, Barry wrote the initial training program which ultimately became RAID dive training, clearly demonstrating the power of adapting traditional technical products and training to the recreational market.

www.diveRAID.com

/diveRAID

An Introduction to Diving with NITROX

Want to Dive on NITROX? - This may be a familiar question

So what exactly is **NITROX** and how may it be of benefit to me diving?

Contrary to what many people believe, NITROX is not a deep-diving gas mixture.

In the SCUBA diving community NITROX refers to any SCUBA diving gas mixture composed of nitrogen less than 78% and oxygen greater than 22% and less than 40%. The trace gases are ignored. As you can see from the picture above, NITROX is a colourless and odourless gas and is available for all divers.

NITROX will extend your allowable no decompression limits or bottom time. It does this simply by reducing the amount of Nitrogen gas you are exposed to under pressure.

These benefits do of course have conditions associated with them and like everything can be abused. You will learn about these conditions and how to safely dive whilst breathing NITROX in RAID's NITROX course.

NITROX is known by many names: Enriched Air NITROX, Oxygen Enriched Air, NITROX, EANx or Safe Air.

If you see "NITROX32" or "NITROX36", the number is referring to the percentage of oxygen content in the gas mixture and in turn the diving cylinder you are using.

So "NITROX32" or "EANx32" or "Oxygen Enriched Air 32" contains 68% nitrogen and 32% oxygen. "EANx36" contains 64% nitrogen and 36% oxygen etc…

The two most popular blends are EANx32 and EANx36, developed by NOAA for scientific diving, and also named NITROX I and NITROX II, respectively.

It is very important that you check the gas mixture in your cylinder before each dive, because you need to know what mixture you have for calculating your dive times and to find out the maximum depth you can dive. You will learn how to do this in your RAID NITROX course.

Oxygen is toxic at depth for us humans! Yes the increased pressure at depth will increase the partial pressure of oxygen (PpO2) and this increased pressure can become toxic. With NITROX diving we have to stay within two limits, the NDL limit which as a diver you already know about and the other is the oxygen toxicity limits. Staying within these two limits will allow you to dive underwater longer than an equivalent AIR diver at the same depth and more often than an AIR diver to the same depths.

It is all about balance!

When you complete your NITROX course you find how NITROX will be of benefit to you. You will use it as a means to help you diving, not as a macho status!

For example if you are planning 3 or 4 dives a day whilst on holiday then use NITROX, because of the benefits, but if you are doing one dive in the day to a shallow depth, there is little need for NITROX. This is a generalisation, and there are always reasons for and against. The important issue is to understand it and plan for using NITROX if it will be of benefit which you will learn more about on your course.

History

NITROX gas mixture is nothing new and has been in use under differing names since before the Second World War.

The history and development is well known and risks associated with well documented. NOAA is perhaps the best known authority and has developed tables and working parameters that are still in use and followed today.

Myths

- NITROX does not remove the risk of decompression sickness.
- NITROX does not remove the risk of pressure related injuries.
- NITROX does not reduce Nitrogen Narcosis

The RAID NITROX Diver course is designed to introduce you to the procedures and skills to safely dive NITROX. There are many benefits of diving NITROX and the course will give you a good grounding in the use of gas mixtures other than pure air.

This course is also a grounding set of theory and skills that will help you through the rest of your RAID journey. All other levels above the RAID Open Water and NITROX courses have gas analysing and calculations embedded. This means the information and skills you learn in your RAID NITROX course are valuable through all your RAID training programs.

Sign up for RAID's NITROX course today in just 3 easy steps.

STEP 1 head to www.diveRAID.com and click the button REGISTER at the top right. Then complete the form and wait for an email from RAID. STEP 2 on receipt of your registration confirmation email, open and follow the instructions. Step 3 complete the forms. You are now registered! Once you have completed your online training successfully you will have a great understanding of diving with Nitrox. Your RAID Dive Centre can then complete your training and issue your certification, this may include diving on Nitrox. For more information contact RAID at admin@diveRAID.com or call 02 4088 0560.

Just like RAID there are loads of benefits to NITROX, the more you use it the more you'll see it.

RAID™

Dive Training in a Class of it's Own

OZDiver App available on the App store for FREE

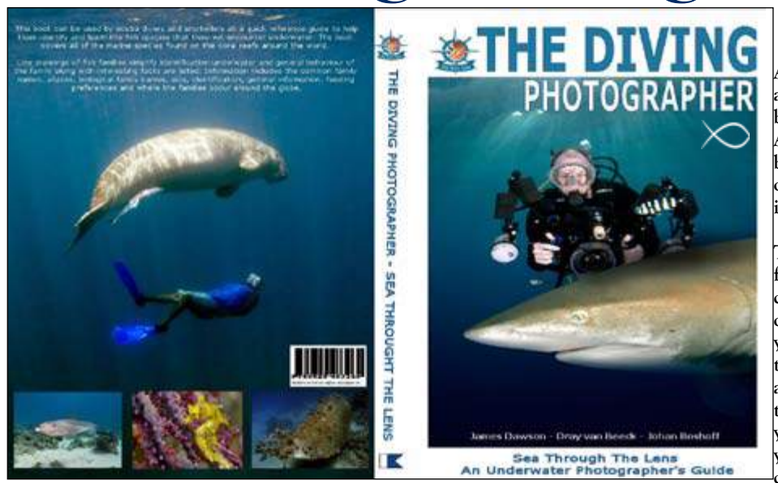
Available on the App Store

Ocean: The world's last wilderness revealed

Introduced by Fabien Cousteau.

This hardcover book is practically a mini-encyclopaedia of the world, with emphasis on the ocean and its inhabitants. It includes an inspiring introduction by Fabien Cousteau, grandson of Jacques Cousteau, the famous ocean explorer and scientist. It is a fantastic visual voyage with stunning illustrations and captivating pictures, and features the latest developments in ocean exploration as well as recent satellite maps of the entire sea floor.
The book is divided into four chapters. The introduction features an overview of the physical and chemical features of the oceans, including hurricanes, typhoons and climate changes like El Nino. A chapter called "Ocean environments" looks at the main zones of the oceans, while "Ocean life" examines the life forms that inhabit the oceans of the world. Finally, an atlas to the oceans contains detailed maps. Most chapters are divided into smaller sections, facilitating your search for something specific. The chapters are colour-coded, making it easy to find different chapters without having to use the index. At the back of the book is a six-page glossary to help one understand certain terminology used in the book, and the classifications of ocean life certainly helps one to understand to which families various ocean creatures belong. In general, I found the book very informative, user-friendly and easy to read. Being an ocean lover, it was hard for me to put down, and I recommend it as a must for sea enthusiasts and as a research tool for children at school. more truths).In a sport where it is often difficult to distinguish between fact and fable, and where the athlete is often face to face with his own mortality, this book certainly succeeds in stripping away the nonsense and giving you the tools needed to be the best diver you can be. I give this book ten out of ten.

The Diving Photographer –



As scuba divers, we are not always the best photographers, but we do learn very quickly. And if we have a handy guide book, the time spent with our cameras underwater will increase rapidly.

This easy-to-use guide book for the diving photographer can be used by all levels of photographers. It helps you with choosing the right type of camera for your ability – although with all the information presented you will learn so quickly that you will have to buy a better camera after working through the book! Preparing and setting up your equipment becomes a breeze with easy pointers on how to check and replace o-rings, quick tips on keeping your housing dry and other small things we usually forget to check.

The technical advice on how to perform manual camera settings, lighting techniques and editing the not-so-perfect shot was a great help. One of the main things I took from this book was learning to back up my photographs and then trying anything and everything with them in the photo editing programmes until it looks like the professionally taken shot that you have been aiming for the whole time. Some other topics covered are strobe positioning, ambient light, photographing wrecks, long exposures and equipment maintenance.

I must say that this book has proved to be a great help in improving my photographing and editing techniques. Watch out Sodwana Shootout, here I come!

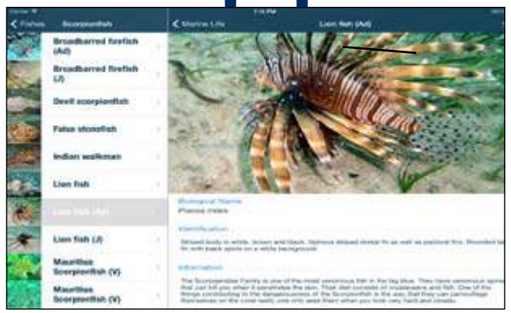
The Diving Photographer is available in all good scuba diving and book shops or online at www.thedivespot.com.au. Cost: $30

FREE gear, books, software, apps and scuba diving gadget reviews.

Here is a chance for your diving gear, books, software, apps and gadgets to be reviewed. If you have anything that you would like to share with the OZDiver Magazine and other divers, send an email to Log Book at johan@ozdiver.com.au.

OZDIVER

Marine Life app

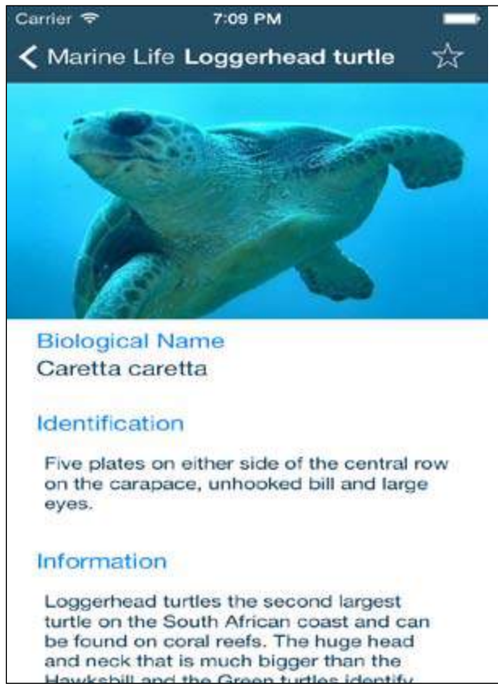


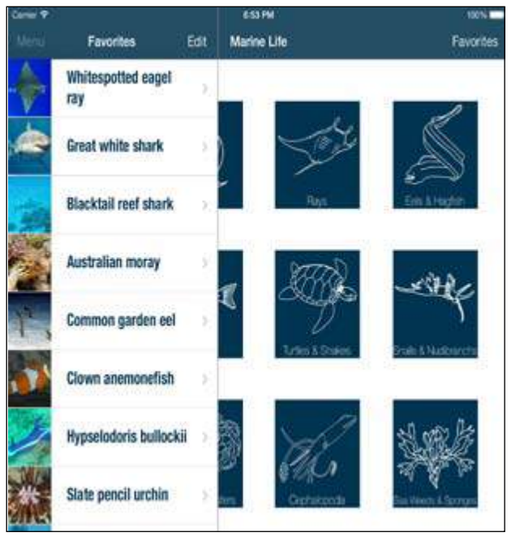
A user friendly app designed to assist divers with marine life identification and at the same time learn more about the fascinating lives of our ocean dwellers.

Learn about your favourite sea animals at the swipe of a finger, with more than 4000 full colour photographs of sharks, rays, eels, nudibranchs, hagfish, snails, crabs, lobsters, sea weeds, sponges, cineraria, turtles, snakes, dolphins, whales, worms, crustaceans, shells, cephalopodan, urchins, sea cucumbers, starfish, birds and many more. Displays information such as common names, aliases, biological names, identification, families, gender, size, life stag and much more.

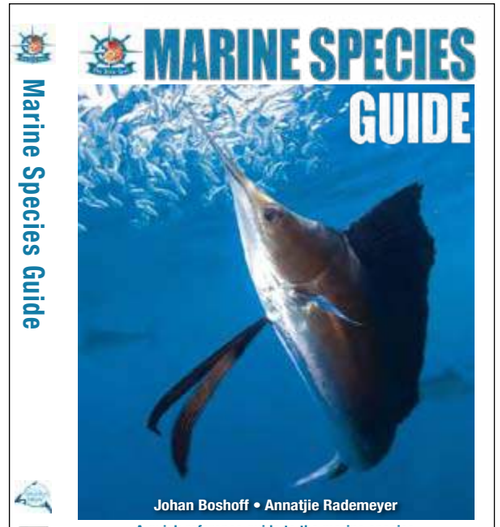
A leader in marine life identification and used in education programs all over the world, now available to you from Apple App Store for only $6.

http://AppStore.com/marinelifemarinespeciesguide





Marine Species Guide –



Yes, it happened...I had to buy a larger bookshelf. The latest book from The Dive Spot has landed on our shores – The Marine Species Guide.

A book for both scuba divers and snorkelers to identify and learn all about the different fish species they will come across under water. The book covers most of the marine species found within coral reefs around the world. Line drawings of fish families simplifies identification underwater, while general behaviour of the family along with other interesting facts are listed.

Information include common family names, aliases, biological family names, size, identification, general information, feeding preferences and where the families occur around the globe. Photographs of the most common of the species found when scuba diving or snorkeling are included and the fish families are organised for easy reference.

The book works very well in accompaniment with the Marine Species Slate, which can be taken underwater to help with fish identification.

To buy your copy for $ 30, visit www.thedivespot.com.au or email info@thedivespot.com.au

One day, a diver was enjoying the aquatic world 10m below sea level. He noticed a guy at the same depth with no scuba gear on whatsoever. The diver went down another 5m, but the guy joined him a minute later. The diver went below three more metres, and a minute later, the same guy joined him. This confused the diver, so he took out a waterproof chalkboard and wrote, "How the heck are you able to stay under this deep without equipment?" The guy took the board and chalk, erased what the diver had written, and wrote, "I'm drowning, you moron!"

~ ~ * ~ ~

You know your dive buddy is a doctor when you give him the out of air signal and he writes you a prescription, when his golf clubs are attached to his tank and when you can't read his dive log.

~ ~ * ~ ~

You know your dive gear is old when you go to turn on your air and everyone runs, the Smithsonian Institution wants to display your equipment and there's more duct tape on your wetsuit than there is neoprene.

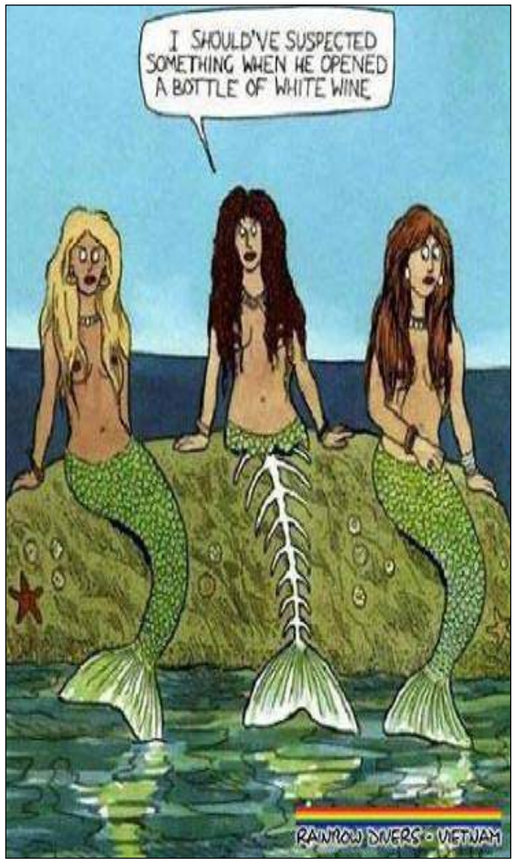
~ ~ * ~ ~

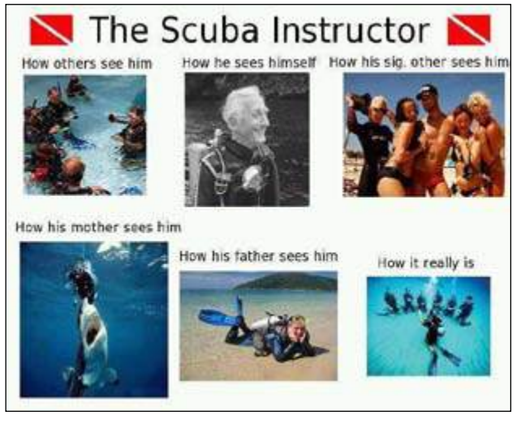
You know your dive buddy is a police officer when you give him the out of air signal and he writes you a ticket and he hides behind a reef watching for speeding fish.

~ ~ * ~ ~

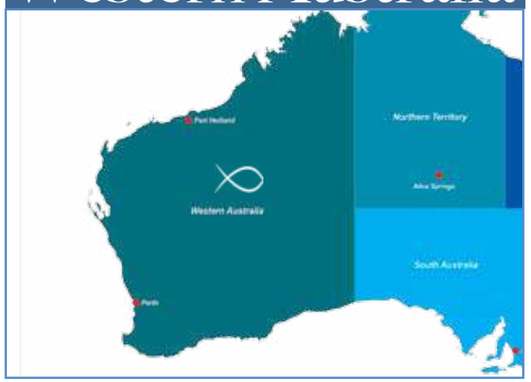
Dave, an avid diver, decided to buy an air compressor so he could save money on his air fills. But seeing as compressors are so expensive he decided to buy a surplus compressor from Algeria. The only problem was that the instructions were in Sanskrit, leading Dave to hook up the compressor backwards. So instead of filling his tank Dave removed 200 bars from it. Upon taking his first breath at the dive site he was immediately sucked into the tank never to be seen again, but rumour has it that his wife is keeping him on a lovely rack in the basement next to his compressor.

Send your funnies to
johan@ozdiver.com.au





Western Australia



Perth Region

The Dive Spot - South Perth

We specialise in a wide variety of dive related activities. Our scuba training range from beginners to the more advanced including specialities and professional courses.
Phone: +61 (0) 44 887 9903
Mail: info@thedivespot.com.au
Web: www.thedivespot.com.au

Astero Dive - Perth

We strive to provide excellent and safe training standards for anyone who want to learn to dive with us. We provide training from entry level through to Instructor Training.
Phone: +61 (0) 450 800 238
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Web: www.astegrodive.com.au

Perth Scuba - Canning Vale

WA's largest dive shop, best range of snorkelling, free diving and scuba equipment. WA's PADI Career Development Centre offers courses from beginner to professional and TDI technical training. Perth Scuba has a free dive club offering twice weekly guided dives.
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Web: www.perthscuba.com

Perth Diving Academy - Hillarys

PDA Hillarys for all of your dive and snorkelling requirements local and friendly staff to help you make the right choices open 7 days come and see us down at the Hillarys Boat Harbour just north of the boat ramp see you there
Phone: +61 (0) 89 448 6343
Mail: troy@perthdiving.com.au
Web: www.perthdiving.com.au

OZDiver Dive Group - Perth

We focus on scuba diving at all levels and explore locations. We welcome any qualification level of divers including snorkel divers wanting to learn more about diving, and get onto club diving events to meet likewise divers.
Phone: +61 (0) 450 800 238
Mail: izak@ozdiver.com.au
Web: www.ozdiver.com.au

Scuba Imports &The DiveTub - Perth

Since 2007 to service the Australian Dive Industry with the best scuba equipment available. We offer high-end gear, including recreational, technical and commercial equipment. Wherever possible we'll price match any online dive store to ensure you get the best deal!
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Dolphin Scuba Diving - Welshpool

Perth's friendliest dive shop. Learn to dive in as little as 2 days! Small groups with a flexible schedule. Weekly. FREE Sunday Morning Shore. Providing Instructor training, Rebreather courses and support. Technical diving tuition and trips. Local and international diving holidays.
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Web: www.dolphinscuba.com.au

Scubanautics Diving Academy- Rockingham

Welcome to Scubanautics, where customer service and satisfaction is our main goal. Drop in to say hello, our friendly staff are happy to help. Check out our new "online Store"
Phone: +61 (0) 8 9527 4447
Mail: info@scubanautics.com.au
Web: www.scubanautics.com.au

Wizbang Diving Solutions - Perth

Technical Training for divers. The development of safe and technically competent divers through specialized training. Rebreathers, Mixed Gas or even just Nitrox, we will help you develop the skills and confidence that will carry you into a safe and enjoyable future.
Phone: +61 (0) 41 876 1727
Mail: diving@wizbang.com.au
Web: www.wizbang.com.au

Western Blue Dive Charters- Mindarie

We are the only dive company north of Fremantle that operates seven days offering double dive charters, returning before lunch, and allowing you to catch crayfish if you wish. Being a small company we offer a personalised service at an affordable price
Phone: +61 (0) 40 954 5553
Mail: info@westernbluedive.com.au
Web: www.westernbluedive.com.au

Geralton

"A" Team Divers - Geraldton

A - Team Divers offers internationally recognized NAUI and SSI scuba diving courses. Small groups ensure personal attention during your training. We also have an active social club for after course adventures!
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Mail: geoff@ateamdivers.com
Web: www.ateamdivers.com

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PADI · NAUI · SSI · TDI · SDI · IANTD · RAID · CMAS · CDAA

Bunbury

Octopus Garden Dive Charters

Just 1.5 hours south of Perth is Bunbury, home of the Lena Dive Wreck (18 metres) & abundant local & coral reef(0-33 metres), including "Blade Coral"—photographers paradise. Small groups –experienced & personalised service. Comfortable, enclosed diesel powered vessel.
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Exmouth

Dive Ningaloo - Exmouth

Dive Ningaloo pride themselves in taking small groups to only the best dives on the Ningaloo Reef, Murion Islands and more. All courses welcome. With over 20 years experience diving in the Ningaloo, we know where the best diving is!
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Take your snorkeling experience to a new level! Using your own Seadoo underwater scooter, you'll be propelled effortlessly through the beautiful Ningaloo, where you'll see the tropical fish and coral that makes Ningaloo one of the world's top snorkeling destinations.
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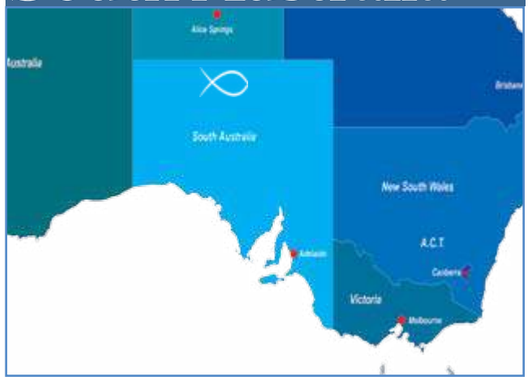
Web: www.snorkelningaloo.com.au

South Australia



Port Lincoln

Calypso Star Charters - Port Lincoln

PDA Hillarys for all of your dive and snorkelling requirements local and friendly staff to help you make the right choices open 7 days come and see us down at the Hillarys Boat Harbour just north of the boat ramp see you there
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Web: www.sharkcagediving.com.au

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We are a small business that go above and beyond .we pride ourselves on providing safe and fun-filled courses at affordable prices. You get trained on a more personal level through to one on one, or small group tuition.
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Mail: barrettn80@hotmail.com
Web: www.nbscuba.com.au

Victoria

Geelong

Australian Diving Instruction

Australian Diving Instruction is a PADI 5 Star IDC facility Offering everything for the Diver from Learn to Scuba Dive to Instructor including PADI Tec 40,45,50, Equipment Sales and Service National and International Dive Trips and Dive Holidays also Dive Charter Boat.
Phone: +61 (0) 40 836 5216
Mail: adigeelong@optusnet.com.au
Web: www.ausdivinginstruction.com.au

Bay City Scuba

Bay City Scuba is Geelong's premier dive shop. Offering all levels of training from Freediving through to Technical training and offering a huge selection of equipment to your diving needs. A RAID training facility offering extensive technical OC & CC rebreather training.
Phone: +61 (0) 35 248 1488
Mail: info@baycityscuba.com
Web: www.baycityscuba.com

Rye

The Scuba Doctor Australia

The Scuba Doctor is an online and in-store dive shop stocked with quality brand recreational, technical and commercial diving products.
Low prices on scuba, spearfishing, freediving, snorkelling and watersports equipment, plus Air, Nitrox and Trimix fills.
Phone: +61 (0) 3 5985 1700
Mail: diveshop@scubadoctor.com.au
Web: www.scubadoctor.com.au

New South Wales

Killarney Vale

Pro-Dive Central Coast

Located between Sydney and Newcastle with daily boat dives to the ex-HMAS Adelaide artificial reef, only minutes from the local boat ramp. Online booking and dive sales available 24/7. PADI Instructor programs available.
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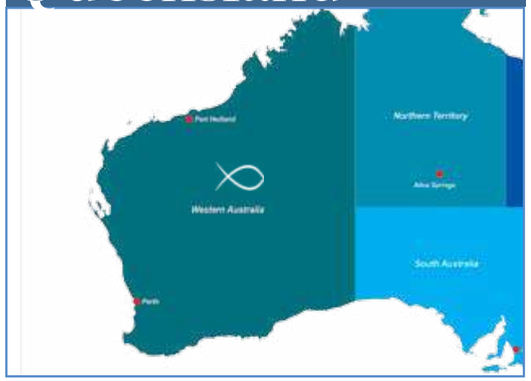

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