July / September 2017

OZDIVER

AUSTRALIA'S PREMIER DIVE MAGAZINE

ECO-PIRATES

THE BEST OF PNG

WHALE SHARKS

TRUK LAGOON PART II

REMOTE BUT READY

PUERTO GALERA

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

July / September 2017

Christopher Bartlett

Editor's Deco Stop

Everyone has a role model, a person that helped guide us on this journey we call life, and after many years you look back and realise that that person had such an immense impact on your life and helped you to become the person that you are today.

I had such a person in my life and last week he was murdered in South Africa. It was an unnecessary robbery where two people were killed for a small amount of money but him being an investigative journalist, we will never know if there was another reason for the senseless killing. Johann Botha was a brave creative investigative journalist with a kind and gentle heart. He had always put the environment and the truth first in his life.

He lived life to the fullest and was never afraid to do anything or to uncover the unknown.

For many years we travelled and dived together making television documentaries regarding the underwater world and I knew that diving was one of his big passions in life and one could see it in his enthusiasm whenever we went on a diving adventure.

Today everyone that knew you will miss you and whenever we think about you we will smile and remember you for the person that you were.

Rest in Peace old friend, brother and dive buddy.

No Rivers to deep, No Mountains to high, no muff to tuff- We dive at five.

The Editor & Publisher

Johan Boshoff

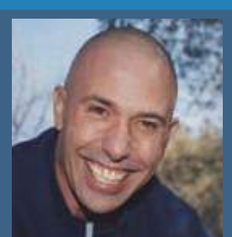
-it is all about the journey and not the destination

Matthew 6:33
But seek ye first the kingdom of God, and his righteousness; and all these things shall be added unto you.

Primary Contributors


Christopher Bartlett


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
Christopher Bartlett & David Caravias

Contributing Editor
Irene Groenewald

Proof Readers
Irene Groenewald
Charlene Nieuwoudt
Izak Nieuwoudt

Administration
Amilda Boshoff
amilda@ozdiver.com.au

Creative Director
TheDiveSpot-OZDiver

Web Master
Innovative Businnes Solutions
www.innovativebusiness.com.au

Publisher
Johan Boshoff
TheDiveSpot-OZDiver

Distribution
In GOD I trust.

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


Johan Boshoff


Irene Groenewald


Amilda Boshoff

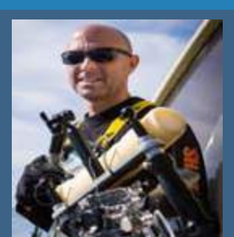
GET IT ON Google play

Download on the App Store

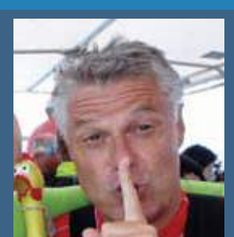
The Dive Spot

it's FREE and it's online

WWW.OZDIVER.COM.AU


David Caravias

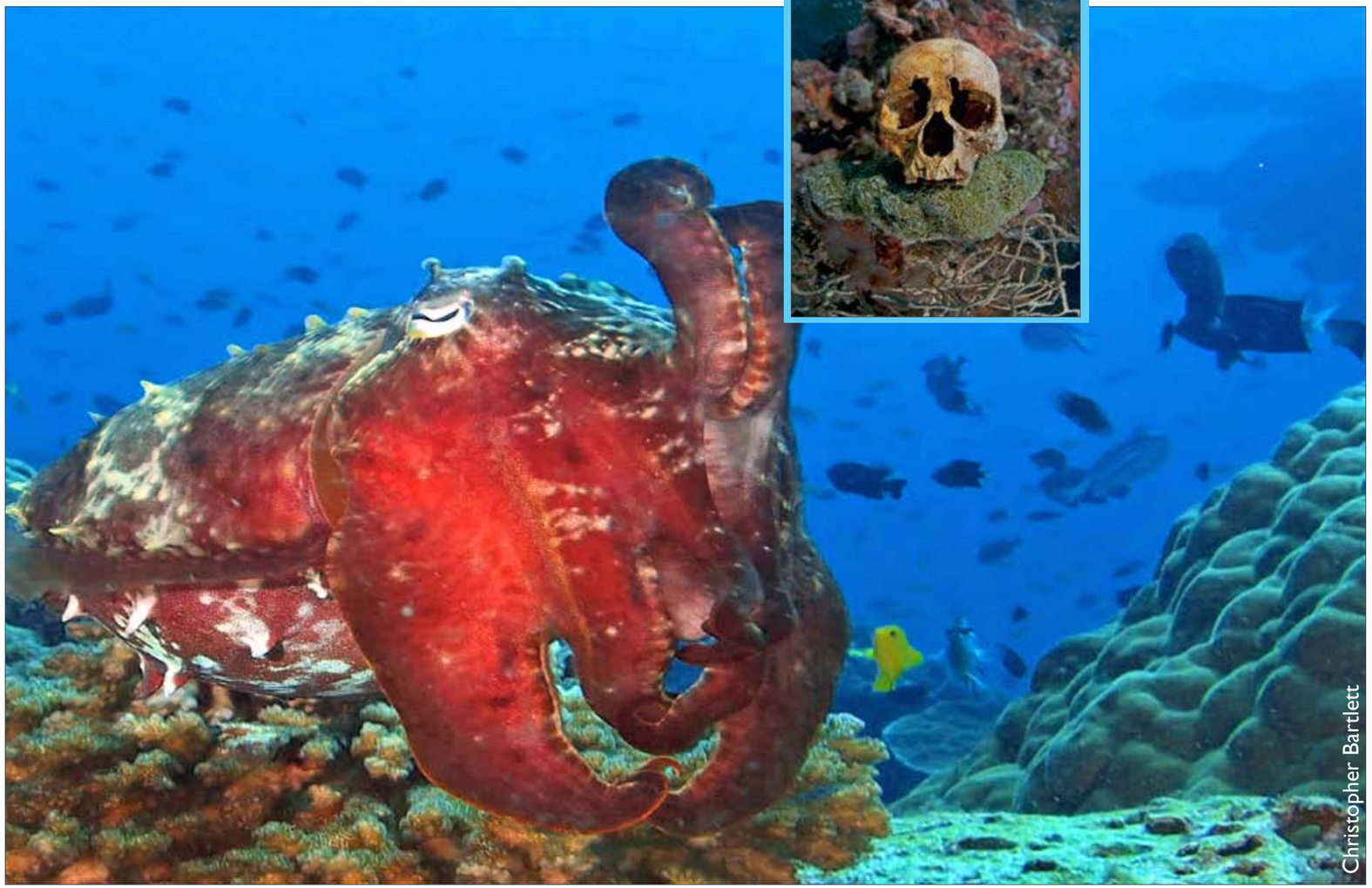

Barry Coleman


Peter Pinnock


Gerrit Maritz

CONTENTS

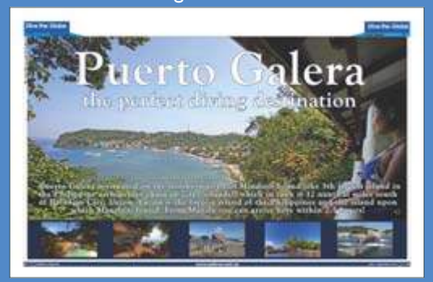
COVER PHOTO
Johan Boshoff



Christopher Bartlett

Puerto Galera - Pg 47

FEATURE

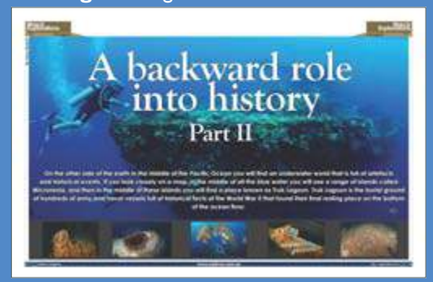


Papua New Guinea - Pg 61

FEATURE

Truk Lagoon - Pg 77

FEATURE



Flowers of the Sea - Pg 97

FEATURE

Log Book

Photos: Christopher Bartlett

It was like a scene from a James Bond novel – a giant squid had risen from the inky depths and was about to drag me down to its lair

By Fiona McIntosh

It was a typical temperate diving scene; green water, lots of kelp, some interesting boulders with the odd splash of colour and the occasional darting fish. Massive lobsters lurked under the crevices but retreated when I tried to get close enough to photograph them.

I wasn't going to be bringing home any great pics from this dive adventure in the marine park off Bicheno, Tasmania...

Then my chance came. A big octopus sat out in the open, posing perfectly and putting on an incredible display of changing hues as I set up my camera a foot away.

I pressed the shutter button; suddenly huge tentacles clutched my arm as the octopus sprung, enveloping my strobe.

My attempts at pulling away were to no avail; the more I tried to flick its arms off, the more of the strobe arm and camera it swallowed.

I could hear my buddy chuckling, before coming to my aid, but despite their pulling and flicking, neither he nor the DM could persuade the beast to release its grip. More tentacles reached out, now it was pulling at my gauges and octo.

My buddy tried scaring the beast off by purging his octo at it, but it simply tightened its grip.

I was beginning to get scared. It was like a scene from a James Bond novel – a giant squid had risen from the inky depths and was about to drag me down to its lair. Now I understood Bond's obsessive fear of the deep.

Startled by the flash as I tried to photograph it, the vast octopus had sprung at the source of the intrusion, my strobe, me. Its strong arms were creeping up, and were already wrapped around my own.

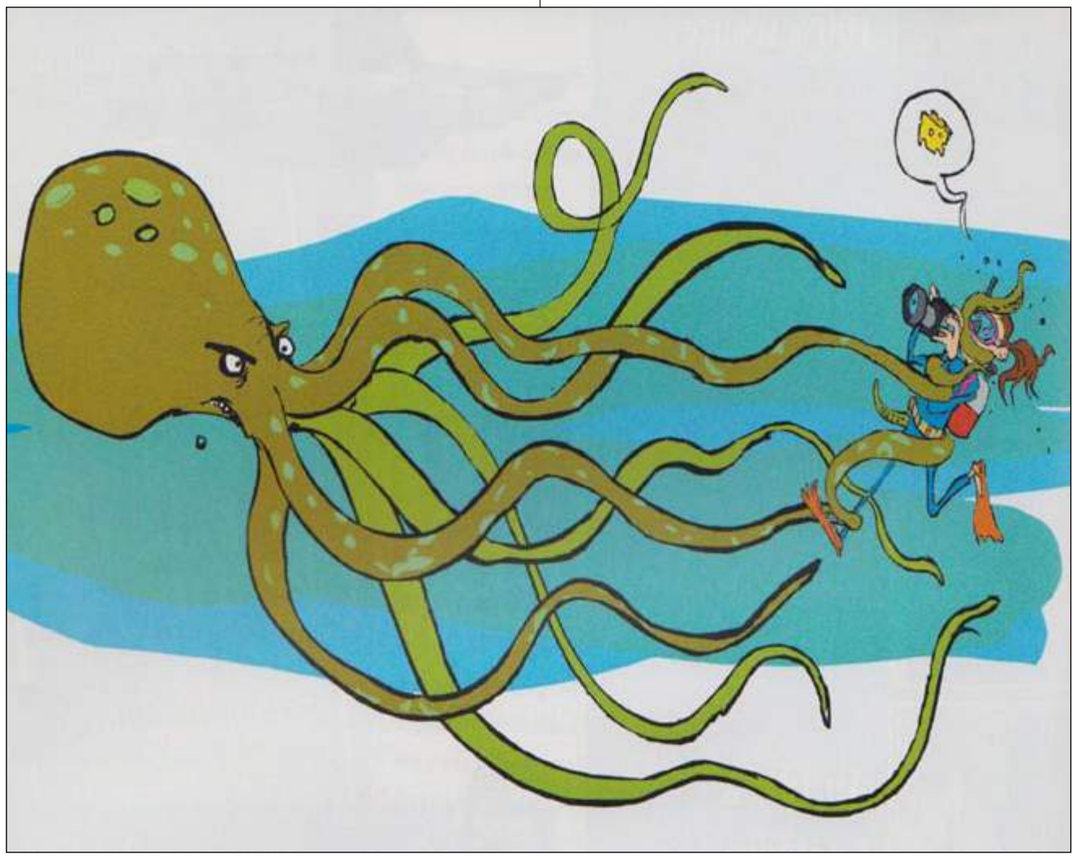
One tentacle was tugging at my reg.

The raw power of the creature was incredible, I was not going to release its grip; it was time for more drastic action. With one hand holding my reg in place I headed for the surface to seek the skipper's help.

As he attempted to pull the camera out of the water the cephalopod finally relinquished control and headed back to the seabed.

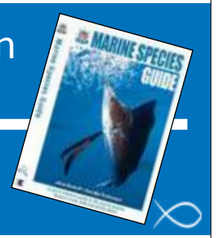
My first dive in Tasmania was a dive to remember.

But don't let this put you off. Tassie offers great cold water diving with all sorts of exotic creatures such as leafy sea dragons to enjoy.



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.

OZ News

AUSTRALIA INTERNATIONAL DIVE EXPO JOINS SYDNEY INTERNATIONAL BOAT SHOW

For the very first time this year, the Australia International Dive Expo (AIDE) will be moving to the International Convention Centre Sydney to be part of the Sydney International Boat Show (SIBS), the largest recreational boating event in the Southern Hemisphere.

As the Boat Show will be celebrating its 50th edition this year, it is opportune timing for AIDE's debut to showcase to visitors the beauty of the underwater world and the infinite activities and interests that complement the boating and sailing lifestyle that is enjoyed by so many Australians.

Shared by the Boat Show Organiser that records showed more than 15% of visitors to the boat show have an expressed interest in diving and snorkelling and this partnership will be an added bonus for visitors to the show.

As such, the partnership with AIDE will not only take the Boat show to the next level in its offer to visitors, but also open up a host of unexplored opportunities to new and existing exhibitors to reach Australia's high-income earning water enthusiasts.

AIDE Director, Ness Puvanes, welcomes the partnership with open arms. She says it not only offers the dive exhibitors the chance to reach a wider audience, but on the other hand also presents a more comprehensive show for attendees, thus encouraging higher visitor numbers.
"The partnership exploits the natural synergy between the two shows, delivering to visitors an engaging weeklong event that covers everything above and below the water," she adds. "It is effective and convenient, which we believe that this will be beneficial to both the exhibitors and visitors."

AIDE has no doubt become an important and valuable platform for the Australian public to learn more about the diving world and it has always been the aim to reach existing divers and to be divers with a keen interest in the sport to provide them with access to the latest information and developments relating to diving.

AIDE will not only be educational, but entertaining as well. From dive try-outs, dive travel packages, dive courses and holiday packages to dive equipment, photography and marine conservation practices, visitors will be able to immerse themselves in the marine world at the Show. Demonstrations and presentations by experts in the industry will also have visitors well engaged with their interests.

Exhibitors can also expect to meet a host of new contacts who will be joining AIDE from all corners of the world. They include tourism boards, tour operators, new equipment suppliers, and many more.

On its return to Darling Harbour, the 50th edition of the Sydney International Boat Show looks to celebrate this year's event with the biggest number of exhibitors, more than 60,000 visitors through the gates and series of entertaining elements.

The Show will take place from the 3 – 7 August 2017. Opening times will be 10am to 8pm in the halls, with the adjoining marina display closing daily at 7pm.

For further information about AIDE including the list of exhibitors, presentations, activities and workshops, go to www.australiadiveexpo.com.

To find out more about the boat show, visit www.sydneyboatshow.com.au

In Collaboration with

Diving in New South Wales, Australia

Located on the East Coast of Australia, the vast coastline of New South Wales (NSW) provides a great amount of choice for scuba diving. Spread across 2000 kilometres / 1250 miles of coastline, there is a host of amazing dive sites that will suit all levels of diving experience. As a travel destination, NSW has plenty to see and do. Below you will find an overview of the different regions in NSW.

Sydney

Shelly beach, Sydney
Sydney, the capital of NSW, is a true cosmopolitan city known for its stunning harbour and famous landmarks. Brimming with culture, art, fashion and cuisine, this place has something for everyone.

For a city of its size, Sydney has some world class diving. Popular dive sites in Sydney include Bare Island, Camp Cove and Shelly Beach, just to name a few. At these great dive sites you can expect to see an impressive range of marine life including Gropers, Rays, Weedy Sea Dragons and numerous fish species. A diver in Sydney really is spoilt for choice. There is an extensive selection of amazing sites for the less experienced diver as well as a range of dive sites suitable for more experienced divers.

Just north of Sydney, the Ex-HMAS Adelaide was scuttled off Avoca Beach near Terrigal and now serves as a world-class artificial reef and dive site. Sitting bolt upright in 32 metres of water, this site is the first of its kind in NSW.

Far North Coast
The beautiful weather and tropical warm currents make for some fantastic diving on the far north coast of NSW. Here the mixing of warmer currents and cooler waters creates an impressive biodiversity. Located near the famous Byron Bay is the Julian Rocks Marine Park. Brimming with marine life, the Julian Rocks Marine Park has been rated by many as one of Australia's top 10 diving destinations. Cook Island off Tweed Heads is another highlight of the Far North Coast. Situated in an aquatic reserve, Cook Island is a true natural wonder.

Mid North Coast & Newcastle
South West Rocks is a fantastic dive spot on the mid north coast of NSW. A favourite among local divers is the Fish Rock Cave because of its abundant marine life. The opportunity of diving with Grey Nurse Sharks is also popular in both locations and Humpback Whales also frequent these waters during certain times of the year.

Solitary Islands Marine Park is located just north of Coffs Harbour and has over 25 dive sites to explore. Interestingly, here you will find a unique mix of warm water and temperate water marine species depending on the season.
Slightly further south there are more great dive destinations including Foster, Nelson Bay and Newcastle. The Great Lakes Marine Park is an exciting destination teeming with marine life. Popular sites include Halifax, Fly Point and The Pipeline.

Lord Howe Island
700 kilometres / 434 Miles east of NSW, is the amazing Lord Howe Island. With an incredible 60 dive sites, divers are spoilt for choice. Sites to explore include the world's tallest sea stack, Ball's Pyramid, suitable for experienced divers. Turtles, sharks and dolphins are just some of the marine life that call Lord Howe Island home.

The true variety that NSW offers makes it a wonderful place to visit both for diving and site seeing. From north to south, the expansive and beautiful coastline is sure to please divers of all experience levels. With so many great diving and holiday options, why not locate a PADI Dive Shop in NSW and start planning your next diving getaway?

South Coast
The South Coast of NSW is known for its stunning diving. Toothbrush Island and Bass Island are located near Wollongong and Shellharbour and are favourites among divers. Marine life such as Rays, Groupers and Cuttlefish are common here.

Jervis Bay is yet another popular dive spot. The choice of diving in Jervis Bay is impressive, with over 30 sites to explore. Well known sites include The Docks which has some excellent cavern diving. Brush Island is also regarded by many as an excellent destination for experienced divers and is located just south of Ulladulla.

Further south, Bateman's Bay and the surrounding regions presents divers with some diverse sites including Black Rock which is accessible by boat. Finally, multiple sites near Narooma and Merimbula in the far south are picturesque before you hit the southern border.

There are so many great options when learning to dive or continuing your education in New South Wales. Search PADI.com for courses or to locate and contact a PADI Dive Shop.

Dive Schools / Operators / Organisers / Instructors

Do you have any interesting, newsworthy info to share with the dive 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

Available on the Google play

Available on the App Store

IT's FREE & IT's ONLINE

OZDIVER

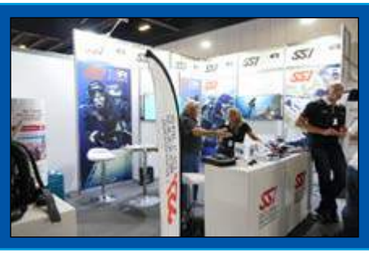
WWW.OZDIVER.COM.AU

Dive the Continent
Dive OZ

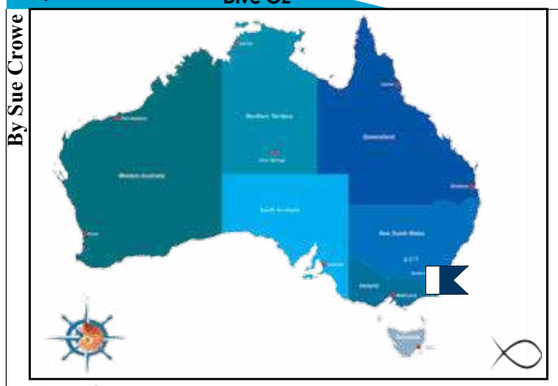
By Sue Crowe

OZTek2017 WRAP-UP

For those not able to make it to OZTek in March...
OZTek is the premier dive show in the Australia & New Zealand covering all aspects of technical, travel and photographic diving. For the first time OZTek was held at the ICC Sydney, Darling Harbour in March this year.
OZTek is a speaker based event and more than 40 speakers, brought together over 650 prepaid pass holders and another 1500+ enthusiastic divers to listen to the presentation and enjoy the exhibition and photography. It is a unique opportunity to hear firsthand incredible adventurers, scientists and those at the forefront of Diving.



By Sue Crowe



Speakers

The world's pre-eminent authorities in their respective fields of diving expertise were there:

Michael AW, Matt Carter, Dale Clapperton, Tom Crisp, John Dalla-Zuanna, David Doolette, Dr Andrew Fock, Franck Gazzolla, Ross Gudgeon, Richard Harris, Kieran Hatton, Jill Heinerth, Darren Jew, Becky Kagan-Schott, Brian Kakuk, Pete Lightowler, Gareth Lock, Rod Macdonald, Deborah Johnston, Pete Mesley, Barry McGill, Shannon Micallef, Professor Simon Mitchell, Bruce Partridge, Andrew Pitkin, Paul Raymaekers, Ben Reymenants, Liz Rogers, Mark Ryan, Stig Severinsen, Alex Santos, Matt Smith, Tomasz Stachura, Edd Stockdale, David Strike, Michael & Josh Thornton, Paul Toomer, Mike Torr, Vic Verlinden and Cristina Zenato.

During the two-day symposium, there were up to four conference sessions/workshops running simultaneously. As far as was possible, presentations were strealimed to allow people with specific diving interests to concentrate on speakers and topics of appeal (i.e. wreck diving, cave diving, physiology, photography etc.).

There were a number of world firsts - Rod Macdonald showed world first images of the HMS Hampshire's hundred anniversary sinking expedition.
Andrew Fock explained the rape and pillage of the Java sea and the news to date on the missing WW wrecks.

Dive the Continent
Dive OZ

Michael Menduno put together the most comprehensive historical photographic exhibition on the history of diving technology. Combining USA & Australasia - Pushing the Envelope wowed many divers and was a fascinating display.

Exhibitors

OZTek2017 enjoyed an increase in exhibitor space and the crowds saw a wide variety of dive equipment, training and travel including:

Allways Dive Expeditions, AP Diving, Asia Divers, Atmosphere Resorts, Bauer Compressors, Blue Label Diving, CDAA, Christmas & Cocos Islands, Darren Jew Photography, DAN AP, Deep Blue Ventures, Deep Dive Gear, Digital Diver, Dive 1st Aid, Dive 2000, Dive Adventures, Dive In Australia, Diversion Dive Travel, Divesoft, Dive Systems, Dive Gear Express, DKG Drysuits, Fourth Element, eScuba, Halcyon Australia, Historical Divers Society, Light & Motion, M3S Triton, Nauticam, Nikon Australia, OWUSS, Ocean Geographic, PNG Dive, OZDiver Magazine, Pinnacle, Pro-diving Services, Professional Diving Training, rEvo, Queensland Breathing Systems, Quest Tours, Down Under Aquatic Imaging, RAID, Rodney Fox Shark Expeditions, RX Dive, Scubapix, Scuba Diver Australasia, Scuba Fiend, Scuba Warehouse, Sea Safari Cruises, Shearwater, Solomon Islands Visitors Bureau, Spirit of Freedom, SSI, Tabata Australia, Tech Asia, TDI/SDI/ERDI, Tec Diver, The Ocean Agency, Philippines Toursim Bureau, TUSA, UW Images, Villa Alba & Pure, Vivid-Pix, Wakatobi and Waterproof.

New equipment, new ideas and new systems.

OZTek2017 Underwater Photographic Competition

Now an international event, the OZTek2017 Underwater Photographic Competition underwent a re-vamp in 2017. Terms & conditions were tightened, more publicity

DIVE AUSTRALIA

LOCATE A PADI DIVE SHOP TODAY

PADI WOMEN

DIVE15JUL17DAY

More Info:

PADI.COM/WOMEN-DIVE

Wreck

Doorstep

Reef

Reef

DISCOVER AMAZING REEFS, BEACHES & WRECKS

Boasting incredible diving from the Great Barrier Reef, to pristine dive conditions off the expansive coastline and beaches all around the country, Australia is a destination like no other. Whether you are inviting family and friends to become PADI certified divers or taking your next PADI course, there is no better place than Australia.

PADI - THE BEST CHOICE IN DIVER CERTIFICATION

- PADI is the most recognized and sought after diver certification in the world.
- Over 25 million PADI certifications issued since 1966.
- Nearly one million certifications issued annually.
- More than 136,000 Professional Members.
- More than 6,400 PADI Dive Shops in the world.
- PADI materials available in over 27 languages.

Beach

PADI

Visit padi.com or your local PADI Dive Shop to find out more.

Australia

PADI digital Options Available

By Sue Crowe

Dive the Continent
Dive OZ

By Sue Crowe

for the event and online public voting after the judges had made their decision on the winners, kept the competition in the forefront.

This created significant interest and brought the competition into the limelight.

The addition of the Nikon Dive Portfolio of the Year created huge interest and means the OZTek Competition is now a serious competition contender.

Judged by a panel of experienced and accomplished underwater photographers, filmmakers & editors; Jayne Jenkins, Matt Smith, Chris Miller and Sue Crowe.

The winning entries were mounted by Bluefish Photo and hung in the Georges Cameras Imaging Centre along with the 2ndOZTek Underwater Photographic Exhibition.

THE GALA AWARDS DINNER

Another sell-out affair, the OZTek2017 Gala Awards Dinner was held at Aerial UTS, Ultimo on the evening of Sunday, 19th March, immediately following the close of the OZTek2017 Conference and Exhibition.

Nominations were received for the first time - divers nominating who they felt deserved an award & why.

This was generally well received but hopefully more will nominate in years to come. Nominees were looked at by the newly established OZTek Award Panel of experienced divers from a wide background and previous winners:

On the Award Panel were John Dalla-Zuanna, Liam Allen & Pete Mesley. Sue Crowe provided support.

By Sue Crowe

The OZTek2017 AWARD Recipients were:

TECHNICAL DIVER OF THE YEAR AWARD - Richard Harris
For continued outstanding achievements in underwater exploration (includes elements of teamwork, mentoring and inspiration). Presented by Liam Allen, previous recipient (Richard received the latest Shearwater Research standalone dive computer courtesy of Shearwater Research & a trip to Truk, courtesy of Blue Lagoon & Dive Adventures.)

OUTSTANDING ACHIEVEMENT AWARD Scott Willan

To recognise deserving individuals whose achievements embody the spirit of diving adventure, exploration and teamwork. Presented by John Dalla-Zuanna, previous recipient.

INDUSTRY RECOGNITION AWARD Jane Bowman

To acknowledge diving Industry members whose individual efforts have often had a far-reaching impact on the advancement and growth of diving.

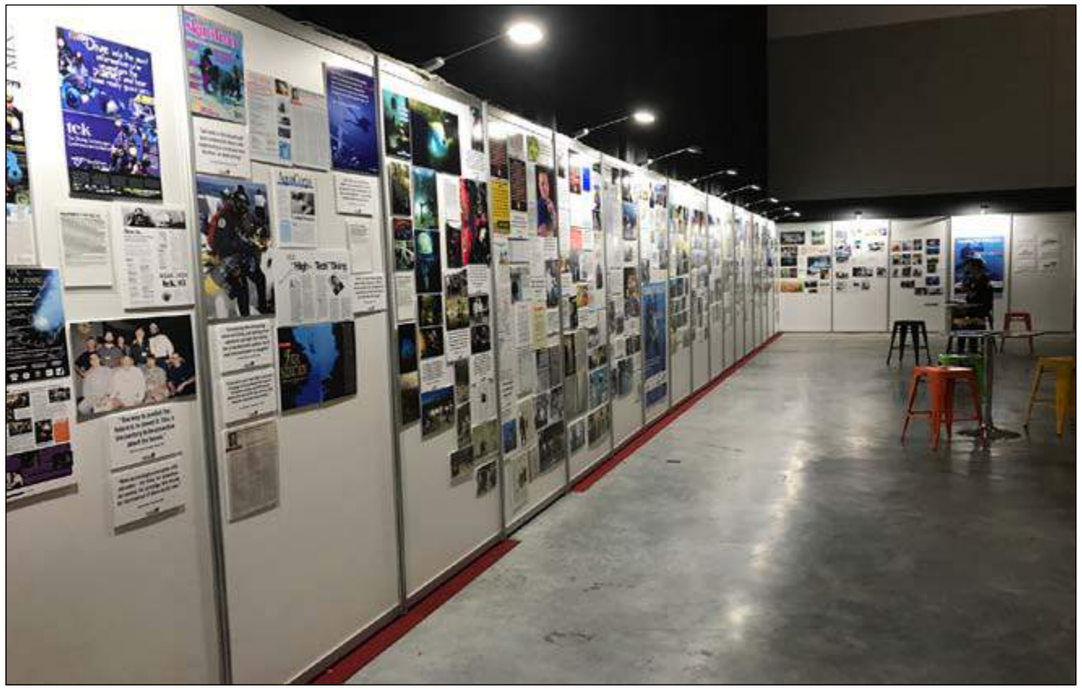
Presented by Jayne Jenkins, previous recipient

EMERGING EXPLORER AWARD Tom Crisp

Acknowledgement of an up-&-coming diver for their contribution to exploration, research or training in the spirit of team work and community.

Presented by Pete Mesley
(Tom received a newly developed Solomon Islands Technical Dive Expedition courtesy of LUST4RUST)

Dive the Continent
Dive OZ



By Sue Crowe

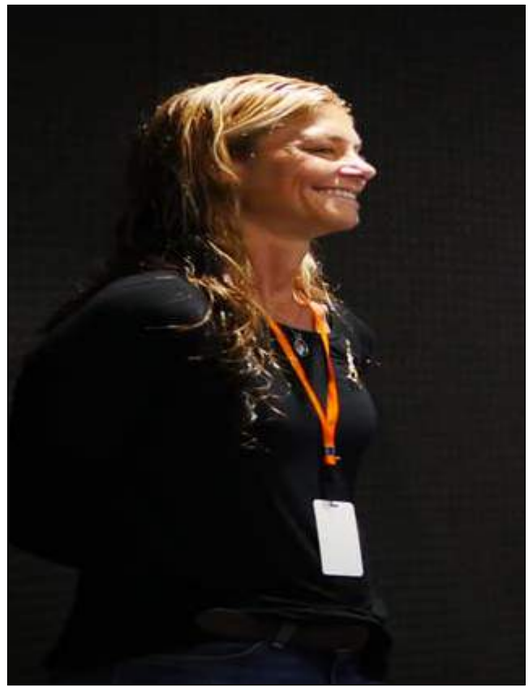
Gala Dinner Lucky Door Prizes:
A DAN O2 Kit courtesy of Dan Asia Pacific
A trip to Palau courtesy of Dive Adventures and Sam Tours - won by Matt Carter.

A liveaboard trip on the Fiji Siren courtesy of Worldwide Dive & Travel & Dive Adventures - won by John Dalla-Zuanna
Thank you to all the sponsors for the incredible prizes we were able to offer over the weekend.

They are greatly appreciated, especially by those who are lucky enough to win!.

OZTek is unique among diving events, with its conference knowledge-based format actively promoting the adventure and excitement of diving, OZTek encourages industry growth by focusing on diver retention.

Delivering a clearly qualified audience of people who are passionate about diving – OZTek continues to evolve as a leading forum for enthusiastic divers keen to take their training to the next level and who seek greater knowledge and a better understanding of all the world of diving has to offer.



OZTek2019

Maintaining OZTek's momentum as a diving forum without equal, detailed information about OZTek2019 will be announced shortly.

In the interim, I would like to thank all the Exhibitors, Speakers, Sponsors & Attendees for the magnificent level of support given to this year's event. It is very much appreciated and couldn't be done without all of you.

AUSTRALIA INTERNATIONAL DIVE EXPO
AIDE

3 - 7 August 2017

Level 1 • Hall 3 • International Convention Centre
Darling Harbour • Sydney

In Collaboration with

50th the SYDNEY international BOATSHOW


ASH PAYNE & JAYDE SEED


BRETT LOBWEIN


GAETANO D. GARGIULO


JAYNE JENKINS


MICHAEL AW


MATT CARTER


MATTHEW SMITH


GEORGE EVATT


KEL BRADLEY


JOHAN BOSHOFF


LISA MONDY


MIKE SCOTLAND


PASCAL LECOCQ


SIMON TRIPPE

JOIN US TO EXPLORE THE BUSINESS OF DIVING

SPEAKERS Presentation

POOL Try Dive | Dive Gear **WORKSHOP**

FREE Photography Course for University Students | Maritime **ARCHAEOLOGY COURSE**

PHOTO GALLERY Display | **HISTORICAL** Diving Display

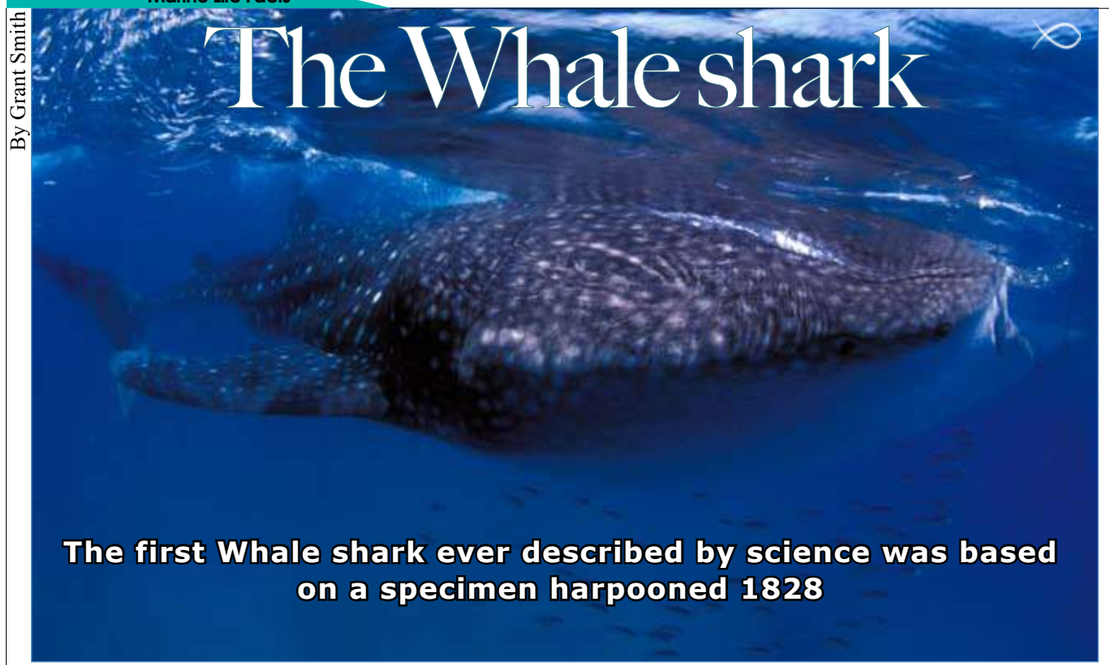
PASCAL LECOCQ The Painter Of Blue

Demo On **DIVE GEAR** | **NETWORKING OPPORTUNITIES**

KIDS ZONE ACTIVITIES and many more...

The Whale shark

By Grant Smith



The first Whale shark ever described by science was based on a specimen harpooned 1828

The Whale shark belongs to the order Orectolobiformes. Other families included in the Orectolobiformes order are the Ginglymostomatidae (Nurse sharks) and Orectolobidae (Wobbegongs). The interrelationships between these families are based on anatomical and morphological similarities such as unusual colourings and a transverse mouth well in front of the eyes. Other similarities include a long 'stretched out' upper caudal fin and the presence of spiracles below or behind the eyes. The Whale shark is a member of the Rhincodonidae family, and is the only member of this family due to, among other factors, its large size, crescent shaped tail and filter feeding methods.

The Whale shark is found in all the world's temperate and tropical waters, with the exception of the Mediterranean Sea. The Whale shark is thought to be highly migratory, moving between continents with ease.

In contrast to most sharks from the same order (Orectolobiformes), which are benthic (live on or near the bottom) species, the Whale shark is a pelagic (open ocean) species. It is often seen offshore but commonly comes close inshore, sometimes entering lagoons or coral atolls. Studies also revealed that Whale sharks spend the majority of their time above 100m and only 30% of their time above 30m. They also make dives in excess of 1 000m and encounter very cold water in the process. Whale sharks are highly migratory and consequently utilise a vast habitat (the longest recorded Whale shark journey spanned 13 000km and took over 36 months). Their movements are probably food driven and linked to plankton blooms and invertebrate and fish spawning events (Colman 1997). There is evidence to suggest that male and female Whale sharks use separate habitats and mix only when mating.

The Whale shark is characterised by its broad, flattened head and large transverse mouth. In its mouth the Whale shark has minute rasp-like teeth with about 300 rows in each jaw which appear to play no role in feeding. Its gill slits are very large and are modified internally into plankton filtering screens. The first dorsal fin is much larger than the second dorsal fin and is set rearward on its body. The Whale shark has a unique 'checkerboard' colour pattern of light spots and stripes on a brown/grey background. Its skin is up to 15cm thick and there are three prominent dermal ridges running along each of its sides. This animal's large size and colouration make it unmistakable from other sharks.

The Whale shark is the largest extant (existing) shark; it commonly reaches lengths of 8-10m with a maximum of around 14m. The largest Whale shark ever captured measured some 12,6m in length and was harpooned off Baba Island (near Karachi, Pakistan) in November 1949. The girth (distance around the thickest part of the body) of this specimen measured some 7m and the whole shark was estimated to weigh about 15 tonnes.

Males and females are not expected to reach sexual maturity until at least 9m or 10m, while length at birth varies from 43-63cm. These sharks are expected to live for approximately 100 years, the longest lifespan of any shark species. Whale sharks may also be the most fecund (highest reproductive capacity) of all live bearing sharks. The gestation period for the Whale shark is unknown and information on the frequency at which Whale sharks are able to reproduce is not available. Likewise, it is not known where Whale shark mating takes place, although it is considered likely to take place in the waters surrounding Taiwan, Philippines and India where sightings of juvenile Whale sharks have been recorded (Norman, 2004).

Unlike most plankton feeding sharks, the Whale shark does not depend on slow forward motion to operate its filtration mechanism. Rather, it can perform a versatile suction filter-feeding method, which enables it to draw water into the mouth at higher velocities than other filter-feeders, such as the Basking shark. This enables the Whale shark to capture larger, more active nektonic (small free swimming fish) prey as well as zooplankton aggregations. Therefore, the Whale shark may be more dependent on dense aggregations of prey organisms. The denser filter screens of this shark act as more efficient filters for short suction intakes, in contrast to the flow-through systems of the Basking shark. Whale sharks are often seen feeding passively in a vertical or near vertical position with the head at or near the surface.

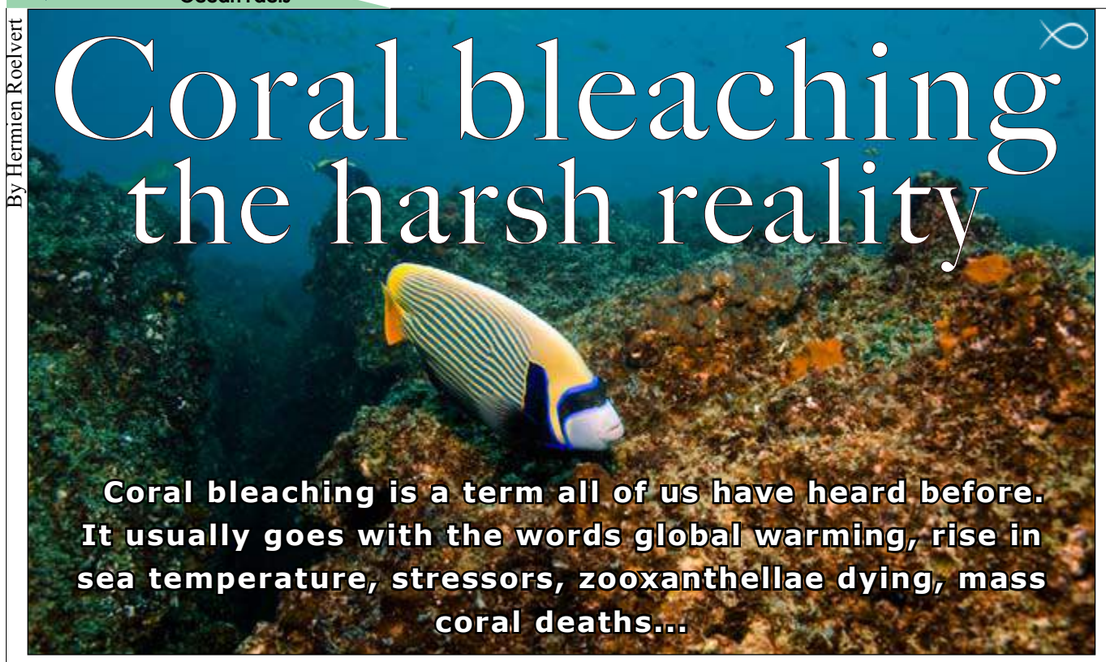
In the water with Whale sharks

The best practises to follow while diving with sharks are specific to the animals feeding habits and general behavioural characteristics. When diving with Whale sharks the following applies:

* Swimmers should maintain a minimum distance of 3m from the Whale shark.
* Avoid splashing and swimming erratically; swim slowly and in a controlled manner.
* Swimmers should not attempt to touch the Whale shark for any reason.
* Avoid obstructing the Whale shark from its chosen direction of movement.
* Swim at its sides and give it room to turn if it wants.
* Try not to swim directly above the Whale shark as this will discourage it from coming to the surface where it can be viewed more easily.
* Do not chase after the Whale sharks, this will only chase them away.
* Flash photography should be used with discretion.

By Hermien Roelvert

Coral bleaching the harsh reality



Coral bleaching is a term all of us have heard before. It usually goes with the words global warming, rise in sea temperature, stressors, zooxanthellae dying, mass coral deaths...

How does it work and is it really that bad? To answer the first question we have to go back to Biology 101. Coral bleaching occurs when zooxanthellae (unicellular microscopic algae) living in the tissue (polyps) of corals is expelled from the coral host due to stress. This causes the coral to turn 'white' because photosynthetic pigments of the zooxanthellae give corals the beautiful colours we see underwater.

Without these unicellular algae the tissue of the coral appears transparent and the host's white skeleton is revealed. This symbiotic relationship provides the coral with up to 90% of it's energy and therefore corals begin to starve once they bleach. If the stress persists, these bleached coral often die and bleached reefs can take years, and in some cases even decades, to recover.

There are a number of factors that can induce stress on corals, including a change in water temperature, increase in solar radiance, ocean acidification, overfishing causing a decline in zooplankton levels resulting in starvation, sedimentation, pathogen infections and salinity changes.

Prolonged, unusually warm sea surface temperatures (SST – often a result of global warming), are believed to be the biggest stressor to coral reefs around the globe. An increase of only 1-2°C in temperature, lasting between six to eight weeks, is enough to trigger coral bleaching. If the rise in temperature persists for more than eight weeks, corals begin to die.

According to an Australian study in 2008, rising carbon dioxide levels from human CO2 emissions ending up in our ocean (contributing to water acidification), could have a significant impact on a coral reefs ability to withstand climate change.

The combination of this acidification and rising sea temperature, increases the rate of coral bleaching, kills reef building organisms and results in entire reefs being destroyed quicker than what was previously believed.

In an article published by ScienceAlert, Professor Ove Hoegh-Guldberg from the ARC Center of Excellence for Coral Reef Studies (CoECRS) and Queensland

By Hermien Roelvert

University says, "The results, frankly, are alarming. They clearly suggest that previous predictions of coral bleaching have been far too conservative, because they didn't factor in the effect of acidification on the bleaching process and how the two interact."

In an experiment on Heron Island, Australia, the CoECRS team erected large aquaria (30 in total), and created an environment with CO2, temperature and sunlight conditions believed to be the same for the middle and end of this century based on forecasts by the Intergovernmental Panel on Climate Change.

For eight weeks the scientists studied these combined effects on several different reef organisms.

"We found that coralline algae, which glue the reef together and help coral larvae settle successfully, were highly sensitive to increased CO2. These may die on reefs such as those in the southern Great Barrier Reef (GBR) before the year 2050," said the study leader Dr. Ken Anthony according to ScienceAlert.

The most extreme global occurrence of coral bleaching due to a change in sea surface temperature happened in 1998. This catastrophic bleaching event was sparked by an El Niño (sometimes referred to as a Pacific warm episode) weather pattern and caused 16% of the world's reefs to die.

Today almost all reefs show some form of coral bleaching. The last site I dived, less than two months ago, was Sodwana Bay and there were clear signs of coral bleaching. We all know how long it takes for coral to grow, let alone for a whole reef system to form.

So to get back to the question of whether coral bleaching is really that bad. Coral reefs are home to 25% of all marine life, including many species not yet known to science. The death of a reef will result the disappearance of hundreds of thousands of species of invertebrates and fish. The economic effect therefore on communities and countries that depend on this form of sea life can amount to billions of Dollars.

Although the direct threat to coral reefs by humans is far greater than that of coral bleaching, it too, indirectly, derives from human activity.

There is no need to sell your dive gear on eBay just yet though. In their efforts to monitor reefs along the coast of Madagascar, a survey team, funded by Conservation International and led by the conservation groups Blue Ventures and the Wildlife Conservation Society, found corals on small reefs that appear to be resilient to rising sea temperatures. Some areas had lost almost 99% of their corals due to coral bleaching along this cost.

A similar phenomenon happened in the Keppel Islands in the southern part of the Great Barrier Reef. This part of the Australian reef suffered severely from the 2006 coral bleaching event, and yet certain corals were able to recover and re-establish themselves in record time.

Only the future will tell us whether these recoveries were once-off occurrences. We still have so much to learn about the sea, the environment, corals and coral bleaching. It's a fact that coral bleaching is real and corals are dying.

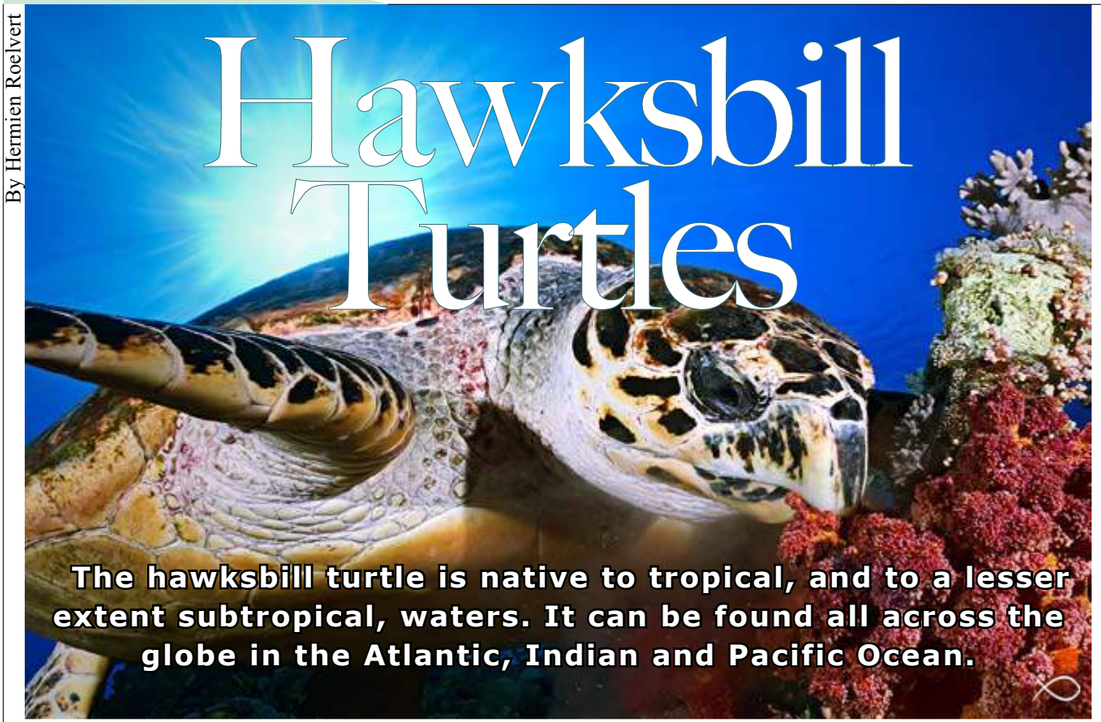
Even with rare occurrences of corals surviving we need to make a conscious effort to leave a greener footprint if we are to leave one at all.

The fact is that our children may not see the reefs we so often dive.

And that because half of the carbon dioxide emissions produced by humans end up in the ocean. That is an alarming amount. We do not know what the next study will reveal, and yes the topic of coral bleaching is still relatively new to us, but this should not stop us from living more 'green'.

Hawksbill Turtles

By Hermien Roelvert



The hawksbill turtle is native to tropical, and to a lesser extent subtropical, waters. It can be found all across the globe in the Atlantic, Indian and Pacific Ocean.

The hawksbill turtle are migratory animals and nesting occurs in more than 70 countries. Compared to other sea turtle species, the hawksbill is small to medium-sized. Adults weigh on average 50kg but can weigh up to 90kg while hatchlings weigh in at about 14g.

The head is elongated and tapers to a beak-like mouth that gives the species its name. This beak-like mouth allows it to reach into crevices and holes in coral reefs to get to sponges and other invertebrates (sponges being its main food source). Hawksbill turtles are unique among sea turtles in that they have two pairs of prefrontal scales on the top of the head and each of the flippers usually has two claws. The top shell of an adult hawksbill ranges from 60-90cm and the rear edge of the carapace is almost always serrated. The bottom shell, or plastron, is clear yellow.

Reproductive maturity amongst hawksbills can take up to 20 years. Females nest about 4-5 times during nesting season at 14-16 day intervals. Nesting generally occurs at night and one nest averages 120 eggs.
Gestation takes up to 60 days. The shells of hatchlings are about 42mm long, heart-shaped and almost completely brown. It is believed that once the hatchlings enter the sea, offshore currents carry them into the pelagic zone where they take shelter amongst floating algae and other drift material.

They remain in the pelagic zone until they reach a carapace length of about 20-30cm.

The juvenile hawksbills then change feeding habits from feeding on the surface to feeding below the surface on animals found within coral reef environments, this becoming their new habitat.

The hawksbill turtle fulfills a specific role in the marine ecosystem. Like other sea turtles, they carry nutrients within the oceans. Their feeding habits differ from location to location but generally they are associated with healthy coral reef systems.

Weird and Wonders
Environmental Affairs

Threats

There are many threats that this species, along with turtles in general, face. Egg collection, destruction of nesting areas, slaughtering for meat, oil pollution and destruction of the coral reefs where turtles feed are a few of them. The greatest threat, however, to this species of turtle is the tortoiseshell trade.

In the last 100 years millions of hawksbills have been killed to supply the demand for their shells. Even though the hawksbill turtle was added to the IUCN Red List of Threatened Species in 1968 and listed on Appendix I of CITES (Convention on International Trade in Endangered Species) in 1977, trade in their shells still flourished.

According to the IUCN, during the 20th century markets in Europe, the USA and Asia imported tortoiseshells for luxury articles such as combs and brushes, jewelry boxes and ornaments. Japan, however, was the biggest importer of this highly prized animal shell. Statistics show that between 1950-1992, 1,3 million large hawksbills were imported from around the world and more than 575 000 stuffed juveniles from Asia between 1970-1986 for Japan's bekko (tortoiseshell) industry.

On a smaller scale, local tourism industries dealt in stuffed hawksbills throughout the Indian Ocean, the Pacific and the America regions. This contributed to the hawksbill turtle's status being classified in 1982 as endangered, and today's status of critically endangered.
According to the IUCN, the hawksbill population is decreasing even though they are a protected species and conservation actions are in place.

The next label on the endangered list is 'extinct in the wild' and this has already occurred in some parts of the world. If we want to see them in the wild, and not only in aquariums, we need to get involved in any way we can.

Today, much information exists on this species and there are plenty of NGO's and conservation groups focused on the hawksbill turtle if you feel the need to take action to help save this species.

Remote but ready

By Danielle Claar Photo: Stephen Frink

An experienced research team avoids a potentially fatal emergency in the remote Pacific Ocean.

In the crystal-clear waters of the tropical Pacific, our research team from the Baum Lab at the University of Victoria studies coral health and diversity to understand the future of reef ecosystems. We document the reef and conduct coral surveys on a remote and relatively undeveloped Pacific island. On a recent expedition, a seemingly small issue turned into an emergency that, if not for the support of DAN and a great team, might have ended
very differently.

We were surveying corals in around 10 metres of seawater. This particular dive, which turned out to be our last that day, was different from others. I felt slow and unable to concentrate. I tried to count corals – four, five, six… what comes after six again? My brain felt foggy, and I slowly realised that something might be wrong.

After surfacing from a dive earlier that day my buddy had a slight headache. It went away quickly so we attributed it to swimming against a strong current. But after we surfaced from our final dive I was certain something was wrong: I felt ill, and my buddy's headache was back in full force. Our emergency response plan kicked into action. We headed back to shore, where one of our team members contacted DAN. My buddy and I began breathing emergency oxygen, and team members monitored our condition. Everyone prepared to enact the evacuation plan to fly us off the remote island if necessary.

Our primary symptoms subsided, and we were able to wait a week for the next scheduled flight off the island. We discovered that the most probable cause of our incident was carbon monoxide poisoning. Insidious low levels of carbon monoxide in our breathing gas, which came from an old, gasoline-powered compressor on the island, combined with repetitive dives over multiple days may have allowed carbon monoxide to build up in our bodies. While the risk of carbon monoxide contamination is very low when using modern compressors, it should never be ignored, especially in remote locations.

PREPARED
Our team uses a variety of strategies to prevent and manage emergencies in the field:

Emergency Response Plan:
As scientific divers we are required to write an extensive dive plan in advance of our trip. Our plan covers emergency oxygen, nearby medical facilities, evacuation procedures and contact information for the Coast Guard and DAN. No matter what type of diving you do, it's a good idea to put together a detailed emergency response plan before you dive in a new location.

DAN Support:
Immediate access to a DAN oxygen unit and the DAN DES Emergency Hotline (+61-8-8212
9242) are essential elements of our emergency response plan. In addition to having a DAN
emergency oxygen unit on site, DAN's assistance over the phone helped our team make decisions about treatment and follow-up throughout this incident.

Diver Support:
One of the most important skills when diving anywhere is knowing when to call off a dive.
During this incident, as soon as one of the divers said, "I'm not OK," diving operations came to an abrupt halt. When a diver has an objective, such as science or photography, it's hard to admit that something's wrong and stop work underwater. Calling off a dive is difficult, but it is absolutely vital to foster a team mentality that supports a diver's decision to stay out of the water. Being honest with yourself and others about your symptoms can be the difference between, "I am glad we stopped diving" and "If only we had stopped diving…"

FAR AFIELD
People who have dived primarily in developed locations might not realise the additional risks present in less-developed areas. Here are a few recommendations for diving in remote locations:

Investigate air quality:
Ask the dive shop when their air was last evaluated by a certified testing laboratory. Consider learning to use and bringing air test kits with you; these range from simple colour changing sensors to electronic analysers. If a compressor looks so shabby or dirty that it makes you uncomfortable, don't use it.

Ensure emergency oxygen is available:
Ask whether oxygen is available through the local dive operation, confirm there is a reliable
way to administer it, and ensure there is enough to last for two or more divers to get to the
closest medical facility. In some locations, this may be for an extended period, even overnight in some cases.

Be aware of cultural differences:
When communicating with dive shops in countries other than your own, make sure you're
talking about the same things. Ask detailed, specific questions about dive safety so you know what resources will be available to you in the event of an emergency. If possible, learn about relevant cultural differences beforehand.

Safety measures are location specific. Just because a dive shop has a compressor doesn't
mean its tanks are safe for diving. When you're off the beaten path, be vigilant
in verifying tank inspections (visual and hydrostatic), testing air quality and watching for symptoms.

As for me and my dive partner, we made full recoveries, thanks to the quick assistance of our dive team and the professionals at DAN.
Final word from DAN Asia-Pacific
Many diving destinations simply don't have the same safety standards and monitoring that we have come to expect in our home countries.

Any time you are diving in a remote or less developed country you should also ensure that you manage your diving plan to include conservative profiles and long surface intervals.

Article reprinted from Alert Diver with permission of the Divers Alert Network (DAN AP). Text by Danielle Claar

For much more diving health and safety content visit "Diving Safety" at danap.org

Global News

Deepblu Leads Dive Agencies into the Digital Age

Dive training agencies are adopting Deepblu to complete their e-learning programs with Deepblu digital dive logs and extend their reach with organization profiles.
TAIPEI, 5th June 2017 – The International Technical Diving Agency ITDA, the International Diving Association IDA and the Diving Instructor World Association DIWA are adopting Deepblu to extend their reach and complete their e-learning programs.
Keeping up with the times, the three European agencies had already begun offering electronic resources to their instructors and students, allowing part of the learning to take place at the students' own convenience.

VISUAL 1
As a free social platform where divers can log their dives and discuss anything diving-related, Deepblu completes the agencies' digital learning resources. Seeing the value of a global online diving community, the agencies now officially recognize Deepblu digital dive logs for certification training and are encouraging their students to join the Deepblu community.
"The International Diving Association is convinced that the new Deepblu app will hit the mark," says IDA founder Karsten Reimer. "Many divers are still posting their photos and adventures on Facebook where the majority of users aren't divers! Deepblu offers a much better audience."
Wilfried Dickes, DIWA's president is confident that "integration with Deepblu adds value for our dive instructors and divers. Deepblu combines a modern diver community with an online dive log solution and we are glad to be one of the first training agencies to be on board."

The Deepblu Cloud: A Place for Digital Dive Logbooks and More
Dive logging is a crucial part of the certification process, but the conventional paper logbook has many drawbacks. Not only is logging your dives by hand a tedious and time-consuming task, the logbooks and instructor stamps are also likely to get soggy, illegible or lost. Deepblu digital dive logs solve this problem by storing all dive-related information safely in the cloud. Instructors can easily certify the dive log online and students can enrich them with photo- and videography to serve as a memory of their dives.

VISUAL 2
The agencies also recognize the value of staying in touch with their students and instructors, which is facilitated through Deepblu, where every diver can create their own profile, and tag their diving buddies and instructors in dive logs or other posts that concern them. Divers can also easily find instructors and divers based on their agency association.
"Deepblu not only enables certification bodies to digitize their training processes but it also helps new divers to start capturing their adventures from day one," says James Tsuei, CEO of Deepblu. "Our community welcomes divers of all experience levels to stay immersed in the lifestyle."

New Organization Profiles Link Businesses and Their Members
As part of the cooperation between Deepblu and the diving agencies, Deepblu is also piloting the organization profile. With full social media functionality, this new, customizable profile allows businesses and organizations to engage with to their members and the larger diving community.

VISUAL 3
The three dive training agencies IDA, ITDA and DIWA, the non-profit organizations Green Fins and The Watermen Project, as well as a select number of Deepblu COSMIQ Resellers will take part in the pilot program. Later this year, every ocean-related business or organization will be able to sign up for an organization profile.

"We are very excited to connect ITDA Members, Divers and Professionals through this innovative platform," says Stephen J. Craig-Murray, CEO and Chairman of ITDA. "This is a big step forward and opportunity for our divers to share and be a part of a global community."

About IDA: Founded in Germany in 1996, the International Diving Association is committed to combining professionality with the high education standards of the CMAS. It offers education and development opportunities to divers and instructors all over the world through its partner associations.

About ITDA: Hailing from the UK, the International Technical Diving Agency is the only trainging agency in the world that covers the entire industry with training and certifications in anything from recreational to professional and public safety diving.

About DIWA: Founded in Germany in 1972, the Diving Instructor World Association is a union of qualified diving instructors committed to developing internationally standardized guidelines for professional divers.

About the Deepblu Platform: Deepblu is the fastest-growing social network for divers and ocean enthusiasts.

It was released in November 2016 at the DEMA show in Las Vegas and has since brought tens of thousands of divers together at deepblu.com.

About Deepblu, Inc.: Deepblu, Inc. is the company behind the COSMIQ Dive Computer and the Deepblu social network for divers.

Deepblu, Inc. is a team of divers and technology enthusiasts whose goal is to use technology and the power of the internet to revolutionize the diving community and lifestyle.

About the COSMIQ Dive Computer: The COSMIQ is the trendiest dive computer and the only one in its segment to boast Blue-tooth technology to synchronize digital dive logs with the cloud.

Since its launch in April 2016, it has won many awards for its ease of use, clarity and unique design.

Contact: info@deepblu.com

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).

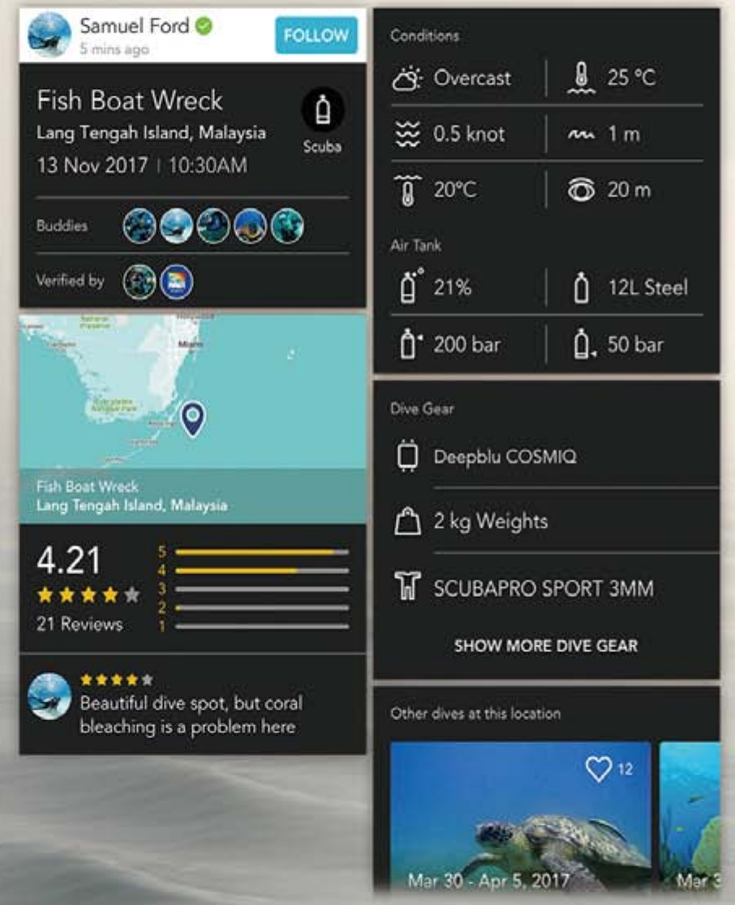
Here's what we need:
- Newsworthy stories (promotional material will not be accepted)
- Word limit: 150 words
- Text prepared in a Word document
- Accompanying high-resolution image(s) are welcome (please supply caption and image credit)

Please send to info@ozdiver.com.au

OZ DIVER

DEEPBLU DIVE LOGS ARE NOW OFFICIAL

Use Deepblu digital dive logs to train for your next certification and to capture and share your dive memories.

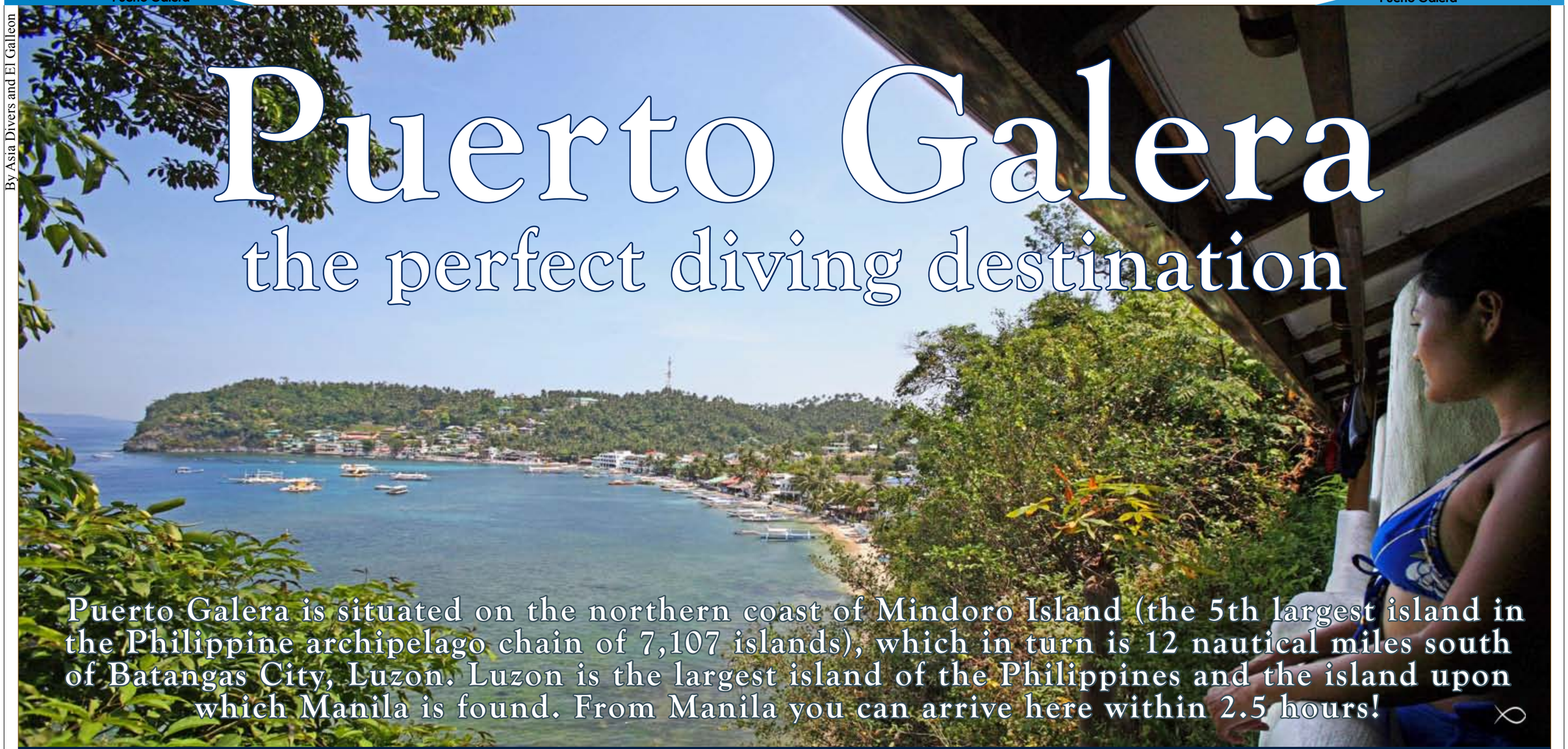


deepblu | deepblu.com | iOS | Android

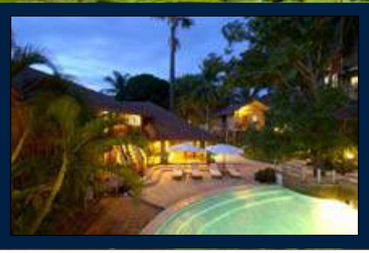
Dive the Globe
Puerto Galera

By Asia Divers and El Galleon

Puerto Galera
the perfect diving destination



Puerto Galera is situated on the northern coast of Mindoro Island (the 5th largest island in the Philippine archipelago chain of 7,107 islands), which in turn is 12 nautical miles south of Batangas City, Luzon. Luzon is the largest island of the Philippines and the island upon which Manila is found. From Manila you can arrive here within 2.5 hours!



By Asia Divers and El Galleon

The beautiful beaches, coves and spectacular dives sites of Puerto Galera have been bringing in people from all over the world over the past twenty-five years or so, but of course Puerto Galera has been around for allot longer.

The name "Puerto Galera" means "Port of Galleons" and was given by the Spanish during their colonial occupation of the Philippines. The Spanish ships would seek refuge in the Puerto Galera harbour during the typhoon season and it was also a good stop point for the crew to rest up.

The sheltered Bay of Puerto Galera itself remains an anchorage for boats during bad weather to this day, although it's the beaches of Small La Laguna and Sabang and White Beach that now provide the main attraction to new comers. Today, the beautiful and scenic areas of Puerto Galera are the center of tourism in this province, making full use of its many white beaches and abundant sea life.

The view of Puerto Galera harbour is breathtaking and not to be missed! Puerto Galera got international attention in 2005 when it was voted the winner of the prestigious award "The Most Beautiful Bays in the World Club" by UNESCO.

Mindoro Island is separated from Luzon by the Verde Island Passage. These waters are flushed by the current of the South China Sea, resulting in strong currents of up to 6 knots. This makes the area well known for its spectacular, exhilarating drift dive and abundant sea life. The Verde Island Passage is very deep so clear water is very common to the dive sites of Puerto Galera, along with a fantastic variety of underwater flora and fauna.

Experts have called The Verde Island Passage the "centre of the centre" of the world's marine biodiversity. Life enhancing nutrients from the Pacific mix with waters of the South China Sea.

You would never guess that beneath the surface are spectacular reef formations with more than 300 species of corals and underwater rock canyons that host nearly 60 percent of the world's known shorefish species. The World Conservation Union describes it as the marine counterpart of the Amazon River basin," which put the passage at the peak of the "Coral Triangle" that spans the Sulawesi and the Sulu Seas in the southern Philippines and nearby Indonesia.

You can get there in 20 minutes by one of our speedboats, do two amazing dives and arrive back here for lunch.

Some of the best dive sites in Asia are in Puerto Galera- over 30 sites all within 15 minutes travel. Underwater photographers are delighted with the opportunity to get


Photo: Beth Watson

By Asia Divers and El Galleon

wonderful colourful reef photos and of course the amazing macro. We are well known for the many different nudibranches that can be seen on just one dive site!

Pygmy seahorses, ghost pipefish, frog fish, sea moths, dragonet's, stick pipefish, wonderpuss, mimic octopus, flamboyant cuttlefish are some of the special things that divers can see. But we're not only for the macro...

All the dive sites are replete with huge numbers of splendid fishes, huge basket sponges adorned with hundreds of multi-coloured crinoids; vast numbers of hard and soft corals and gorgonian sea fans. Turtles, octopus, mantis shrimp, crabs, seahorses, and cuttlefish make guest appearances as well, and during the past few years in the colder months we have had thresher shark roaming the area.

There are also a few wrecks teaming with fish that have been sunk purposely


Photo: Beth Watson


Photo: Beth Watson

By Asia Divers and El Galleon

Photo: Beth Watson

Photo: Beth Watson

Dive the Globe
Puerto Galera

By Asia Divers and El Galleon

to turn into dive sites. Dives here are suitable for all levels, from your 8-year old bubblemaker to recreational holiday divers, to serious photographers and even technical divers.

Other activities include: golfing, sailing, kayaking, sunset cruises, beach hopping, volleyball, golfing, snorkelling, banana boat, trekking, buggies and motorcycle rentals and even paintball. There is also a zip-line in the area now! Whether it's a lazy day in the sun, some adventure, or a game of golf, we have what you're looking for.

El Galleon Resort

Renowned for its serene and quaint beachfront surroundings fronting Small La Laguna Beach in Puerto Galera, El Galleon Beach Resort and Hotel has thirty air-conditioned rooms that have been constructed in the tropical hillside in protecting all the wonders of nature.

Add to that luster are the majestic views of Sabang Bay and Small Lalaguna Beach complete with a fully-stocked mini-bar, hotel water, a small pool for learning how to dive and all the hotel amenities and necessities one needs to totally enjoy his stay.

The guests have several choices of rooms where everything is fully equipped and kept-clean. Four budget rooms for those that are looking for comfort without the fuss; twelve poolside rooms with a grand and magnificent view of the pools; three family rooms, comfortable for any family to stay in; ten seaview rooms with fantastic waterfront views; one penthouse with a private kitchen and a large private balcony; one conference room situated above the restaurant for business gatherings; and of course, the restaurant which extends to the water's edge offering a great value in European cuisine.

Some rooms, such as the penthouse, are located high above the other rooms with a spectacular view of the sea.

All the more, El Galleon possesses an open space for guests to take in the rejuvenating atmosphere and the scent of fresh air. Its use of wood and narra as the central theme to the architecture of the whole place makes this truly Filipino.

Food, meanwhile, is French, Italian and some local cuisines, which involve seafood, particularly shrimps. The verinne, for example, is cooked involving cut and boiled shrimps dipped into a whole lot of mayonnaise.

The tuna fish and the peach and the brochette has shrimps pierced on a stick and garnished with garlic, butter, parsley and lemon.

We also have a newly built open-air spa where you can indulge in various treatments during you non-diving time.

Diving

El Galleon works closely with Asia Divers, the Philippines' first PADI Career Development Center (CDC), where experienced instructors and divemasters, guide guests on world-class dive sites, which are only a short boat ride away. They have been in business for 30 years now! Asia Divers are known for their high standard of teaching all PADI courses from bubble-makers for kids to Divemaster or Instructor level courses, and in fact we have trained many of the working Divemasters and Instructors in the area.

Safety is a must for all our dives, which includes detailed briefings and safety-first procedures, those who are intending to dive must produce a logbook and certification card before diving.

By Asia Divers and El Galleon

Diving is from local Bangkas for six people or less with a guide on each dive. We also have two speedboats, which make a day trip to Verde Island easy.

Another part of the company is Tech Asia which is the best training facility in Asia for technical diving.

Our dive facility is just a few years old and there is nothing like it in Asia. We have a diving platform with a large pontoon. Boats can easily dock on the pontoon making it easy for our guests to get on and off the boats. Each diver has his/her own crate in the dive shop to store their gear.

We have a dedicated camera room and also a rinse tank specifically for cameras. It's very spacious so even when the shop is busy you never feel crowded.

It's a very relaxed feel around here and you know that you're being well looked after by the crew who are always there to help you with anything you may need.

Our guests come from all over the world to enjoy the diving and many of them have been returning for several years. We are much like an extended family and have developed long-term friendships with many people over the years.

Our guests have grown too into divers who want to discover other parts of the world too, but want to do it with people they are comfortable and friendly with, which is a big reason that we do several live-aboard trips a years to many world wide destinations. We also publish a weekly newsletter which keeps everyone informed of trips coming up over the next year or so.

If you would like more information about us, diving in Puerto Galera or what other trips we have planned, please see www.asiadivers.com.


Photo: Beth Watson


Photo: Beth Watson

Dive the Globe
Puerto Galera


Photo: Beth Watson


Photo: Beth Watson

EXPERIENCE NEW ADVENTURES & explore UNDISCOVERED worlds

SSI FREEDIVING

Have you ever dreamed of swimming like a dolphin or wondered what it feels like to glide through the ocean just holding your breath?

As part of the new digital learning sytem, SSI now offer:

- **FREEDIVING BASIC / LEVEL 1**
- **FREEDIVING LEVEL 2**
- **FREEDIVING LEVEL 3**

Freediving promotes health & fitness while enjoying the amazing views and serenity of the underwater world. Discover nature in its purest way, a completely new feeling, in total silence without noise or heavy equipment.

DISCOVER THE SSI REVOLUTION

www.diveSSI.com

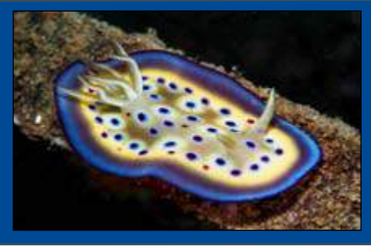
Dive the Globe
Best of PNG

By www.bestofpng.com

THE BEST OF PNG

In love with (a bommy called) Suzy

She's bright and colourful on surface, but deep and complex the more you get to know her. Her charms are numerous and sometimes mysterious, yet she's always easy-going and welcoming. If she sounds like the ideal girl, it's because she is - almost. Suzy is in fact a bommy and a dive site on the barrier reef outside Bootless Bay, Port Moresby.



I'd heard of Suzy's charms over dinners in Paris, lunches in London, and coffee in Madrid. The few aficionados of adventure and connoisseurs of coral who'd witnessed her beauty recalled their encounters with misty, wistful eyes. I promised to myself that on my next visit to PNG I would check her out.

Sometimes legends are created from little substance, exaggerations creep in, embellishments are made. To top it off, I would be spending my 40th birthday at Loloata Island Resort. Festive expectations are often raised, anticipation runs high, and then the party goes off with a pfffft rather than a resounding pop. Would Suzy be the same?

My party plans weren't in synch with the dive plan (although I was more than happy to just be getting back into PNG waters again). A group was in and had requested morning dives at Pumpkin Patch and Dinah's Delight with a post-prandial potter around Lion Island. Being my first dive in five months, I missed part of Pumpkin Patch readjusting my kit, getting used to my new BCD, tuning back in with the water and my camera. I did see the Pygmy seahorse, the crocodile fish, and an olive sea snake, though with a not inconsiderable current my photos were never going to be keepers.

Dinah's Delight, named after the wife of PNG diving pioneer Bob Halstead, was true to its name. The gorgonian fan-filled gullies were gorgeous and harboured my first ever sighting of a tasselled wobbegong shark, it's mottled camouflage not evading the eye of our dive guide, Roy. It was an unexpected birthday treat, and I marvelled at the elaborated fronds protruding from below its bottom lip. Within the mass of tassels are branched nasal barbels and grooves that channel surrounding water to the shark's mouth. The barbels are perfectly positioned to help these bottom-dwelling sharks detect a variety of bottom-dwelling prey such as crabs, lobsters, cephalopods, echinoderms and fishes. Wobbegongs have even been documented eating bamboo sharks of a length similar to their own.

Although believed to be a rare occurrence, with a jaw structure that facilitates dislocation, a large gape, and sharp, rearward-pointing teeth, wobbegongs can grasp a relatively large prey before swallowing it whole.

After a lobster-tail lunch back at Loloata we departed for nearby Lion Island. The island is the location of a couple of deliberately sunken fishing trawlers that host some interesting fish life, and a shallow sandy slope interspersed with patches of seagrass that hide a host of small and interesting critters.

A spinecheek anemonefish posed for a birthday photo, a porcelain crab modelled perfectly for me, a luridly coloured peacock mantis shrimp poked its bright blue eyes out of its tunnel in the sand, and a shrimp bearing eggs that I had never seen before (that turned out to be a Holthuis' shrimp) hopped around the tentacles of her host anemone. All in all, I didn't feel like I'd missed anything at all and was most content with the underwater birthday bounty I had received.

The next morning Roy and Raga gave us our daily diving menu: End Bommy, Suzy's Bommy, and the wreck of the MV New Marine. Three nautical miles out to sea on the outer barrier reef, End Bommy's abundant life is fed by the tides that bring nutrients around and over it. After mooring on a pin on the main reef, we started finning across 40 metres of blue water. Before I was halfway across, I could make out the wall opposite me. It was certainly well-nourished; with gorgonian fans, pink sea whips, tubastraea and soft coral trees perched on its sides.

The tide hadn't quite started to go out, but there were still plenty of fish. Crinoids, also called feather stars, hung off gorgonians and sea whips with their limbs extended, feeding on plankton in the gentle current. The colours were beautiful.

On the way back I started sorting through the 100-odd images I'd taken, thinking that we were done, Raga led us off on a short diversion. We'd already been down for 60 minutes, so it had to be something good. And it was. The largest congregation of bubble-tip anemones I have ever seen, playing host to over a hundred dusky anemonefish. Incredible.

How was Suzy's going to beat that? An hour later the outgoing tide was in full flow, pulling nutrients from the inshore waters out

Dive the Globe
Best of PNG

to the deep, and pulling in a lot of hungry fish. Big schools of deep-bodied and twin-striped fusiliers plunged down the walls, shimmering in the sunlight. We followed them down about 30 metres looking for pygmy seahorses in the plentiful fans.

In terms of colour, Suzy's matched End Bommy pink for pink, whip for whip, feather star for feather star and fan for fan.

There was no luck on the pygmy front, but there was so much else to take in I was glad not to be distracted from it. Raga pointed out longnose hawkfish in the fan where he sometimes found seahorses. It looked quite chuffed to me, like it'd just had a nice snack. Nearby a Harlequin sweetlips was enjoying the attentions of a cleaner wrasse.

I found it hard to pick a wide-angle shot to photograph. There were a plethora of possibilities and the best way to get a cracking image is to pick one and take it many times, varying the angle slightly, trying different settings, and seeing if a colourful fish might swim into the frame. I was a fat kid in a cake shop trying to fill my boots.

At 30 metres my time at the photographic buffet was soon gone though, and I moved up the wall, conscious that I needed to

ROCK
THE BOAT WITH
RAID

RAID knows you want to get to the best diving spots.

This often means using a dive boat to get to the best locations. At RAID we believe every diver should have the skills and knowledge to get the most out of their boat dives so we have added the Boat Diver Specialty Manual to every core program you do with RAID.

- Experience the best boat diving locations
- Enjoy your boat dives with the safety of proper training
- Boat Diver Manual with every core program
- Open water, Advanced, Rescue, Divemaster
- See your RAID Dive Centre to get your practical training
- Enjoy awesome boat dives all over the world
- Boat diving rocks!

#BoatDivingRocks

www.Diveraid.com

RAID™

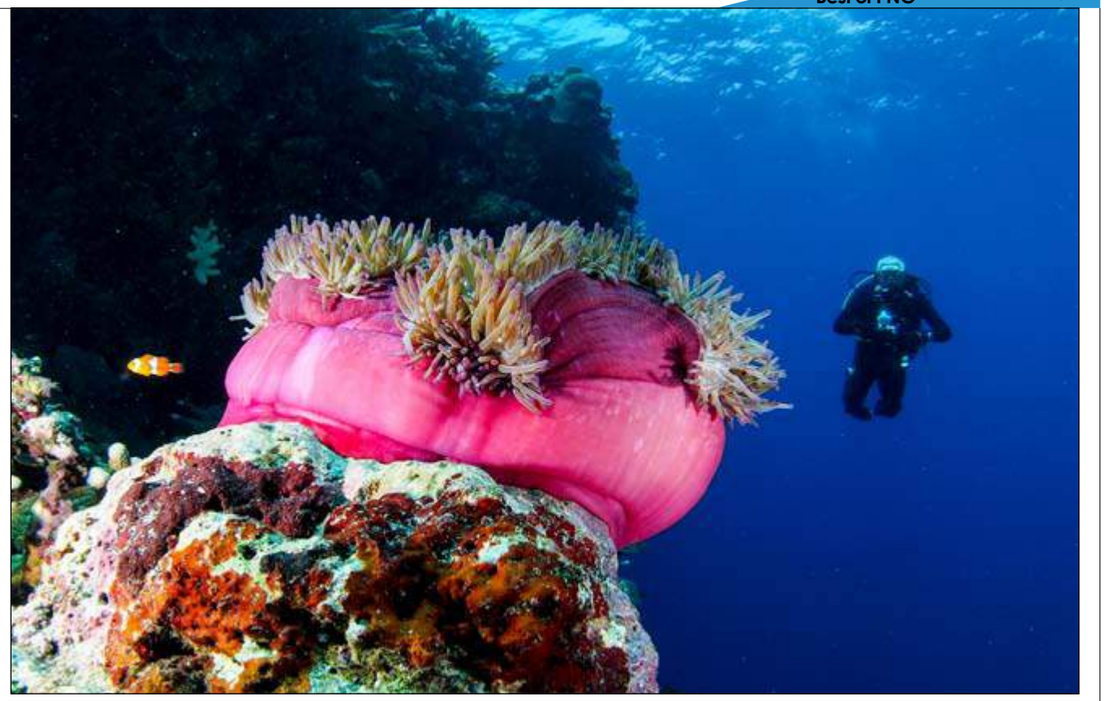
save some nitrogen credit for the top of the bommy, 13 metres below the surface. Above me the dark silhouettes of hundreds of sweetlips swirled, looking for their lunch, and a large emperor darted into a pack of fusiliers. A few choice expletives of wonder passed through my mind as I marvelled.

My reverie was broken by Roy banging on his tank above me. Up at 15 metres, merrily sitting on a small shelf on the bommy, was one of a photographer's most sought-after subjects, and a Loloata special: the lacy scorpionfish (aka Merlet's scorpionfish, Rhinopias aphanes). Covered with skin tags or that mimic the algae or soft coral and crinoids of its immediate surroundings, its colouring is a maze-like camo pattern with white spots under each eye. This decoy eye enables the predator to watch its prey without detection, lying wait, ready to spring its ambush.

The first few spines of the lateral fins have evolved into a sort of articulating toe with which they hook into the substrate and pull themselves along. By flopping about the bottom, other fish will discount the movements as flotsam or a wounded fish and come in close to investigate. The two white decoy spots below the eyes are distracting enough to mislead the prey. And as the unsuspecting fish approaches to investigate, the Rhinopias carefully watches, gauges the distance, and then all at once, the drops its jaws and inhales the fish so quickly it actually pulls in a mass of water, creating a strong vacuum, making it impossible for the intended prey to escape.

The Rhinopias safely captured on my SD card, I glanced at my dive computer. An ominious "1" stared back at me. Time to go shallower. I passed the throng of lined sweetlips and hovered six metres above the top of the bommy, frustrated at not being able to get close enough to snap the fish, but enchanted by the action all around. Round the other side of the bommy a large school of silvery batfish swept back and forth, also looking for a feed. The place was buzzing. Loloata's dive site description for Suzy's says "superlatives cannot describe this dive site". I concurred and wanted to go back.

I would have to wait, however, as Roy and Raga had more sites to show me. The MV New Marine is a fishing trawler sunk as an



artificial reef close to the resort that has swarms of juvenile barracuda patrolling around it and lionfish hanging around the winch gear. It makes for an easy afternoon dive, as does the wreck of a Boston A-20 Havoc that crashed during the Second World War, and the great muck diving site in front of Lion Island.

The signature wreck dive though has to be the MV Pacific Gas. A 65-metre long gas tanker than was sunk in 1986, her bow sits at 15 metres deep, the top of the bridge is at 25 metres, and the rudder sits on the sandy bottom down at 44 metres. Descending down the mooring line to the bow, the bridge and cabin section look massive with a diver to provide some perspective. The mast and bow have some great corals, including a small fan hosting ornate ghost pipefish, there are resident lionfish and leaffish, and barracuda are common visitors.

My pygmy seahorse photography fix had yet to be sated, so a dive at Quayle's reef was planned during which I spent my time with two fish. A Barbigant's pygmy seahorse and a rockmover wrasse; both difficult species to record. The latter moves around back and forth in an apparently haphazard manner as if washed by the current and the pygmy seahorse presents a challenge due to the fact that it is both rare and tiny.

At up to 25 mm tall, the knobbly, slightly pot-bellied Barbigant is the daddy of the pygmy seahorses, but the individual at Quayle's was more like 15 mm, shy, and probably a bit ticked off by the not so hot buoyancy control of the two divers who went before me. Still, with no-one else left in the queue, I could take my time and wait for the angle I wanted, a front-on view to show the mouth. I ended up watching this fascinating creature for 20 minutes, kneeling in the sand.

Pygmy seahorses are the only fish where the male become truly pregnant, nurturing the eggs in a brood pouch for at least 10 days and the female stays with her man for the duration of gestation. Males can even get stretch marks and although not mates for life, a happy couple can remate within 30 minutes of the male giving birth to their

Dive the Globe
Best of PNG

young.

Having seen one of the smallest fish in the ocean, Raga thought I needed something bigger. Down on Big Drop, we paid a visit to a big Pacific goliath grouper (Epinephelus quinquefasciatus). It reaches a length of 2.5 m and can weigh as much as 360 kg and to get this big feed on crustaceans, other fish, octopuses and young sea turtles. Definitive study into their reproductive behaviour has yet to be conducted but it is believed that like rest of the grouper family they are protogynous hermaphrodites, where all juveniles are female, the largest female in a territory become male when the resident male dies. Being this big, the fish wasn't fazed by our presence and sat on the bottom as we pulled up alongside. Comparing it to Raga just behind it, our fella was around two metres long, yet another very impressive find.

On the last day we returned to Suzy. I mean Suzy's Bommy. I no longer think or her / it as a large lump of rock covered in coral. All the fish were still there, with a couple of stone fish to boot, and the corals were just as captivating. I have always been a diver who avoided "going into deco" (building up a level of nitrogen in the body that makes a safety stop compulsory), and had managed to be a good boy for over 1500 dives around the world. Suzy bewitched me and took my deco cherry. I did not want to leave her. In my mind the bommy has taken on her own persona and aura, she is an underwater goddess of marine diversity and health. Sometimes I dream about her and I get a funny feeling in my chest. I'm in love with a bommy called Suzy.

Papua New Guinea travel: PNG is three hour's flight time north of Australia, six hours from Singapore, and has weekly and twice weekly direct flights from a range of destinations like Manila, Cebu, Bali, Sydney, Cairns, Hong Kong and Tokyo.

Within PNG, the best way (and often only) way to get around is by air either with Air Niugini or Airlines of PNG. Best of PNG put together tailor-made dive trips that can also take in the best Sing-Sings (cultural festivals) on the PNG calendar, trekking up Mt Wilhelm or the Kokoda Trail, and Sepik River expeditions. www.bestofpng.com

By Fiona McIntosh

Manta Reef Lodge

Pemba, Tanzania

Head for Pemba, aim for the northernmost point and you will end up at Manta Reef Lodge. It is not the most accessible of places, but well worth it. This destination requires a flight to Zanzibar, which usually means an overnight stay before flying on to Pemba's tiny airport.

This is followed by a 65 km drive, 15 km of which is on a muddy dirt road. Up here, there is no other boat traffic, no other lodges, no roads and no noise. The nearest dive centre is Pemba Afloat, some distance to the south, and you are more or less guaranteed to be the only boat on the sites.

The setting at Manta Reef Lodge is awesome. Big wooden chalets with stunning views perch high above the beach, overlooking a beautiful crescent of fine-grained white sand that squeaks as you walk.

Everything is rustic and minimalist, but there is electricity, hot showers and tasteful décor. (And an Internet facility should you be unable to escape the chains of normal life.)

The lodge is barefoot-luxury indeed and nothing ever seems to be too much trouble for the smiling, friendly staff. The food is superb and braais dominate, accompanied by specialities such as octopus curry, a selection of fresh salads and tempting puddings. A highlight during evening meals was appearances by a friendly bush baby, who came slinking down a pole to snuffle a piece of fruit, or to cavort on the roof.

The dive centre is just downstairs from the restaurant, next to the beach bar and massage parlour. The roof has been converted to a sundeck where you can tan and gaze out over the turquoise water, enjoy magical sunsets, or watch the local fishermen poling by. Pemba is known for its big-wall dive sites and we couldn't wait to get into the water. Since we only arrived at lunchtime on that first day, though, we had to make do with the house reef. Not that we were disappointed. The corals were beautiful and antheas hung around every bommie.

Dive master Ali pointed out a turtle, a couple of mean-looking scorpion fish, several lionfish and morays, and plenty of interesting nudibranches. All this at a site just ten minutes from the beach!

We managed two dives that afternoon and went to bed excited at the thought of our first foray the next morning to Njao Gap, about an hour south. The journey down the coast in the wooden boat was simply glorious.

We moved past deserted beaches, and those wonderful undercut limestone outcrops that you find all along the East African coast. And the diving was mind-blowing. The water was deep blue and huge whip corals and gorgonian fans clung to the precipitous walls. We drifted over corals resembling lily leaves on a pond, the likes of which I had never seen. We returned to the lodge elated; this was what we had come so far in order to see and experience.

Four days was not enough and I almost wished that I did not have to go back to dive in Zanzibar. We had dived hard and we had been spoiled by having all our gear taken on and off the boat. The only things we carried were our cameras. The entire experience is one I would highly recommend, whether you are a manic diver, or simply in need of a romantic break or family holiday.

Safe diving is a priority here – it is far to the nearest chamber – and the briefings are very thorough and dive plans strictly adhered to. However, it is a great place to learn to dive, or to just don a mask for the first time and check out life below the waves. And, if you're a honeymooner, this is it – that 'special place' personified.

SDI SCUBA DIVING INTERNATIONAL

Scuba Divers Trained Here

www.tdisdi.com

Wreck Explorations
Truk Lagoon

By Johan Boshoff

A backward role into history

Part II

On the other side of the earth in the middle of the Pacific Ocean you will find an underwater world that is full of artefacts and historical events. If you look closely on a map, in the middle of all the blue water you will see a range of islands called Micronesia, and then in the middle of these islands you will find a place known as Truk Lagoon. Truk Lagoon is the burial ground of hundreds of army and naval vessels full of historical facts of the World War II that found their final resting place on the bottom of the ocean floor.





By Johan Boshoff

Fujikawa Maru

The Fujikawa Maru was built in 1938 by the Mitsubishi Company as a passenger/cargo carrier for the Toyo Kaiun Line. Her peacetime duties consisted of carrying raw silk and cotton between South America and India.

The Japanese Navy took control of her in December 1940 and converted her into an aircraft ferry. As part of her conversion she was fitted out with six inch guns on her bow and stern. These guns were from the Russo-Japanese War and had been 'cannibalised" from decommissioned cruisers. The breech plate on the forward guns displays an 1899 manufacture date.

Just prior to the 'Hailstone' attack, Fujikawa Maru arrived in Truk and off loaded thirty 'Jill' B5N2 bombers onto Eten Airfield. Since these aircraft had been disassembled for shipment, they were unable to help defend Truk and were destroyed on the ground. The Fujikawa Maru was sunk by a single aerial torpedo that struck amidships. Although the torpedo failed to run properly, its momentum carried it into the ship and allowed it to detonate.

The Fujikawa Maru is by far the best wreck in the Truk 'Ghost Fleet'. Her magnificent guns, Japanese bathtub and the Zero aircraft still in her hold, make her the 'must see' wreck. She now lies in 9-32m of water.

Hoki Maru

The Hoki Maru was built in 1921 by William Denny & Brothers in Dumbarton, Scotland and was the first ship they had designed for diesel propulsion. It was originally christened the British-New Zealand ship M/V Hauraki, under the ownership of the Union Steamship Corporation of New Zealand.

When hostilities began on December 7, 1941 Hauraki was on a run from Fremantle to Colombo. Unfortunately she was sighted and captured by the Japanese merchant raiders Aikoku and Hokoku Maru (also sunk at Truk). The crew was interned in the Ofuna Work Camp and brutalised by forced labour and deprivation until their liberation in 1945.

The Japanese renamed the ship the Hoki Maru on December 31, 1942 and designated her as a special transport. She continued to transport war material throughout the war. In late January 1944, she left Yokohama with coal, supplies and personnel for Truk. Much of the construction equipment in her holds is thought to have been captured in the Philippine Islands. She was caught in the lagoon during the 'Hailstone' attack and sunk.

The Hoki Maru is an infrequently visited wreck due the massive damage she suffered and the leaking aviation fuel in her holds. However, her cargo of intact road building vehicles makes her worth the visit. She now lies in 21-43m of water.

Yamagiri Maru

The Yamagiri Maru was built in 1938 by Mitsubishi Heavy Industries as a passenger/cargo carrier for the Yamashita Kisen Line. The Japanese Navy took control of her in September 1941 and converted her into a military transport ship for use in moving special cargo.

The ship saw service transporting war material between the Solomon and the Caroline Islands until she was hit with two torpedoes from the USS Drum in 1943.

The Yamagiri Maru's most interesting feature is the huge 18.1 inch armour piercing shells she carried for the IJN dreadnoughts, Yamato and Mushashi. These guns where the largest ever made and surpass even the 16 inch guns of the USS Missouri, site of the Japanese surrender. Each shell weighs 3 219lbs and could be hurled 30km.

Wreck Explorations
Truk Lagoon

By Johan Boshoff

The 'Hailstone' strike force had hoped to sink these ships in Truk, but they had wisely departed after being alerted by an earlier reconnaissance flight.

The Yamagiri Maru was sunk by dive bombers from the carriers USS Yorktown and Bunker Hill. They reported several hits and left a huge hole amidships that certainly finished off Yamagiri Maru. She now lies in 15-30m of water.

Shinkoku Maru

The Shinkoku Maru was built in 1939 by the Kawasaki Dockyard for the Kobe Sanbashi K.K. Line as a tanker.

Her construction was subsidised by the fuel-starved Japanese Navy and her first voyages where to carry oil from the United States to Japan, prior to the embargo. The Imperial Japanese Navy then converted her to a fleet oiler and Shinkoku Maru's most noteworthy mission was her participation in the

By Johan Boshoff

Pearl Harbour attack as part of Admiral Nagumo's strike force. Later she participated in the attack on Ceylon and then for general resupply duties. In August 1942, she was torpedoed by an American submarine.

She was at anchor in Truk at the time of the 'Hailstone' attack. She survived two days of attacks and two aerial torpedo hits until she was finally sunk.

The ship is one of the most interesting in the lagoon and presents a fantastic night dive. The soft corals and hydroids that emerge after dark turn Shinkoku Maru into a hanging garden and her operating room is the only one in the lagoon. She now rests at a maximum depth of 35m at her stern.

San Francisco Maru

The San Francisco Maru was built in 1919 by the Kawasaki Dockyard as a medium freighter for the Yamashista Kisen Line. Her design was the result of a need to rapidly replace ships sunk by German U-boats in World War I and was the predecessor to the famed 'Liberty Ship'. When the war began she was taken out of semi-retirement by the Japanese Navy and pressed into service carrying cargo.

One of the San Francisco's highlights are the three Japanese Type-95 'Ha-Go' light tanks that still remain on her deck. The Type-95 tank was built by Mitsubishi and was manned by a crew of three. It possessed ½ inch armour weighing in at 7,5 tons and carried one 37MM main gun and 2-7MM machine guns. It was powered by a six cylinder air cooled diesel engine which could propel the tank up to 45km. During the 'Hailstone' attack, San Francisco Maru was damaged by dive bombers and photographs show her stern ablaze before she finally sank.

The San Francisco Maru was discovered in 1972 by Sam Redford and now rests at a maximum depth of 60m at her stern.

Wreck Explorations
Truk Lagoon

"Simply put, it doesn't get any better than this! Everything is about service and maximizing your diving experience. The dives were amazing, and the staff are first class. They will accommodate any request, but you hardly need to make any since they have thought of essentially everything."

~ Dr. Jim & Laurie Benjamin

An experience without equal

At Wakatobi, you don't compromise on comfort to get away from it all. Our private air charter brings you directly to this luxuriously remote island, where all the indulgences of a five-star resort and luxury liveaboard await. Our dive team and private guides ensure your in-water experiences are perfectly matched to your abilities and interests. Your underwater encounters will create lasting memories that will remain vivid and rewarding long after the visit to Wakatobi is concluded. While at the resort, or on board the dive yacht Pelagian, you need only ask and we will gladly provide any service or facility within our power. This unmatched combination of world-renowned reefs and first-class luxuries put Wakatobi in a category all its own.

wakatobi

www.wakatobi.com

Through the Lens
Photographic Competition

Photographic Competition

Gavin Chamberlain

Glenn Jacoby

Jessica Wall

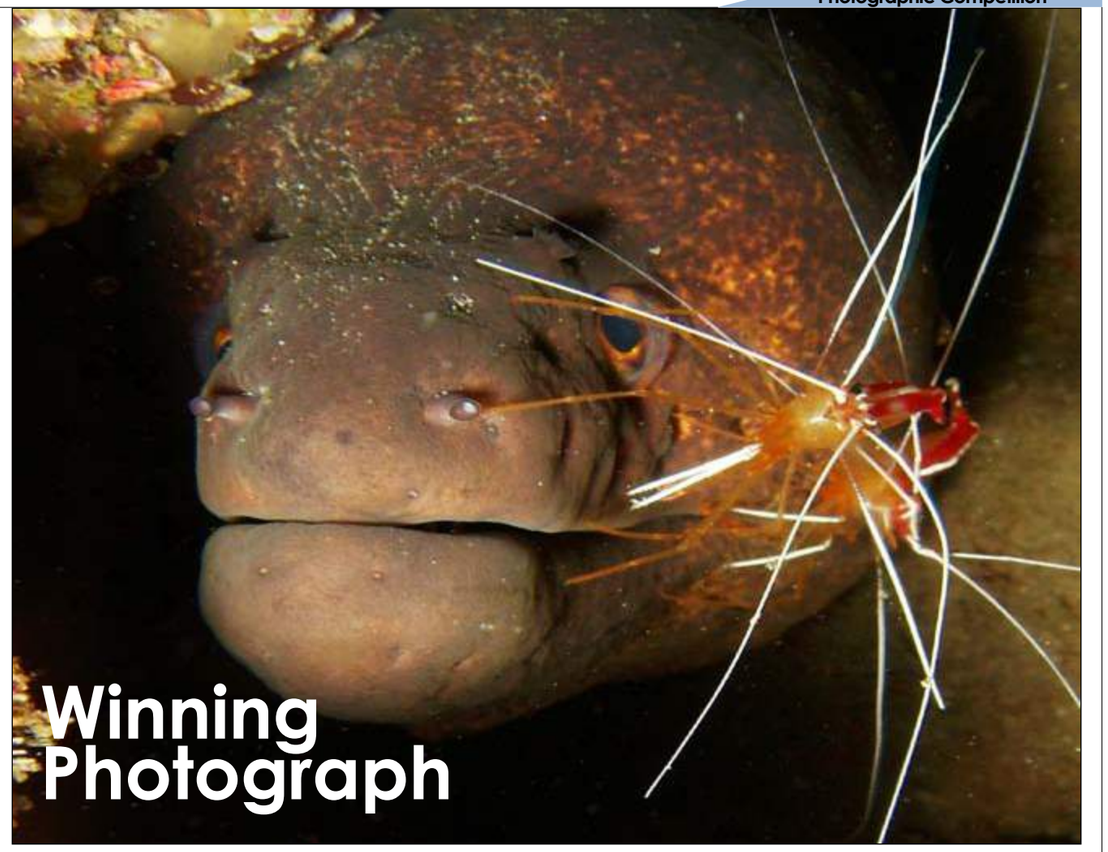
Appleton Wiske

Kevin Dawson

John Dench

Charl Prince

Ashley Beggs



Dries Pretorius

How to enter your photograph

Whether you're an amateur or professional photographer, this is a photo competition for all levels of photographers. We're looking for pictures that capture the true experience of scuba diving and the wonders of the underwater world.

Submit your photo!

-- Photographs may be taken above or below the water, as long as diving remains the theme.

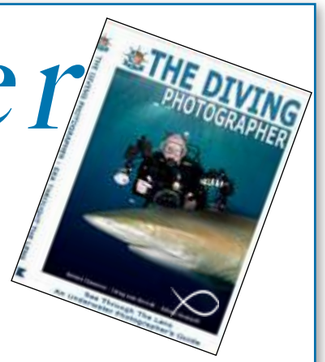
-- The Name of the photograph must be the photographer's name.

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

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

E-Mail your photos to info@ozdiver.com.au
"photographic competition"

Underwater Housings (Part 1)



By David Caravias

Underwater housings for cameras are solid, well built and sturdy and appear somewhat indestructible. Don't be fooled as this could not be more from the truth as housings are extremely fragile and need all of the TLC that you can give them.

The outside case of an underwater housing is thick and solid but one small knock could lead to flooding and catastrophe ruining your opportunity to catch those magical diving photographs you so desperately wanted to get on your holiday. No one wants this to happen but it is very easy to flood a camera and many have done this, from amateurs to professionals. Below are a few tips to follow to prevent flooding as much as possible.

Take your time

Most floodings happen when you are rushed to get the housing ready for the dive. Always plan for plenty of time before the dive to carefully clean, prepare and assemble the housing.

When rushed, the smallest of details can be overlooked resulting in failure.

Either prepare the camera for the dive the night before the dive or early morning before the dive. Prepare the camera in the same manner as you would dive – slow, relaxed and alert with 100% concentration.

Good light

When assembling the housing in a dark environment you are running the risk of failing to detect any faults with the o-ring or imperfections with the seal. Always assemble your housing in good light as you need to see the o-ring and groove of the housing clearly for any obstructions such as a grain of sand or a stray hair.

O-ring care

Ensure that all o-rings are lightly lubricated with silicone. Never use a substitute for the camera o-ring silicone and ensure that before you leave for your dive trip that you have plenty of spare o-ring silicone. Before every dive carefully clean the groove around the housing parts and relube the o-rings, but be very careful not to stretch the o-rings when lubing.

A good technique is to squeeze a small amount of silicone onto the index finger and gently roll the o-ring between your index finger and thumb and work your way along until you have worked through the whole o-ring. All o-rings must be lightly lubed, including the port, strobe battery compartment and sinc cords.

Never over lubricate the o-rings as the excess silicone could prevent a perfect seal which will result in flooding. Once the o-ring is lubed, without stretching carefully place the o-ring back onto the housing. It is just as important to ensure that the groove is completely clean and free of obstructions. Many causes of flooding are stray hairs or grains of sand that go undetected in the groove. Always remember the pressures that the housing undergoes on a dive as the smallest of defects on the housing or o-ring can result in flooding.

Take a test photograph

The most important step before the dive is to take a test photograph when everything has been set up. Do this a long time before the dive so that you can address any problems well before the dive. Do the following:

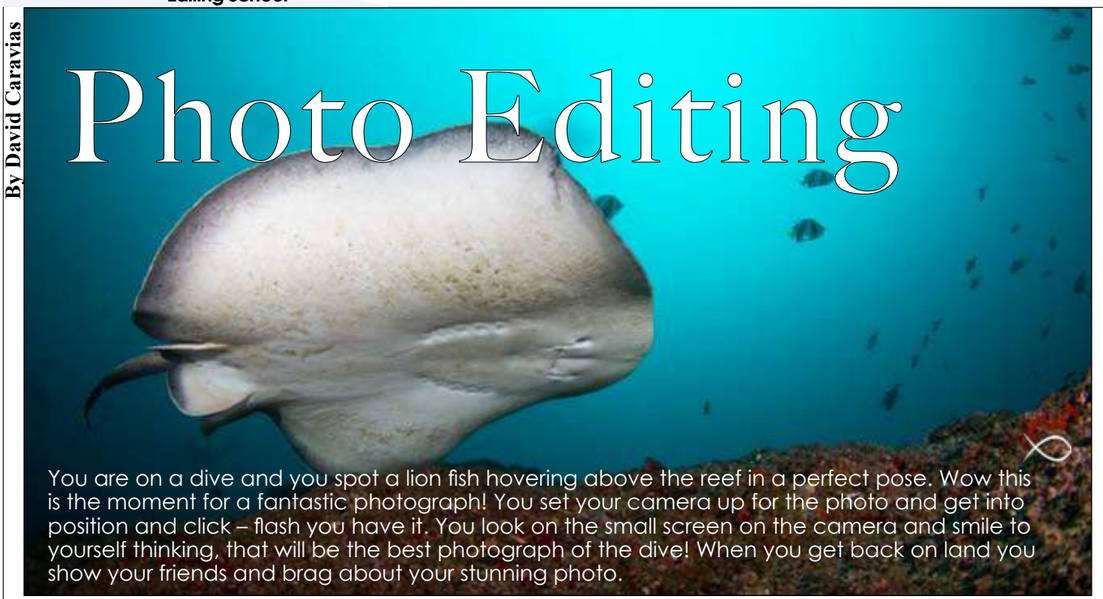
- Turn on the strobes (if you have strobes attached).
- Check the settings on the camera (ISO, Shutter Speed, Aperture).
- Check each housing lock to see if it is secure.
- Check that the o-ring in place and is not kinked.
- Check the dome port lock and o-rings for kinks.
- Take a photograph.
- The purpose of taking the test photograph is to check:
- That the strobes are firing.
- The camera settings are correct for the dive.
- The zoom gear inside zooms the lens and that the lens is securely attached to the camera body.
- The AF (auto focus) is selected and not MF (manual focus).
- The lens cap is not still on.

It is important to work out a routine for setting up the camera and housing, then sticking to this routine in order. This will minimise errors and make the whole setting up process much easier over time.

If you can it is always a good idea to test the housing in fresh water before going out on the boat. You can submerge the camera just under the surface and check carefully if there are any bubbles. If you wait until you get to the dive site you will have to abort the dive and try to rescue the camera on the boat. Salt water is also much more damaging than fresh water so if there is a leak then you will minimise any damage to the electronics on the housing and camera.

By David Caravias

Photo Editing



You are on a dive and you spot a lion fish hovering above the reef in a perfect pose. Wow this is the moment for a fantastic photograph! You set your camera up for the photo and get into position and click – flash you have it. You look on the small screen on the camera and smile to yourself thinking, that will be the best photograph of the dive! When you get back on land you show your friends and brag about your stunning photo.

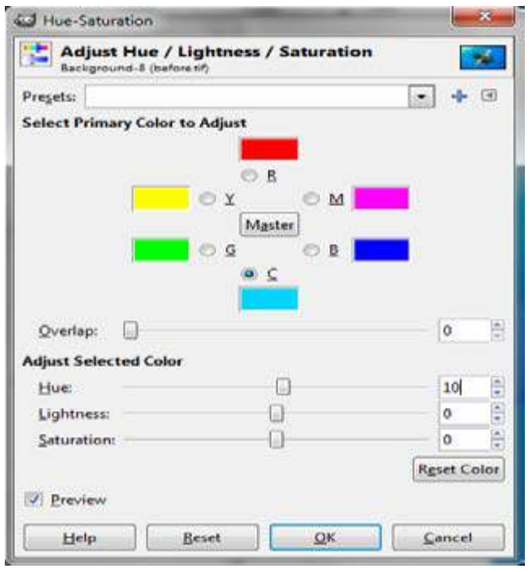
Bringing out the colours

Later you eagerly connect the camera and download the photographs of the dive and browse through them. Your heart deflates and you get that sinking feeling that this was just another bland photograph to go with the rest! Disappointed you close the folder and then perhaps in a few weeks you will open it again to remind yourself of the dive. This does not necessarily have to happen... With a little patience and a few tricks on the computer with Gimp you will bring back those colours you saw and your photograph will be promoted to your desktop background!
These days software has improved considerably and a bland photograph can be turned around. There are important things to learn about taking photographs underwater and the combination of this information with editing skills learnt then you will get much more out of your dive photographs.

Colours filter out under water
Colours get absorbed the deeper you dive. Red gets absorbed first by water followed by orange and yellow. The following gives you an idea what colours are filtered out at different depths:

* Red – 4,5m
* Orange – 7,5m
* Yellow – 10-14m
* Green – 20-23m

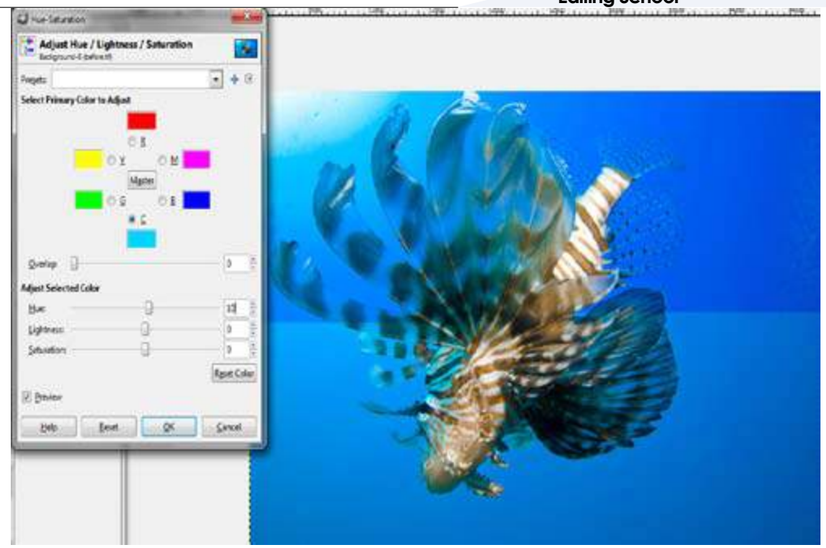
To overcome this you will need to use a strobe. It is always better to have an external strobe if possible as you will be much



more flexible when controlling where the light goes to avoid backscatter.

Get close!

Due to the density of water and depending on the visibility you will need to get as close as possible to your subject to avoid any discolouration. The further away you are from the subject the more the colours will fade out.



Get flashy

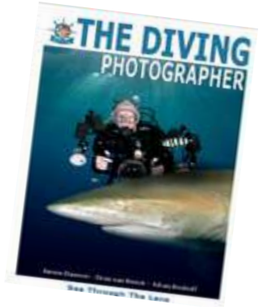
Always try to use a strobe (flash) on a dive

to enhance the colours. The strobe will light the subject and bring out all of the colours. Please remember that you still have to be close as the strobe alone will not compensate colours from a distance. Ideally you should not be further than 30cm away from your subject.

Shoot in RAW if you can

Most new compact cameras are coming out these days with RAW technology. RAW is a highly detailed format which allows the user to adjust exposure, white balance, individual colours and much more. RAW captures all of the information from the sensor and stores everything instead of the flat image of a JPG. You can adjust nearly anything on the photograph from a RAW file and nearly all professionals take photographs in RAW format.

Download Gimp - www.gimp.org



day trip diving to Rottnest Island

bluedestiny

- Rottnest Island Snorkel or Dive Day Trips
- Rottnest Island Night Dives
- Carnac Island Snorkel or Dive Day Trips
- Key Biscayne Wreck Dives
- Crayfish Catching Dives
- Grey Nurse Shark Cave Dives
- Private Dive Charters

Join Blue Destiny for your next dive day to Rottnest Island

Our awesome day out includes • 2 fantastic boat dives around Perth's water playground Rottnest Island, boasting the best limestone reef and abundant marine life at one of over 150 dive sites • catered lunch with a variety of awesome food (vegan, vegetarian & gluten free diets available) • cylinder hire for second dive • dive guides available • full equipment hire available delivered to the vessel

www.bluedestiny.com.au phone 08 9455 4448 email info@bluedestiny.com.au

Giant Stride
Flowers of the Sea

By Megan Laird

The flowers of the sea

Sea anemones, also fondly referred to as the 'Flowers of the sea', are undoubtedly some of the most colourful animals that live in marine waters.

By Megan Laird

These fascinating creatures have unusual behaviours and are usually wrongly thought of as uninteresting, sedentary animals. On the contrary, sea anemones are vicious carnivores which fight, sting and paralyse their prey.

Sea anemones interact with a variety of different species and amazingly enough some anemones can even actively swim!

Anemones fall in the phylum Cnidaria, a group which also includes hydroids, jellyfish, corals, sea fans and sea pens. What is the most striking common denominator between these animals? Well, they all have highly specialised stinging cells which are used both for paralysing their prey and for keeping their predators at bay.

These stinging cells, which give sea anemones their characteristic sticky feeling, are better known as nematocysts. They usually contain a coiled, thread-like barb that can be rapidly discharged to pierce the skin of the target, releasing toxins into the body of the prey.

False plum anemones (Pseudactinia flagellifera) are very territorial and use these formidable structures to actively fight with any anemone that comes close, resulting in a vicious battle which is often fought to the death.

Anemones are extremely versatile creatures and occur in all oceans, from the high intertidal to depths of more than 1 000m. There are over 1 000 species globaly. Sea anemones range in size from less than 1cm to over 2m in diameter. Some individuals can live to over 100 years, while others are short lived and even seasonal.

Thus, the fact that there are stunningly colourful sea anemones living in Atlantic waters may be overlooked by warm water divers. The beautiful Dwarf-spotted anemone (description pending), as well as the delicate Striped anemone (Anthothoe chilensis), live in the cold waters off this coast, as do 11 other species.

Giant Stride
Flowers of the Sea

By Megan Laird

Sea anemones have adapted to a wide range of habitats from the tannin rich estuaries of the Cape to offshore deepwater reefs. These amazingly beautiful and often intricately patterned animals are increasingly under threat from activities which cause habitat loss. The most important problems that threaten these delicate animals are trawling, dredging, pollution and perhaps even climate change.

Sea anemone populations may completely disappear from an area as a result of collections for aquarium displays, the careless footsteps of people roaming the intertidal zone or even inconsiderate divers who knock these animals off the reef as they swim by.

Anyone who has spent some time exploring the fascinating creatures in rock pools will be familiar with the Sandy anemone (Aulactinia reynaudi), which is camouflaged by sticky knobs covered by sand; as well as the Knobbly anemone (Bunodosoma capensis), which is often found in groups

Giant Stride
Flowers of the Sea

By Megan Laird

of strikingly different colours. The Plum anemone (Actinia mandela) represents a juicy fruit when it closes tightly at low tide, a strategy which enables it to survive long periods out of the water.

Scuba divers will be more familiar with the translucent, pinkish Strawberry anemone (Corynactis annulata), however, not many people know that these animals are not true anemones, but instead are more closely related to the corals. Members of certain genera (Edwardsia and Halcampa) have no pedal disk with which to attach themselves to the substrate.

Some species such as the Burrowing anemone (Halcampaster teres) are extremely elusive and bury themselves in the sand as a means of protection from predators, exposing only their mouth and tentacles.

A few of the sea anemones found in the tropical waters of the Indo-Pacific have a fascinating symbiotic relationship with the aptly named Anemone fish. Any diver who is fortunate enough to witness this relationship is bound to be captivated by the ingenious interaction between fish and invertebrate. Symbiosis is the relationship between unrelated species of plants or animals that live in close association. The two animals are mutualistic towards each other, meaning that they both benefit from the association. Each fish resides in and does not venture far from its host anemone, which is its permanent home.

The Anemone fish, of which there are only a few species, are not affected by the sting of their host anemone as they are covered in mucus, allowing them to retract into the tentacles of the anemone which provides them with protection.

The anemone also benefits from this relationship as it feeds on the food scraps that the fish drops near its mouth. The Anemone shrimp and the Porcelain crab, which are often found amongst the tentacles of sea anemones, also benefit in a similar way.

Another mutualistic relationship can be observed when studying sea anemones which contain zooxanthellae in their body. This is a microscopic unicellular animal that photosynthesises, providing the anemone with oxygen and food in the form of sugars, two of the bi-products formed as the algae photosynthesise.

The zooxanthellae benefit as they are sheltered from predators and are exposed to sunlight, an essential component of photosynthesis. The Symbiotic anemone, Calliactis polypus, which lives either on the pincers or the shell of Hermit crabs (Pagurus arrosor) protects the crabs, which are sheltered by its tentacles.

The anemone benefits by eating scraps that float around the crab's mouth. Attaching to the shell is also advantageous because the anemone becomes more mobile and is not as vulnerable to predators. Interestingly enough, when the Hermit crab outgrows its shell it moves into a larger one, onto which

Giant Stride
Flowers of the Sea

idive@SeaRovers.net

Dive Centre

Unforgettable Diving Experiences

2016 CERTIFICATE of EXCELLENCE

tripadvisor

OFFICIAL PARTNER SSI DIVE RESORT

Shortcut to SSI Courses

SDI

Shortcut to SDI Courses

Small groups and personal service,
Where safety is taken care of
so you can enjoy the fun.

Your Pirate Diving Adventure begins in Pemuteran, NW Bali with Sea Rovers, the Pirates who Dive.

By Megan Laird

it transplants its anemones.

Sea anemones are an important link in the marine food web in which all species play a role. They are ambush predators and may consume anything from microorganisms and tiny fish to jellyfish, mussels, worms and bluebottles. Anemones are eaten by sea slugs or nudibranchs, starfish, eels and even some species of fish that are not affected by its stinging tentacles. If you are a person who enjoys exotic foods, you may be aware that humans also consume sea anemones. In the Mediterranean and parts of the Indo-Pacific, boiled and spiced anemones are delicacies!

Many anemone species stay fixed in the same spot throughout their lives, however, they do have the ability to creep slowly over the substrate allowing them to relocate if conditions become unsuitable or if a predator attacks. Many anemones can release themselves from the reef and some use writhing motions to swim to a new location.

As these animals are opportunistic feeders and are able to access a large variety of food sources, they rarely have to move around to look for food. However, certain species of sea anemones are very mobile. The Hedgehog anemone (Preactis millardae) does not attach itself to a substrate but rather spends its life roaming the reef in search of food. The Violet-spotted anemone (Anthostella stephensoni) may stretch up to 30cm to reach its chosen prey item which it consumes while its base is still attached to the reef.

Sea anemones can be hermaphroditic with both male and female sex organs in one individual, or alternatively, the sexes can be separate. Sexual reproduction usually occurs when conditions are stable, while asexual reproduction (cloning) occurs when conditions are unfavourable. Cloning may transpire in a number of different ways. These include tissue budding from the column, division of the pedal disc and splitting of the anemone into two halves. New anemones that are identical in genetic structure are formed, often resulting in carpets of anemones of similar colour. Most anemones reproduce by means of broadcast spawning whereby both males and female release sperm and eggs respectively into the water column where they meet up by chance.

In the genera Halcampa and Actinia, the female draws sperm into her internal cavity in which the eggs are fertilised. These eggs develop into ciliated larvae that disperse to new areas before metamorphosing into adults. An interesting species is that of the Brooding anemone (Isanthus capensis) which brood their young internally and release the tiny anemones through their mouth.

Anemones are amazing creatures that are full of surprises. And all you have to do to experience their awesome beauty is to peer a little closer next time you are strolling along the shore as they are bound to be hiding close by!

Giant Stride
Flowers of the Sea

QUAD

CENTRE OF INTELLIGENCE.
EDGE OF PERFORMANCE.

QUAD

Introducing the new Quad, Mares latest development in premium quality, comprehensive Dive Computers. Mares Quad builds on the success of our Nemo Wide computer, maintaining the easy-to-read display size and functionality, whilst improving readability, user interface and customisation options. This revolutionary new device features:

- Two customisable fields for ancillary information
- Four buttons for intuitive user interface
- Mirrored button deco alarm
- Multigas capable
- Decompression dive planner with user adjustable surface interval
- Long battery life, user replaceable

Be intelligent. Take the edge of performance.

Follow Mares Social Media Network on:

mares
just add water


ICON HD
BLACK EDITION


NEMO WIDE


PUCK PRO


MATRIX


SMART

Giant Stride
Shark Products

By Grant Smith

Trade in shark products

Shark teeth? Cool! Just think how good would they look around your neck, or maybe clipped onto a BCD? Great white shark teeth? Even cooler – the big one, and what harm can it really do to buy a tooth or two? The shark's already dead after all. Anyway, don't they shed teeth all their life? Maybe someone just picked it up off the bottom of the ocean.

By Grant Smith

We'd be pretty shocked these days if one of our friends showed off an ashtray made out of a freshly severed Rwandan gorilla hand, had a sawn-off elephant leg by their front door just to keep their umbrella in or proudly displayed a snow-leopard skin on their wall.

We all understand that these tacky (and illegal) products have driven seriously endangered species to the brink of extinction. Yet when it comes to fish it seems all too easy to operate on very different principles.

The Great white is a protected species which means that any trade in it, whether that be fins, jaws or teeth, is prohibited without a specific permit. The problem is that if there is a demand for something there will always be those who are unscrupulous, or desperate enough to satisfy it. You and I might not see much harm in buying a single shark tooth, but it helps drive demand that means top quality large teeth go for hundreds of US dollars. Whatever the seller might tell you, there is only one sure-fire way of harvesting teeth to meet that demand, and that means killing the animals to get them. I'd hope there isn't a diver out there who would actively encourage the killing of protected marine species, so it's up to us to help stamp out the trade. Besides, if you want a really cool shark's tooth, then get a fossilised Megalodon tooth – they're big, they look mean and fossilised teeth don't involve killing anything born in the last few million years!

Teeth, however, are just the tip of the problem. Go into health shops or look at the 'herbal' medicine section of a pharmacist and the chances are you'll find a number of shark-based products on sale. In part this is because of a misplaced belief that sharks don't get cancer. This idea was widely spread by a book called, wait for it, Sharks Don't Get Cancer, by a gentleman called William Lane. Leaving aside the small but significant fact that sharks do get cancer, it's worth noting that mister Lane, when not busy writing books, has a nice sideline in peddling shark cartilage products.

For its proponents, the theory goes that shark cartilage contains compounds that prevent angiogenesis (the formation of new blood vessels essential to maintain tumour growth) which theoretically means these ingredients could help battle cancer. Not surprisingly, this has helped spark a vast worldwide trade in shark cartilage – try Googling 'shark cartilage products' and you'll see what I mean. And why not – who would say no to a potential cure for cancer? Well as it happens, anyone who is medically trained and not in the business of selling shark products. Quite simply, there is no conclusive evidence that shark cartilage preparation sold as food supplements does any good at all.

For one thing the products usually come in capsule or pill form and are taken orally. This means that the large glycoproteins seen to be responsible for angiogenic activity almost certainly never make it to your blood stream at all since such large molecules are absorbed by the intestinal tract. Secondly, if this was a serious remedy for such a serious problem, then clinical trials would be required. The only trials to endorse the claim seem to be those put forward by the same people profiting from selling crushed up shark cartilage.

A lot of that cartilage, by the way, comes from the Blue shark (Prionace Glauca) which is listed as vulnerable on the IUCN Red list. If you hope to see Blue sharks one day, then you might want to think about chatting to your local health shop about why it sees fit to grind them up and peddle them as unproven cures.

There's another shark product that makes its way quietly to the shop shelves – shark liver oil. Commercially known as squalene, this has found its way into everything from industrial lubricants to cosmetics. Deep sea sharks often have large amounts of liver oil or squalene and so have been an easy source for the cosmetics and chemical industries, but as we learn more about the ecology of the deep seas it is also becoming clear that the sharks of the depths are vulnerable to over-fishing and slow to recover.

Which isn't such a big problem for the chemical industries since it turns out that squalene can also be obtained from olives which have the handy attribute of not having to be hauled out from under a kilometre of water. Some of the big multinationals such as Unilever and L'Oreal have already announced that they are switching from shark to olive squalene for all their cosmetics, so now it's time to flex a bit of consumer muscle. Take a look at the labels of the goods that you buy and see if you find animal squalene listed. If you do then it's time to find an alternative brand (and let the company know that's what you're doing).

Most of us divers will happily tell anyone who'll listen about the raw thrill of seeing sharks in the water. Sadly, however, any of us with shark products tucked away back home are part of the problem.

The failure of the recent CITES discussions showed that governments aren't necessarily the best bet if we want to safeguard the seas for the future. When its money that does the talking, only consumer power can really make a difference.

So let's not encourage trade in shark products, let's not let others do so unchallenged, and let's not buy bits of shark without even knowing we're doing so. When it comes to conservation, ignorance isn't bliss.

It's slaughter.

By Annatjie Rademeyer

Eco-Pirates

The above quote by Jacques Yves Cousteau is a very good reflection of what is currently happening on our oceans.

The Sea Shepherd Conservation Society (SSCS) has been trying to convince the hunters of the sea to lay down those weapons and give conservation a chance. SSCS was established in 1977 as an international non-profit, marine wildlife conservation organisation.

Their mission is to end the destruction of habitat and the slaughter of wildlife in the world's oceans in order to conserve and protect ecosystems and species.

Captain Paul Watson, the SSCS's fearless helmsman, has been running the operation for over 30 years. Co-founder of Greenpeace Foundation in 1972, he served as First Officer on all of the Green Peace voyages. With him as master and commander of more than 200 voyages, he is living the SSCS's mission to the fullest. Being the person most detested by Japanese whalers and other dubious operators on the high seas, he has to be ever more innovative with his investigations and enforcement of the law. Adrenaline filled actions such as ramming and disabling the ships, physical entanglement of the propellers and boarding the whalers are but a few methods employed to try and safeguard the marine biodiversity.

The Sea Sheperd's epic wars with the Japanese whalers have been documented recently by the Discovery Channel in seven episodes of Whale Wars. Steve Irwin, their flagship, was bombarded by LRAD's (long range acoustic devices), concussion grenades and water cannons in an attempt to stop them. But the SSCS's mission was successful in the end with over 500 whales saved in that season. Japan justifies its actions by using a loophole in the International Whaling Commissions regulations which allow for 'scientific whaling'. In 2007/8 they killed 50 Humpback and 50 Minke whales – both of which are on the endangered species list – all in the 'name' of science.

Over a million sharks, whales and other sea animals are killed daily for food, aphrodisiacs or even just to brag that you had a fancy dish. The problem is the sustainability of these animals. Most whales are only sexually mature from the age of seven to ten years. The highly endangered Blue whale calves only every 2-3 years. Blue whale hunting was banned in 1960 when their population in the Arctic was already down to 0,15% of their original numbers. The mature animals are caught first and this places a heavy strain on re-population.

SSCS has many campaigns running concurrently, and these include dolphins, seals, sharks, whales and the Galapagos Islands. Their work is not only to arrest criminals, but also to educate the people on the cause of their environmental plunder. Whales and dolphins tend to cause a bigger public outcry when killed, but even little known marine plunder can cause environmental damage. On the Galapagos island of Isabela, 80-90 year old mangrove trees were being cut down to clear a path for walkways. The Galapagos mangroves are unique in the fact that they are much smaller than the mainland species and are very slow growers. The mangrove swamps take thousands of years to develop and play a vital part in the marine eco system. The sea cucumbers (Isostichopus fuscus) are harvested as a delicacy. They are cooked, dried and then used in soups or main dishes in Eastern countries. Once again, the illegal activities are causing the demise of marine animals.

Critics are quick to condemn Sea Shepherd's actions and accuse them of a different kind of piracy and even arrest them for breaking maritime laws. It is very easy to sit in your easy chair and denounce and criticise others' behaviour, but what are you doing about it?
By safeguarding the biodiversity of our delicately-balanced ocean ecosystems, Sea Shepherd works to ensure their survival for future generations. Their actions may be controversial, but I support any organisation who keeps our oceans from being raped by indiscriminate hunters. For more information or to make a donation, visit www.seashepherd.com.

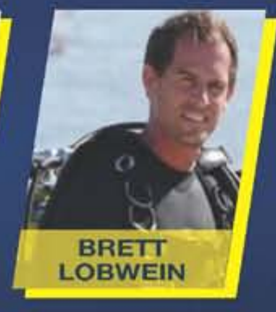
AUSTRALIA INTERNATIONAL DIVE EXPO
AIDE

3 - 7 August 2017

Level 1 • Hall 3 • International Convention Centre
Darling Harbour • Sydney

In Collaboration with
50th the SYDNEY International BOATSHOW


ASH PAYNE & JAYDE SEED


BRETT LOBWEIN


GAETANO D. GARGIULO


JAYNE JENKINS


MICHAEL AW


MATT CARTER


MATTHEW SMITH


GEORGE EVATT


KEL BRADLEY


JOHAN BOSHOFF


LISA MONDY


MIKE SCOTLAND


PASCAL LECOCQ


SIMON TRIPPE

JOIN US TO EXPLORE THE BUSINESS OF DIVING

SPEAKERS Presentation

POOL Try Dive | Dive Gear **WORKSHOP**

FREE Photography Course for University Students | Maritime **ARCHAEOLOGY COURSE**

PHOTO GALLERY Display | **HISTORICAL** Diving Display

PASCAL LECOCQ The Painter Of Blue

Demo On **DIVE GEAR** | **NETWORKING OPPORTUNITIES**

KIDS ZONE ACTIVITIES and many more...

By Peter Herbst

Explaining the Hogarthian Set-up

Hogarthian…to some a religion, interesting to some, yet most divers have never heard of it. Who is Hogarth after all?

William (Bill) Hogarth Maine is a cave dive,r and in the late 1980s he developed a system and a philosophy that still carries his name today. By looking at diving legends such as Scheck Exley, and combing their approaches with what the North Florida cave divers were doing at the time, he developed his 'safer and more efficient' philosophy.

So why should you care... after all, this is cave diving right? No, it's not as simple as that. Let's have a look at this philosophy, and the gear configuration, because after all, you don't have to be an astronaut to benefit from space travel – Teflon, Velcro... ever heard of these? If it wasn't for NASA we'd never have them.

Hogarthian is simply simplifying things. KISS (keep it simple, stupid) explains this best – note the comma after simple – stupid means you! The concept is that if you don't need it, don't take it.

Let's have a quick look at what a typical Hogarthian set-up looks like, as you have most probably seen divers wearing this, and although it looks very complicated, it is actually simpler than your standard dive gear…

Long hose and bungeed octo

This of course is the most obvious thing – a diver kitting up with a 2m hose next to you is sure to grab your attention. The long hose is mostly used by cave divers as it can easily be deployed when the diver has an out of air emergency. The hose is looped from the regulator down the right hand side, behind the light canister then across the chest, around the neck to the mouth.

The out of air diver will simply grab the regulator out of the donating (?!) diver's mouth. By simply dipping your head forward you release (as the other diver pulls) 2m of hose instantly.
The divers are far enough apart so that they can swim through a restriction one behind the other, a necessary skill in a narrow tunnel. The donating diver will simply put his own octo in his mouth – this is conveniently stored on a bungee cord around his neck.

Whilst this might not sound like your cup of tea, consider when last you practised an out of air emergency? Can you remember how uncomfortable it feels having another diver in your face? Did you remember to turn the octo the right way around or were your first breaths very wet?

Did you find the octo or was it stuck in your buddy's pocket? Or dangling somewhere behind him? Emergencies tend not to go as planned – with the Hogarthian set-up you are always ready, no matter what.

By Peter Herbst

Harness and continuous webbing

Hogarthian/tech divers use a simple steel/aluminium/carbon fibre backplate with webbing threaded through. The webbing is continuous in that there are no clips to undo. (You don't need clips...) The BC or wing simply bolts on to the back, no inflation around your middle, no material around your middle, no pockets, no pull tabs to tighten the BCD, no clutter… The inflation is where it works, on your back.

The webbing has attachment points for cylinders, back-up torches and reels. No more – only enough clips to do the job. Recreational manufacturers have been trying to copy this 'feel' with 'back inflation' and 'trim assist', yet the basic plate and wing, the simple system, still beats them all. KISS… It might not look fashionable or funky but it works.

Lights and back-up lights

The light canister (battery pack) – yes, you need a big light (a primary) – goes on the right hand side, fits on the harness around your middle and the loop of the long hose is fitted behind it. With a Goodman handle the light rests on top of your hand, not held in it – this frees up your hands completely, yet you can still direct light where you need it.

Two back-ups are carried, not more. If you feel you need more back-up or lights due to previous multiple light failure, change your torch supplier or diving technique… more lights will just mean more failure points, less attention to service and more possible snags.

There is a lot more to Hogarthian gear configuration than discussed above and the mentioned items are just the more obvious ones. Manifolds, isolation valves, type of knobs, tanks, gauges, timing devices, computers and many more, are all things that the Hogarthian mindset looks at, analyses and then either incorporate in a streamlined fashion or discards as unnecessary. I would rather discuss the advantages to the recreational diver of the Hogarthian philosophy than go through endless technical rhetoric...

The philosophy

Remember that the philosophy is to Remember that the philosophy is to eliminate the unnecessary while configuring the necessary in the most streamlined way possible. Simplicity and efficiency is the key. In other words, if you don't need it, it could be a potential liability.

Have a look at your current gear set-up. Do you buy cool stuff and keep clipping it on to your BCD? Are your pockets filled with slates, pieces of rope, cyalumes, o-rings and your waterproof cigarette case? What do you really need to complete the dive?

For example, carrying a surface marker is a necessary and safe choice, yet having a 'finger reel' to 'deploy' it is stupid. After all, it's a surface marker – you blow the thing up when you are on the surface, not underwater! I have personally seen many a macramé exit the water – a much more dangerous event caused by adding gear that looks cool.

Having lines and clips and fasteners to clip your camera onto your BC is silly – your sole reason is to take pictures, so hold the camera in your hand. Dropping it to let it dangle just because it is convenient becomes a possible hazard as the line can get entangled or trap you – in which case you will have to cut it in any case… just don't take the line!

The same goes for torches – if you are diving at night, the torch is in your hand and a lanyard around your wrist should suffice (pure Hogarthians would shudder at this – you don't need the lanyard), clipping it on the BC is just looking for trouble. Reduce what you take with you, reduce the stuff you don't need, reduce your dependency on other divers, reduce, reduce, reduce. Too many divers today seem under the impression that more is always better. I don't advocate taking this philosophy to the extremes that cave divers do, but surely one can learn from it? Cluttering yourself with equipment simply to impress others is stupid and dangerous – and also expensive!

Reduce your dependency on others by checking your own gear when kitting up, opening your own tank, checking your own air and checking your own dive tables or computer. Use your own brain. I have heard many briefings that gave inaccurate and dangerous information, yet everyone nods knowingly and blindly follows the DM into the depths. Don't stop at the happy smiley open water stage – do your advanced and rescue diver courses as they reduce your own risk and that of those who dive with you. Practice your skills as practiced skills are more readily retained and retained skills are the ones most likely to be automatically recalled in an emergency.

Equipment failure is not the cause of most diving accidents – divers not being adequately prepared is. Not properly cleaning and servicing equipment, too much equipment, confusing configuration (octo in pocket…), or failing to practice basic skills are all examples of inadequate preparation. Hogarthian philosophy is not just about equipment configuration but also about the attitude that goes with it.

Your equipment should be a complete unit that enhances and facilitates your dives and not an arbitrary collection of what was on special last week. Buying fancy computers that beep when you are too deep, beep when you are too shallow, beep when you are low on air or just simply beeps, makes you dependent on a $35 battery.

New equipment is constantly being developed and pushed on to the market. Diving is big business and is set to become bigger as people look for means of escaping everyday stress. You need to evaluate gear before you buy it, asking yourself, is it really necessary? If not, try and minimise. Dive with what you need, not what the salesman says you need…

Deep Stops?

Nuno Gomes

Most divers are aware that the recommended prescribed ascent rate is 10m per minute. That means that a diver will take 60 seconds to make an ascent from a depth of 10m to the surface, excluding the shallow safety stop of 2-3 minutes at 3m. I know of very few divers who ascend that slowly – most ascend much faster. Walk 10m slowly while counting to sixty… it is extremely slow.

The reason for deep safety stops is based on the presence of 'micro nuclei' (tiny bubbles in the blood and tissues), these are always present, even when we are not diving. If we ascend too fast (faster than 10m per minute and even if we ascend at the correct ascent rate) these micro nuclei can grow and cause decompression sickness problems.

How do we apply deep safety stops to prevent mild decompression symptoms (and sometimes not so mild)?

1 – Calculate a decompression profile using the tables or the software that you normally use.
2 – Take your bottom depth and the depth of your first prescribed decompression stop. The midpoint between the two depths will be your first deep stop, this stop should be two minutes long.
3 – Recalculate the decompression profile taking the deep stop into account – if the distance between the first deep stop and the first required decompression stop is greater than 10m add a second deep stop of two minutes, at the midpoint between the two points.
4 – Repeat the procedure until the distance is less than 10m.

For example, a dive to 35m for which the first 'official' deco stops was at 6m would require deep safety stops at 20.5m and 13.25m of two minutes duration each followed by a recalculation to take further in gassing into consideration.

Barry Coleman
The first proponent of these was Dr R Pyle following deep stops to help captured live fish decompress as he took them to the surface.

The term should rather be 'fish stops'.

They have certain benefits and if combined with open circuit gas switching can be favourable, provided they are not too long; two minutes is about the maximum time otherwise on gassing may occur. Closed circuit constant PpO2 rebreather divers' have no real need to plan in deep stops because the ascent is already slow and they generally would not benefit from deep stops.

There is much discussion as to the real benefits of deep stops, with good arguments on both sides for and against. The issue is that there is no scientific published paper that has been accepted by the scientific community.

With closed circuit constant PpO2 rebreather Trimix dives I prefer to work with the 'Gradient Factor' which in reality is a form of deeper stops but not in the classic sense of 'deep stops'. No matter which decompression programme is used, it will never reflect exactly what is happening to the body – there isn't a decompression programme in existence that will guarantee no decompression sickness.

Pieter Smith

When i started diving, there were no deep stops and the aim was to get out of the deep zone as fast as possible to minimise additional gas loading.
The effect of deep stops were 'discovered' by Dr. Richard Pyle, a biomarine scientist, in the late 80s/ beginning of the 90s, whilst trying to understand why he felt more fatigued on certain deep dives than others. He made stops deeper than his required deco stops on dives where he caught fish and needed to stop and release pressure from their swim bladders to keep them alive. On such dives he felt less fatigued than on dives 'without fish'. Contrarily to the belief at that time, he started using this technique on all dives and felt much better afterwards.
Dr. David Yount developed it into the VPN model that we use today. Modern mixed gas computers, like the VR3, are programmed to calculate these deep stops.
How to calculate them:

Use your normal decompression tables and determine the midpoint between the deepest point and your first deco stop. This is your first deep stop. Use the first deep stop depth and your first deco stop and determine the mid-point.

That is your second deep stop. Repeat this procedure for as long as the two depths are greater than 10m apart. Deep stops are normally between 1-3 minutes each depending on the depth and duration of your bottom time.

Pieter Venter
When I started deep diving the motto was, "get out of depth as fast as possible keeping within an acceptable ascent rate". Often an "acceptable ascent rate", at the time, was riding a buoy deployed at the bottom to just below the first stop. Clearly this was dangerous and this practise became less dangerous when the first stop was a deep stop. Dr. Pyle developed the idea of deep stops when he noticed he felt better when stopping during the ascent to deflate the swim bladders of fish he captured. Later the theory was developed that such deep stops prevent or lessen the chances of the formation of micro bubbles.

Hysics models showed that bubbles slow down the gas exchange rate and is the precursor to bigger more problematic bubbles. Then the theory was developed that micro bubbles should be avoided, which counter-intuitively could speed up decompression. I subscribe to the idea of trying to avoid bubble formation during decompression, and deep stops together with a conservative ascent rate go a long way towards this goal. The use of dive computers such as a VR3 also allow you to ascend continuously in very small increments, below the bubble forming ceiling and to avoid big pressure differentials by moving from scheduled stop to stop.

DEEP DOWN YOU WANT THE BEST

FREEDOM TO EXPLORE

SCUBAPRO.COM

MANTIS 2

Successor of the breakout Mantis computer. Created for divers who demand air integration, the most comprehensive biometric monitoring, and sleek, stainless steel design. Featuring the same algorithm as the Galileo computer, the M2 makes for a perfect primary or secondary computer option. Experience the latest Human Factor Diving™ innovation that allows divers to feel more liberated than ever before.

DEEP DOWN YOU WANT THE BEST

Why become a dive master?

By Wichan Thuynsm Photos: David Caravias

The perception of what it is dive masters must do and their real function in the dive industry varies quite a bit depending on who you speak to.

Some say the DM must act as the instructor's personal assistant, setting up the dive camp sorting out the gear requirements and so on.

To an extent I agree with this although I prefer handling my own gear requirements along with everything else that touches the student.

The dive master can and should manage the dive site as well as identifying the entry and exit points along with taking note of emergency procedures and contact people and numbers. I regard dive masters as an extension of instructor functions and responsibility.
A DM is a very handy resource to have as an instructor, especially in big student groups. While the instructor is busy with a particular student the DM can keep an eye on the rest of the group, maintaining order and assisting with any issues the students may experience while underwater.

When it comes to the actual dive, the dive master will be the one informing the dive participants of the activity and expectations of the dive.

It is critical that the dive master controls the dive and explains all activities as well as emergency procedures – this will negate risk and make the dive enjoyable for all.

First time divers should be taken extra care of. Recently I have noticed that a number of newly qualified divers arrive at the coast wanting to do their first ocean dives without their instructors – it is therefore up to the dive master to provide a great diving experience.

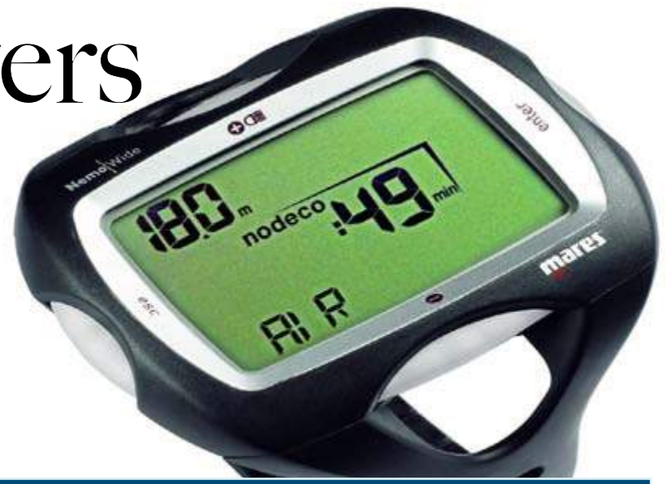
In addition to the abovementioned functions, a DM must act as an underwater 'tour guide' on the dive, pointing out interesting underwater life. They must also have the ability to chat after the dive with all the participants fielding questions about sea life they spotted.

Knowledge of sea life and diving conditions is therefore critical, and as such, the dive master course is packed with applicable scuba information.
Socialising with the customers and getting everybody interacting and having a good time out of the water is a very important attribute of a great dive master. I believe that dive masters should bring the fun portion of diving into the whole scuba experience – sometimes it can be difficult for instructors to relax among students in training because of the nature and level of the training.

So why do you want to become a dive master? Well, it's all about preparing for becoming an instructor while you are having great fun!

By Quintin de Boer

Why do we need dive computers



The question that crosses every divers mind at one stage or another is, "Can I dive without a dive computer?" The answer is, of course, that absolutely you can – people were doing it for years before dive computers were developed. Maybe the more appropriate question is, "Why would I want to dive without a dive computer?" Let's investigate...

Dive computers have become a way of life for most divers, but why have they become so popular and why should a new diver consider buying a dive computer? And importantly, what should he/she consider when looking at the numerous alternatives?

Dive computers these days come in every shape and size with a variety of functions. Do not buy a dive computer on a whim; rather consider the following points before taking the plunge:

•The type of diving you will be doing in the future – Are you planning on doing normal recreational reef dives, extended reef dives using nitrox in the Red Sea or technical diving utilising a variety of gasses such as trimix? This will determine if the dive computer will need to be able to handle nitrox, helium, gas swapping and dynamic in-water gas configuration. Is the dive computer rated to do ultra-deep diving or is it considered to be a recreational dive computer?

•Dive computer type – Wristwatch or console. Some divers prefer the wristwatch option as they can wear their dive computer as a watch for everyday use, while other divers prefer to have a console type, be it for the larger display or just to protect their

By Quintin de Boer

dive computer from the wear and tear of everyday usage.

•Cost – For obvious reasons. I am sure that I don't have to explain this, but keep in mind that this should never be your only consideration or the deciding factor.

•Functionality – Some dive computers include electronic compasses, games to keep you entertained on a long deco stop and even heart rate monitors. Will you require any of these functions?

•Logbook memory – How many dives can the dive computer store and how easily can this be downloaded and accessed via a computer?

•Air integrated – Some of dive computers offer the ability to display actual air pressure in the cylinder if an additional transmitter is purchased and configured. This reading is usually more accurate than the one on your gauge due to the fact that the reading on a gauge is usually in increments of 10.

So back to the issue of why to use a dive computer in the first place. In a nutshell, a dive computer takes you from the normal square profile of a dive, which is planned on a dive table, to a multi-level dive profile as it samples every 20 seconds (which can be configured on most dive dive computers).

Thus it allows you to benefit in terms of bottom time by taking into consideration, when doing the dive calculation, the shallower portions of your dive.

Okay, I know that that was a bit over the top for a beginner or novice diver, so let me try and explain it in layman terms. When you use traditional dive planning methods and use a dive table you only take into consideration the deepest point of your dive. So, for argument sake, let's say you do a 30 minute dive on a shallow reef of no more than 12m.

In fact, you only reached 12m for a period of two minutes during the entire dive, whereas the rest of the time was spent mostly at 8m.

If you are using tables, most of you will know that (if your scuba instructor did his job in your open water course), this is still considered a 30 minute dive at 12m, which in essence means that you are being negatively impacted by the short time at 12m.

This means that you will have to surface faster although you may have been able to stay down even longer if the complete dive profile was actually taken into account. The sad part about this scenario is that the penalty does not stop here – it extents to repetitive dives (meaning that your second and third dives are actually costing you more than they should).

But let's be honest – unless you are a mathematical genius or have some fetish for working out complicated dive profiles, this is not really a normal diver's cup of tea.

Some divers are here to dive, experience their surroundings and admire the scenery, and that is exactly what a dive computer allows you to do, whilst giving up-to-date and accurate information.

Dive computers even include calculations to indicate when it is safe for you to consider flying after a dive.

Manufacturers have also realised that not all dives are the same and have built in configurable personal safety factors (these should, however, be fully understood before being altered) that will still ensure your safety even if you are not the fittest diver in the world.

After taking everything into consideration it is easy to understand why dive computers have rapidly become so popular amongst divers, and looking at what they cost it most certainly is a worthwhile investment that will provide you with accurate depth, safety stop, deco stop and remaining bottom time information in real time whilst allowing you to enjoy your dive and focus more on the surroundings than on gauge management.

That being said, it should always be remembered that dive computers are sophisticated electronic devices, and like most electronic devices, they run off batteries... so even when owning and diving with the best dive computer in the world, if the battery is flat you are essentially diving without one.

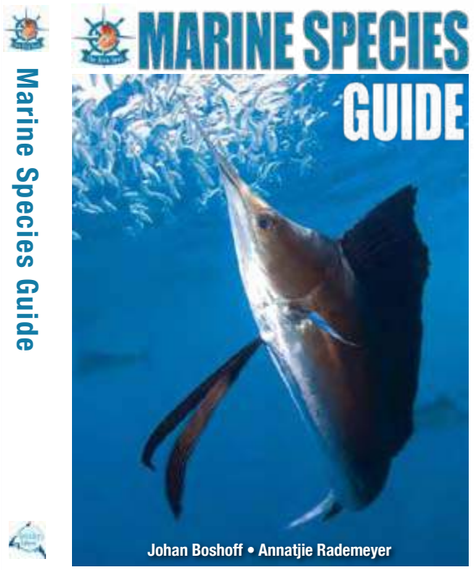
Available on the Google play

Available on the App Store

IT's FREE & IT's ONLINE

WWW.OZDIVER.COM.AU

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 behavior 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.

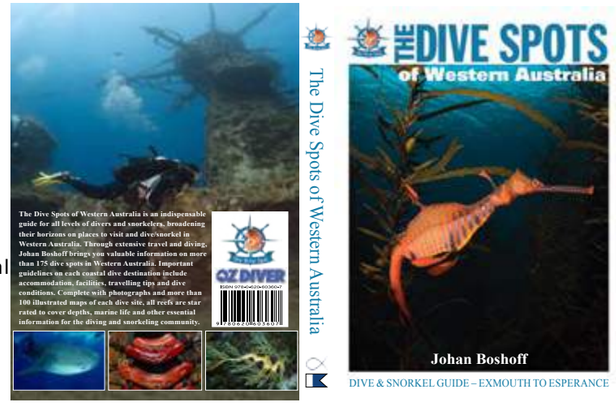
The book works very well in accompaniment with the Marine Species Slate, which can be taken underwater to help with fish identification.

To buy your copy for $ 22, visit www.thedivespot.com.au or email info@thedivespot.com.au

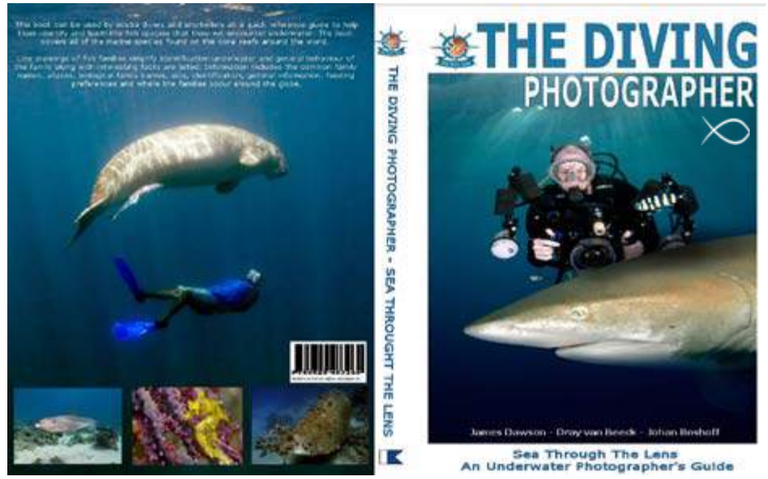
The Dive Spots of Western Australia

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. 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



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 programes 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. Photographer is available in all good scuba diving and book shops or online at www.thedivespot.com.au. Cost: $20

Gear, books, software, apps and scuba diving gadget reviews.

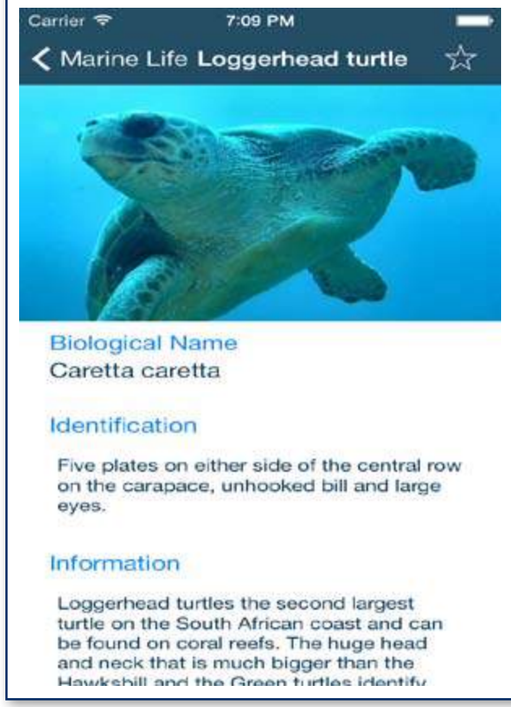
Here is a chance for your diving gear, books, software, apps and gadgets to be reviewed. If you have anything that you would like to share with the OZDiver Magazine and other divers, send an email to Log Book at info@ozdiver.com.au.

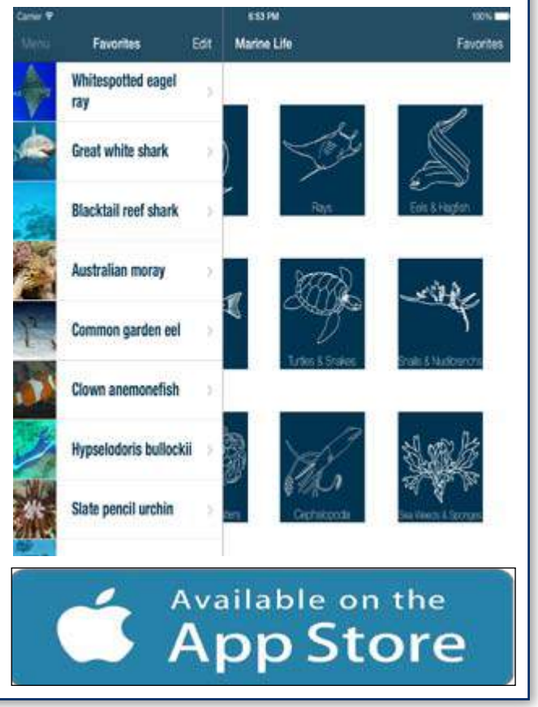
OZ DIVER

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.





EZYFLAG for all Divers

I first thought of the idea of ezyflag back in 2013 when I became frustrated with the current flag on the market. Finding it cumbersome and difficult to use, particularly when it come to retrieving it after a dive. So I began my search for a better, easier to use flag. I looked in Australia with no success, and then overseas, but with the same result.

There was nothing out there that I felt fitted what I was looking for and so began my journey to develop one myself. Designing the flag itself was a challenge, taking over one and half years alone, but producing the flag was equally challenging, and all the jigs and components have had to be specifically designed and engineered for the purpose, by myself. After a further year of design, engineering, testing and several prototypes, the final product is made of marine grade stainless steel, has a 600 x 500 uv resistance flag which has a cross-support to strengthen it and keep it visible even in no wind conditions.

It is also able to hold a flashing light for night divers (a glo-toob is used, you can find them in most dive shops) and an anchor weight, both of which can be supplied as optional extras. The real difference is the flag's ease of use. With the current flag on the market, the line has to be wound manually around the float, which can be difficult and time consuming. The ezyflag however has a reel mechanism allowing the line and weight to be wound up very easily. The design also means that the reel and release sit below the float, allowing the flag to stay more upright in the water, even in rough conditions. The ezyflag dive system looks very simple, but it has been two and half years in the making.

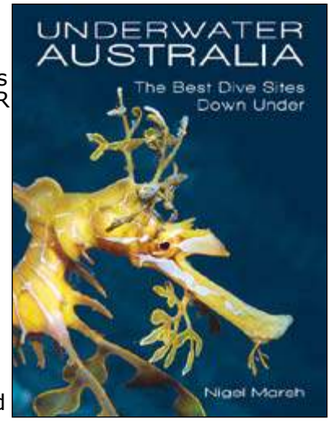
Now on the market, the flag is already proving a hit with local dive clubs and instructors alike.

Further details can be found at our facebook page.www.facebook.com/ezyflag,or by contacting Kevin on ezyflag@gmail.com or call 0407589315. Look out for the new model coming out in 2017.

Testimonial

STEPHEN FOULIS. Guys I wanted to. Say a big thanks for my ezyflag. I purchased one a number of months ago now following a chance meeting with Kevin. I have used my flag numerous times, it's so easy to use and works so well. Being an instructor it's so handy to have a simple surface marker that's deployed quickly leaving me to direct students down the shot and on with their skills. Even night dives are aided as the no fuss deployment and retrieval adds to the enjoyment. Thanks Kevin, A must for all divers.

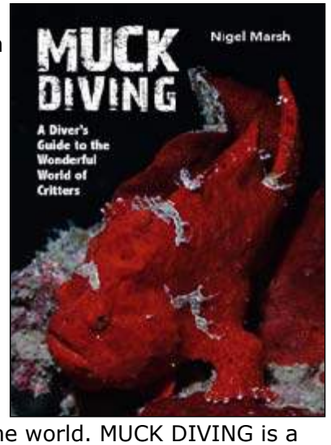
TWO NEW DIVE GUIDE BOOKS FROM NIGEL MARSH



One of Australia's leading underwater photojournalist, Nigel Marsh, has just complete work on two new dive guide books which will be available in book shops in January 2017. The first is a comprehensive guide to diving in Australia called UNDERWATER AUSTRALIA and the second is the world's first guide to muck diving, simply titled MUCK DIVING.

UNDERWATER AUSTRALIA

Australia is blessed with one of the most diverse marine ecosystems in the world. From its tropical north to its cool temperate waters, the land Down Under is truly a diver's paradise. Down Under, divers can explore amazing coral reefs, shipwrecks, walls, pinnacles, artificial reefs, kelp forests, sponge gardens and even muck sites. Australia is also a destination where divers can encounter many wonderful endemic species seen nowhere else in the world, such as colourful seadragons, cross-dressing giant cuttlefish, bizarre handfish and camouflaged wobbegong sharks.



The new book UNDERWATER AUSTRALIA is a complete guide book for the diver who wants to explore the best dive sites Down Under and also encounter the unique marine life found around this island nation. Throughout the pages of the book divers will explore every section of this great southern land, state-by-state and region-by-region. The 368 page guide book has a recommended retail price of $A35.

MUCK DIVING

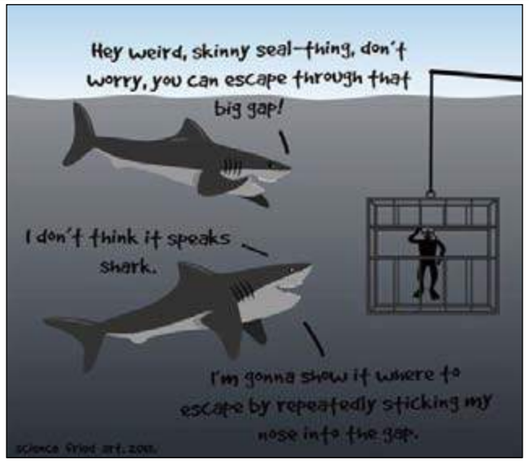
The oceans are full of fascinating environments for divers to explore; coral reefs, rocky pinnacles, caves, walls, shipwrecks and artificial reefs. But over the last two decades more and more divers have been attracted to a very different marine environment that has proved to be very rewarding – muck!

Muck diving is the exploration of sandy, silty or muddy sea floors, which might not sound very exciting or adventurous, however these environments are home to an incredible range of extraordinary critters that are not seen elsewhere in the marine world. MUCK DIVING is a captivating new book that dives into the realm of muck.

Full of magnificent pictures of weird and wonderful critters, this book looks at different muck environments, all the bizarre and beautiful muck critters and includes a comprehensive guide to the best muck diving sites in the Indo-Pacific region. The 352 page book has a recommended retail price of $A29.99.

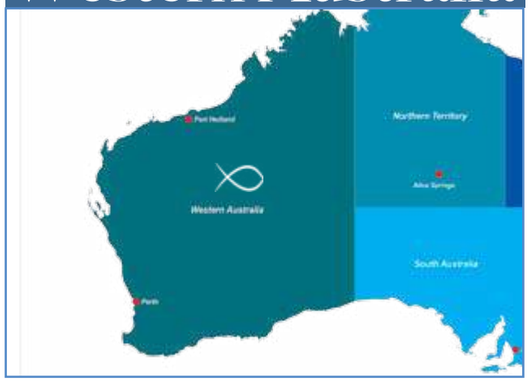
Both books are published by New Holland Publishers and are available at book shops in Australia, New Zealand and the United Kingdom. E-book editions will be available by the middle of the year.

For more information about Nigel and his other books available please visit - www.nigelmarshphotography.com



Send your funnies to info@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

Australasian Diving Academy

Australasian Diving Academy have 2 convenient locations in Nedlands and Rockingham where the water is right on our doorstep. We have a huge range of top quality diving and snorkelling equipment to suit all requirements.
Phone: +61 (0) 95279211
Mail: info@ausdiving.com.au
Web: www.ausdiving.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.
Phone: +61 (0) 8 9455 4448
Mail: info@perthscuba.com
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

Blue Destiny Boat Charters - Fremantle

Blue Destiny is a Perth's premium dive boat for day trips to Rotto and Carnac Island. Our 68 feet catamaran is a stable and very comfortable boat. Departs from Fremantle daily for 2 dives with a full cooked lunch included.
Phone: +61 (0) 43 934 2522
Mail: info@bluedestiny.com.au
Web: www.bluedestiny.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!
Phone: +61 (0) 8 92400163
Mail: info@scubaimports.com.au
Web: www.scubamportscom.au

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.
Phone: +61 (0) 8 9353 2488
Mail: dolphin@dolphinscuba.com.au
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

Underwater Explorer's Club of WA

Our club has a 12m purpose-built aluminum dive boat which can take 14 divers comfortably and is equipped with all appropriate safety equipment. We dive almost every weekend and have over 150 recorded dive spots around Rottnest and surroundings.
Phone: +61 (0) 402 310 854
Mail: committee@uecwa.com.au
Web: www.uecwa.com.au

Gear Sales | Equipment Hire | Service & Repairs | Training | Tech Training | Air Fills | Nitrox Fills | Trimix Fills | Dive Charter

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

Mandurah

Oceano Sun Sand & Sea

Welcome to Oceano your local dive shop. We have the friendliest staff best price, awesome range and we proud our self's for the excellence in training. We provide full support for all your dive needs!!
Phone: +61 (0) 85 352 047
Mail: info@oceanosunsandsea.com
Web: www.oceanosunsandsea.com

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.
Phone: +61 (0) 43 892 5011
Mail: kimroyce@gateway.net.au
Web: www.octopusgardendivecharters.com.au

Geraldton

"A" Team Divers

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!
Phone: +61 (0) 45 828 5497
Mail: geoff@ateamdivers.com
Web: www.ateamdivers.com

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!
Phone: +61 (0) 4 567 02437
Mail: info@diveningaloo.com.au
Web: www.diveningaloo.com

Snorkel Ningaloo - Exmouth

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.
Phone: +61 (0) 45 670 2437
Mail: info@snorkelningaloo.com.au
Web: www.snorkelningaloo.com.au

Albany

Southcoast Diving Supplies

Diving Albany means experiencing anything from Wrecks to Reef. The "Perth and Cheynes 3 are two well known dive wrecks and the spectacular reef dives ranging from 3-50 M plus offers a diverse choice to a wide variety of divers
Phone: +61 (0) 89 8417 176
Mail: whale@divealbany.com.au
Web: www.divealbany.com.au

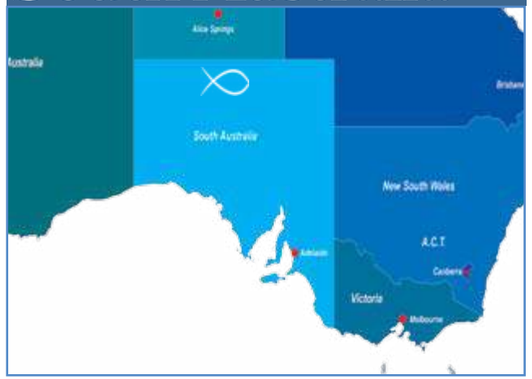
Gear Sales · Equipment Hire · Service & Repairs · Training · Tech Training · Air Fills · Nitrox Fills · Trimix Fills · Dive Charter

Esperance

Esperance Diving & Fishing

We operated since 1983 is Esperance's only dive store. Servicing locals and tourists with hire, sales, equip service, training and charters. With over 104 islands the dive sites are endless. Also offering guided dives to view Leafy Sea Dragons.
Phone: +61 (0) 89 071 5111
Mail: jaimen@esperancedivingandfishing.com.au
Web: www.esperancedivingandfishing.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
Phone: +61 (0) 86 82 3939
Mail: info@sharkcagediving.com.au
Web: www.sharkcagediving.com.au

ND Scuba - McLaren Vale

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.
Phone: +61 (0) 88 323 8275
Mail: barrettn80@hotmail.com
Web: www.nbscuba.com.au

Adelaide

Diving Adelaide

Diving Adelaide is Adelaide's newest PADI 5 Star Dive Centre. We run all PADI courses as well as Leafy Sea Dragon Tours. Diving Adelaide is located next to the tram and bus-stop in Adelaide; easy to reach with public transport.
Phone: +61 (0) 8 73 250 331
Mail: info@divingadelaide.com.au
Web: www.divingadelaide.com.au

Underwater Explorer's Club of SA

The UEC is the oldest recreational scuba diving club in Australia, established in 1954. We do regular dives at locations within metropolitan Adelaide and have frequent trips to regional South Australia. Why not come and join us for a dive.
Phone: +61 (0) 417 838 387
Mail: secretary@uecofsa.org.au
Web: www.uecofsa.org.au

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

Glengowrie

Downunderpix

Downunderpix is an underwater photography business established in South Australia. We provide all things underwater photography to the local, national and international markets. This includes supplying a range of underwater photography services as well as selling underwater camera equipment and scuba diving equipment.
Phone: +61 (0) 41 981 9083
Mail:info@downunderpix.com
Web: www.downunderpix.com

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

Extreme Watersport

Extreme Watersport Specialises in all recreational, educational and technical SCUBA diver training, charters and tours. Extreme Watersport is Melbourne's premier 5 Star SDI/ TDI Instructor Scuba Diving Training Centre. We are also house a wide range of scuba gear for sale.
Phone: +61 (0) 3 5982 3432
Mail: info@extremewatersport.com.au
Web: www.extremewatersport.com.au

Dive Victoria Group

Our Training, Dive Charter and Group Accommodation services cater for local, interstate and international divers. On our doorstep we have amazing wall dives from 10-100m that we can dive every day and wrecks 8-80m in the Ships Graveyard
Phone: +61 (0) 3 5258 4188
Mail: info@divevictoria.com.au
Web: www.divevictoria.com.au

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

Sydney

Frog Dive

Frog Dive is one of the oldest dive shops in the Sydney area. We can train you right through from an openwater course to CCR training. Sales, training, hire, servicing, boat and weekly shore dives we do it all at Frog Dive.
Phone: +61 (0) 2 9958 5699
Mail: john@frogdive.com.au
Web: www.frogdive.com.au

Southern Cross Divers

Southern Cross Divers is best known for rebreathers and "tec" diving – we do nothing else but "tec". We will not stock a unit unless we can offer the customers a complete solution to all their CCR needs. We are Australia's CCR specialist store.
Phone: +61 (0) 2 9969 5072
Mail: barry@southerncrossdivers.com.au
Web: www.southerncrossdivers.com.au

Underwater Research Group of NSW

URG is a not-for-profit scuba diving club with a regular boat & shore dive schedule in Sydney and surrounds. Join our club to explore local dive sites and if you like, get involved in research projects to help marine conservation.
Phone: +61 (0) 418 257 462
Mail: info@urgdiveclub.org.au
Web: www.urgdiveclub.org.au

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.
Phone: +61 (0) 2 4389 3483
Mail: info@prodivecentralcoast.com.au
Web: www.prodivecentralcoast.com.au

Gear Sales | Equipment Hire | Service & Repairs | Training | Tech Training | Air Fills | Nitrox Fills | Trimix Fills | Dive Charter

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

Nelson Bay

Feet First Dive

Jump in FEET FIRST with Nelson Bay's friendliest dive centre. Explore & enjoy the amazement of our Marine Sanctuary from the shore; take our boat to the local Grey Nurse Shark colony; OR Rebreathe our selection of Wrecks
Phone: +61 (0) 2 4984 2092
Mail: enquiries@feetfirstdive.com.au
Web: www.feetfirstdive.com.au

South West Rocks

South West Rocks Dive Centre

Our Training, Dive Charter and Group Accommodation services cater for local, interstate and international divers. On our doorstep we have amazing wall dives from 10-100m that we can dive every day and wrecks 8-80m in the Ships Graveyard
Phone: +61 (0) 2 656 66474
Mail: info@southwestrocksdive.com.au
Web: www.southwestrocksdive.com.au

Queensland

Sunshine Coast

Sunreef Mooloolaba

Sunreef Mooloolaba offers the ultimate water experiences on Queensland's Sunshine Coast. From diving the HMAS Brisbane and local reefs, to Swimming with Humpback Whales from July to November, to stand up paddle boarding, kayaking and bubblemaker kids programs.
Phone: +61 (0) 7 5444 5656
Mail: dive@sunreef.com.au
Web: www.sunreef.com.au

Scuba World

Dive one of Australia's top ten dive sites the Ex-HMAS Brisbane.We are the only operator that comes back to the sheltered waters of Mooloolaba bay for a relaxing morning tea. Enjoy hassle free diving from our private marina berth.
Phone: +61 (0) 7 5444 8595
Mail: rob@scubaworld.com.au
Web: www.scubaworld.com.au

Brisbane

Ozaquatec- Brisbane

Brisbane's largest dedicated scuba service centre, Ozaquatec has all of your servicing needs in one place at competitive rates. Our fast, friendly and professional customer service gives you, the diver, complete peace of mind.
Phone: +61 (0) 7 3399 1413
Mail: admin@ozaquatec.com
Web: www.ozaquatec.com

Gold Coast

Devocean Dive- Gold Coast

Devocean Dive is South East QLD's Premier PADI 5 star Instructor Development Centre. We offer unsurpassed service is a safe, fun environment with qualified, experienced Instructors. We look forward helping you achieve your SCUBA diving goals.
Phone: +61 (0) 75 528 0655
Mail: admin@devoceandive.com
Web: www.devoceandive.com

Port Douglas

Tech Dive Academy

You deserve the multi-award winning service of the ORIGINAL bespoke private diver training company - Serving Port Douglas since 2003. First for Bespoke Diver Training, the Dive Centre offers all levels of Recreational and Technical Dive courses.
Phone: +61 (0) 17 4015 2915
Mail: info@tech-dive-academy.com
Web: www.tech-dive-academy.com

Tasmania

Bicheno

Bicheno Dive Centre

Tasmainan diving at its best 32 different boat sites 16-40 meters 8 different shore dives with max depth of 20mtrs Boat travel time under 5 mins. Home of the weedy sea dragon.
Phone: +61 (0) 3 6375 1138
Mail: bichenodivecentre@bigpond.com
Web: www.bichenodive.com

DIVE THE WORLD

Africa Dive Safaris

Our company provides international tourist the opportunity to enjoy some truly unbelievable encounter with nature all around the shores of Africa from Great White ,Tiger Sharks , Mantas, Whale Sharks and Sardine Run around the coast of S.A. & Mozambique.Our drive and dive team will get you there safely
Phone: +27 (0) 83 689 1204
Mail: info@africadivesafaris.co.za
Web: www.africadivesafaris.co.za

Gear Sales · Equipment Hire · Service & Repairs · Training · Tech Training · Air Fills · Nitrox Fills · Trimix Fills · Dive Charter

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


OZDIVER
It's FREE and it's ONLINE
WWW.OZDIVER.COM.AU
Christopher Bartlett