

July / September 2021

OZDIVER

AUSTRALIA'S PREMIER DIVE MAGAZINE

**CHILD'S
DIVE
SAFETY**

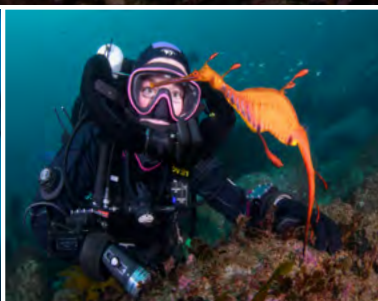
**CLIFTON
GARDENS**

**DAHAB
EGYPT**

**WORLD
RECORD
DIVE**

**PYGMY
PIPEHORSE**

BEQA - FIJI



FREE Digital Diving Magazine - www.ozdiver.com.au



Nicolas Remy & Lena Remy

July / September 2021 Edition

Editor's Deco Stop

It is time to start looking for some warmer clothes and dive gear where I live. Yes on my side of the country winter just arrive and in front of my office I can see all the trees are dropping there leafs and that is normally a sign that I must start looking for my dry suite.

Most divers all over the world do not like when winters and they normally stop diving, stop diving for me, never maybe just take it a little bit slower.

Winter normally for me is diving for myself and do not teach any diving courses and can spend more time with my family, I still have to get use to the winter rain because for most of my life winters was dry and cold and now it is wet and cold underwater and on the land.

If you diving around New South Wales then make sure you get my latest book.

The Dive Spots of New South Wales is an indispensable guide for all levels of divers and snorkeler, broadening their


horizons on places to visit and dive/ snorkel in New South Wales. Through extensive travel and diving, we bring you valuable information on more than 250 dive spots in New South Wales. 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 spots are star rated to cover depths, marine life and other essential information for the diving and snorkeling community.

I hope that you enjoy this winter edition of OZDiver and if you have any interesting articles or stories please contact me.

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Johan Boshoff

But seek first the kingdom of God and His righteousness and... 

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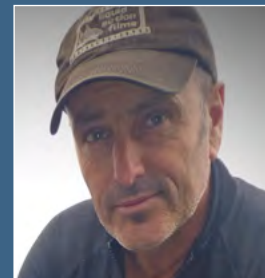
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CONTENTS

Regulars

3 - Editor's Deco

4 - The Team

Letters

7 - Dive Log

Dive the Continent

9 - OZ News

15 - Clifton Gardens

Weird and Wonders

31 - Fire Corals

33 - Bermuda Triangle

37 - Global Warning

Dive the World

41 - Global News

45 - Beqa - Fiji

63 - Dahab - Egypt

Dive Med

75 - Oxygen Toxicity for Divers

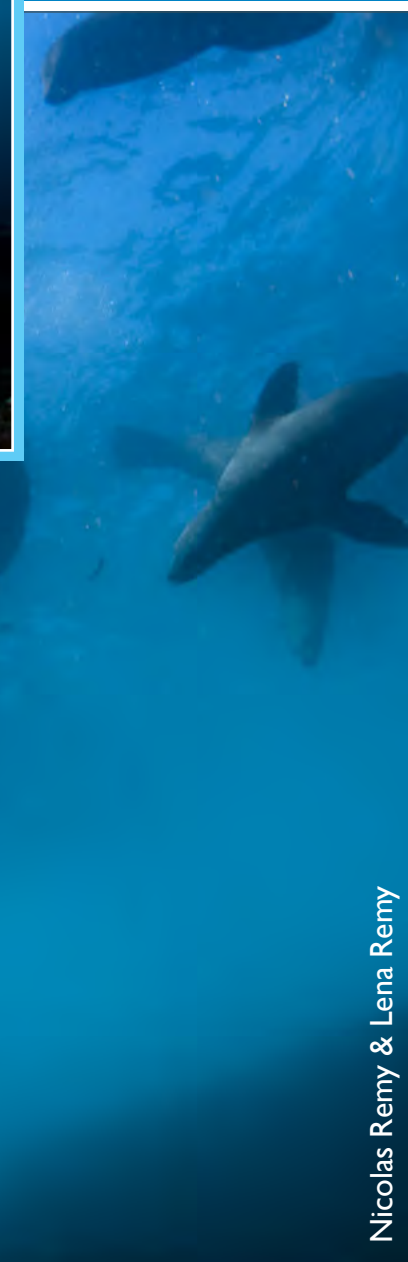
Exploration

79 - World Record Dive



COVER PHOTO

Nicolas Remy & Lena Remy



Nicolas Remy & Lena Remy

Through the Lens

91 - Photo School

93 - Nicolas Remy & Lena Remy

Giant Stride

109 - Shark Encounters

121 - Pygmy Pipehorse

Technically Speaking

127 - The Legendary Boesmansgat

131 - Best Lights

Instructor Diaries

135 - Child's Dive Safety

Gear Talk

137 - Gear Essentials

143 - Gear & Book Reviews

Safety Stop

148 - Funnies

Dive Operators

149 - Listings

Clifton Gardens - Pg 15



Beqa - Fiji - Pg 45



Dahab - Pg 63



World Record Dive - Pg 79



Pygmy Pipehorse - Pg 129



Dive Masters & Instructors Gone Wrong

We all know them. Those dive masters and instructors who are more interested in themselves than their clients. The people who are so busy telling anyone and everyone about the number of dives they have, or how deep they went, that they completely disregard the needs of those who paid to have the same experiences.

Of the two, the dive master is probably the pinnacle of the diving industry in the eyes of the novice scuba diver. In this regard the dive master is a role model. It is the diving professional on which other divers base their behaviour. There are many attributes a role model dive master should have, but one of the most important ones is a consistent commitment to responsible dive practices and industry standards.

Role model behaviour is complemented by true professionalism. As a diving professional, a dive master should have expert diving skills, including exemplary rescue skills as well as knowledge of dive management, theory and leading a dive. Good judgement and interpersonal skills are also important as is the ability to assist. Remember, a dive master is someone who serves other divers – at the end of the day, diving should be a fun activity.

One of a dive master's most important tasks is supervising general diving activities for certified divers. This normally starts with a dive briefing which should include the following ten points: dive site name, site description, dive master's role, entry and exit techniques, dive procedures, emergency procedures, signal review, buddy check,



environmental interaction suggestions and a pre-dive safety check. This may sound like a mouthful, but the briefing itself should be...brief. Overly long briefings are boring and suck the fun out of the dive. The same goes for a self indulgent briefing that focuses more on the dive master than the dive at hand. Some dive masters are also keen on over stressing hazards. This can cause unnecessary stress amongst divers and may even cause the loss of the dive master's credibility in the eyes of the divers. Rather give realistic views on the particular hazard so divers can plan accordingly to avoid it. Last but not least, if the dive master is having a bad day for whatever reason, it should not be reflected on the divers. A negative dive master is bad for business.

It goes without saying that role model behaviour and a high degree of professionalism apply to the instructor as well. Any instructor should be especially sensitive to upholding the highest training and industry standards. After all, the instructor has the lives of his students in his hands, especially at open water level. Why are there then so

many instructors who take open water students to depths they are not certified to dive to for the 'thrill'? Why do you find instructors and students without wreck, cavern or cave certifications in overhang conditions? And why do you find certified open water divers who have to abort a dive because they cannot clear their masks properly?

Inadequate instructor training is one reason. Another is inexperience coupled with an overinflated ego. Many newly qualified instructors and dive masters think they are the cat's whiskers, and as any experienced diving professional will tell you, overconfidence is very unforgiving under the water.

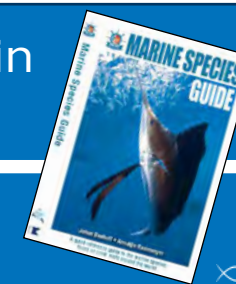
It is usually well deserved to receive a dive master or instructor certification – it marks the student's entry into the professional realm of diving. The certification as such doesn't make a good professional, however, it just indicates that the standards have been met. It is up to the individual to use the skills he or she has acquired to go out there and 'become' a worthy dive master or instructor. ■



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 info@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

Diarise your OZTek / OZDive Expo '22

We're beginning to ramp up Stay tuned for speaker and event news as they are confirmed. Remember, Oct 1-2, 2022 is a long weekend in NSW, QLD, ACT & South Australia - so start planning.

We'll be suggesting lots of brilliant ideas on things to do, especially if you want to travel with the kids & a partner who may not wish to spend two days immersed in diving!! (Hard to believe I know .. but it does happen!)

What's New!


The Date, the Timing, the Venue. OZTek and OZDive Expo '22 will be held at the Melbourne Conference & Exhibition Centre (Jeff's Shed) on October 1/2, 2022 - the very start of the Australian diving season.



"Check out the floor plan - the entire layout allows us excellent speaker rooms plus a ready-built theatre in the exhibition hall! I'm super excited about the difference this will make to the event and audience sound quality," says Sue Crowe.

"I can't wait to get everyone together. We have an incredible amount of home grown adventure, alongside exciting new projects and adventures from overseas." We'll be vaccinated and ready for action - not holding back - watch this space - or subscribe to our newsletter at <https://ozdive.net.au/>

The combination of the traditional OZTek Conference, alongside the OZDive Expo will bring together divers from all over Australia like never before.

Block the new 2022 dates (OCT 1-2, 2022)
& bookmark the website as we work towards making this a truly jaw-dropping event. 

The Underwater Tour Awards 2021

International Underwater Competition

The organisers of the Underwater Tour Awards announced the winners of its second annual, prestigious international competition in the livestreamed Underwater Tour Show.

The annual competition encourages and inspires passion for photography, exploration and discovery from behind the lens and helps raise awareness of the world's incredible, fragile marine and aquatic inhabitants and their environments.

The Guru Awards – Photographic Competition

The only international photography competition of its kind to incorporate a systematic Ethical Review for images submitted, the Underwater Tour Awards Team is committed to ensuring the natural world is depicted both creatively and honestly, with due regard shown to the welfare of all marine life and habitats.

All images entered were subject to the competition's Ethics Review process, conducted by renowned Marine biologist and author, Dr Richard Smith, before moving to the first round of judging.



Wayne Osborn

Led by Convenor Darren Jew, Canon Master and six-time winner of the AIPP's Professional Nature Photographer of the Year, the international judging panel: Juergen Freund, Alex Kydd, Rachael Talibart and Y-Zin Kim reviewed several hundred images submitted by photographers from all over the world.

"We are delighted with the high calibre of submissions received" said Darren Jew. "The competition gallery takes us on a remarkable underwater tour, showcasing the fine work of competing underwater wildlife photographers and celebrating the natural wonders of the underwater world".

The Guru Grand Prize

The competition's Guru Grand Prize celebrates an underwater photographer with talent, skill and creativity who can deliver with more than one high calibre image – an award for an excellent photographer, not simply an excellent photograph.

The winner is chosen from a pool of the highest scoring entrants who entered one image in each of the five different categories of the Awards.

The Guru Grand Prize Winner: Amanda Blanksby, Wembley, Western Australia

Category Winners:**Underwater Characters**

Winner: Luc Rومان, Kieldrecht, Belgium
Mating toads caught by a sunbeam - De Melle Turnhout Belgium

Underwater Scenes

Winner: Wayne Osborn, Applecross, Western Australia

The healthy, lush and biodiverse marine microenvironment of a tropical coral reef outcrop. Wakatobi Reefs, Sulawesi

Aquatic Abstract

Winner: Richard Condlyffe, Battle Creek, Michigan, USA

I lit this open Giant Basket Star at night using directional pink light to combine color with its beautifully shaped and textured branches. - Exumas, Bahama

Topside Scenes

Winner: Pavlos Evangelidis, Nea Arithrea, Greece

Catch of the Day. Traditional stilt fishermen try their luck at sunset in Koggala, Sri Lanka. This is a single take at 10s shutter speed with an ND filter for that dreamy water texture - Koggala, Sri Lanka

Underwater Black and White

Winner: Kristian Laine, Mermaid Waters, Queensland, Australia

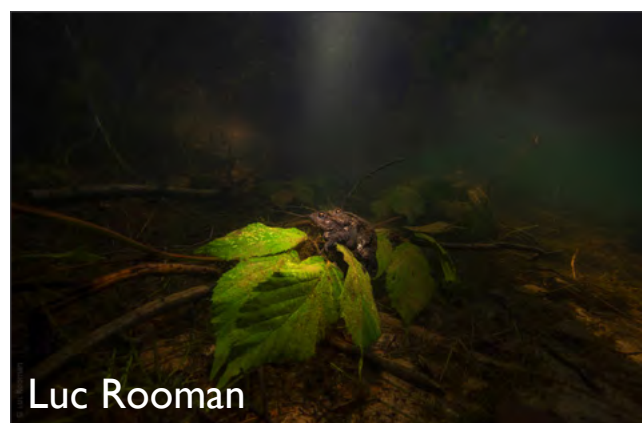
Black & White Ghosts - These spins and slow shutter speed shots are so much fun to do and I love the creative and artistic vibes they give - Lady Elliot Island, QLD, Australia

The People's Choice was finalised on 23 May. All finalists' images can be seen on underwatertourawards.com.au

We introduced two new awards in 2021.

The Eco-Hero Award

We invited nominations for individuals going above and beyond to consistently share and



Luc Rومان



Kristian Laine



Richard Condlyffe

encourage positive ecological change within their community environment.

Winner: Louise Hardman, Coffs Harbour, New South Wales, Australia

Who doesn't love a smiley fish!! These porcupine fish seem to be content with their life swimming round in the ocean. - Busselton Jetty, Busselton, WA

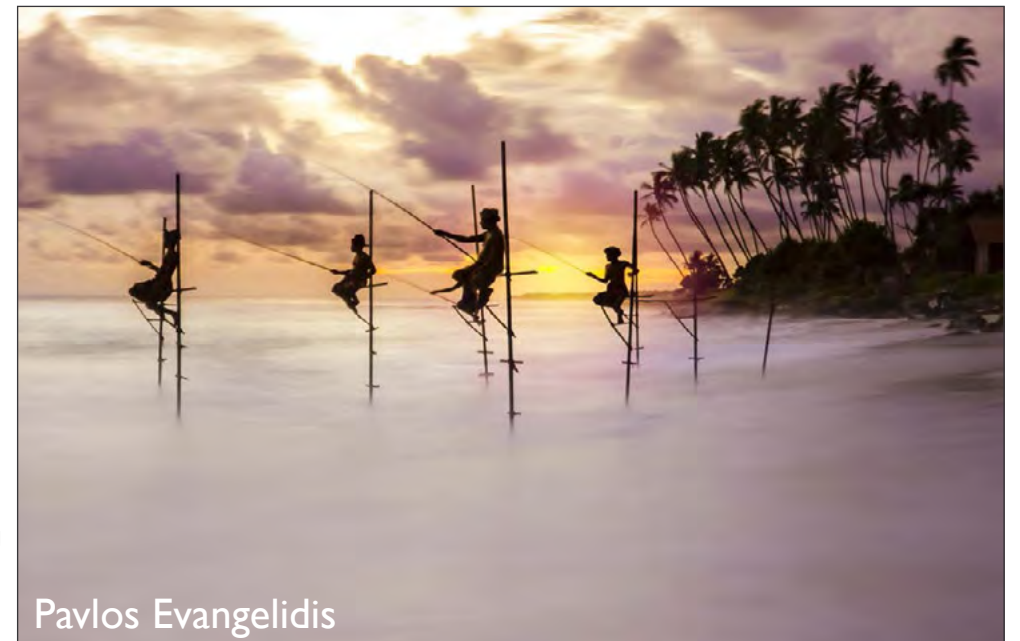
From the Heart to the Ocean

This Award category was open to all creatives working in any medium - we called out for the community to inspire us with their work.

Winner: Natasha Waller, Old Beach, Tasmania, Australia

"The Underwater Tour Awards are a natural community extension of the annual Underwater Tour nationwide speaker series, scheduled each May in Australia. This year we have rolled out a virtual broadcast show which has enabled us to engage with an audience around the world" said co-founder Juliette Myers. "We'd like to thank all our valued Partners. SEACAM, Paradise Taveuni, Mike Ball Dive Expeditions, Memento Pro, CameraPro, Heron Island, Christmas Island, Wakatobi, Nautilus Liveboards, Walindi Plantation Resort, MV Febrina, MV Oceania, Lady Elliot Island, and Scubapro. Without their support the Underwater Tour Show and Awards would not be possible".

Co-founder Tim Hochgrebe added "Thank you to everyone who has watched the show and taken part this year. Planning for the Underwater Tour Awards 2022 is already in full swing and we are looking forward to seeing you next year".



Pavlos Evangelidis

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

Solomon Is. Diving

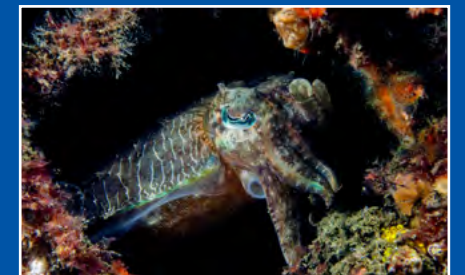
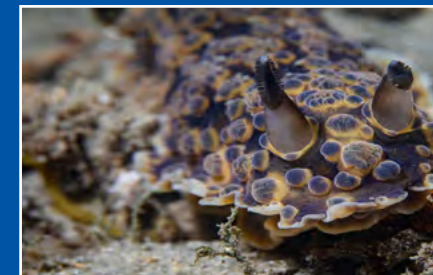
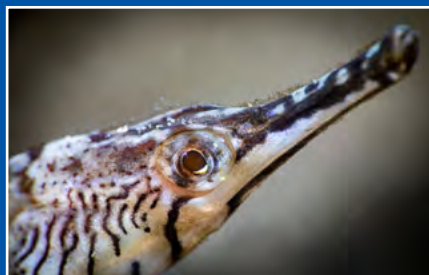


TAKE THE PLUNGE

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Clifton Gardens

Can't get to Lembeh? How about Clifton Gardens in Sydney?



We all know the Lembah is one of the muck diving/macro spots around the world so what does a site in Sydney Harbour have to offer in comparison? Well, quite a lot actually.

Chowder Bay is on the North side of Sydney Harbour and has a wide-open space and beach area called Clifton Gardens. The dive site is more often called Clifton Gardens, or just Clifton, rather than Chowder Bay...but both work. The site is very protected and very rarely gets 'blown out'...visibility can be another issue, however.

There is a knowing glance that passes between the dive fraternity when talking about viz at Clifton ... the answer "Clifton Viz" means somewhere between 2-4 metres of viz. Given it is a macro site this is not too much of an impediment but if you end up with 6+ metres of viz you



feel a little lucky.

Chowder Bay forms part of the Sydney Harbour National Park and has a bit of history behind it both as a military installation and a holiday destination. In the late 1800's a base for the Submarine Mining Corps was built here. The site remained in Military use until the 1990's. Navy ships still pull up at the Naval wharf in Chowder Bay (not accessible to divers) and take on, or drop off, fuel from two large (but well hidden) storage tanks.

Clifton Gardens has its own history as a bit of a holiday camp. In the 1800s The Gardens used to house a skating rink, a hotel, a dance pavilion a large circular swimming enclosure and a wharf. It was one of the spots to come, relax and have a day out. Even today Clifton Gardens is a pretty popular spot and on a sunny weekend you can find many families enjoying the open space, 20 or so boats anchored up and quite a few divers traipsing into the bay's waters. Clifton Gardens is a site where you move slowly, poke around and look very carefully.

You can complete your whole dive underneath the wharf in less than 8m of water and that will give you both a long dive and avoid the lures of the anglers above. Pretty much everything is well hidden, apart from the odd Bull Ray or Kingfish that sweeps through to Hoover up the bait left by the fishers casting off the wharf.

The rest of the population is a touch more difficult to spot and invariably is not moving that fast. The old Mine Corps base now houses the Sydney Institute of Marine Science





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ocean planet both above and below the surface.



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(SIMS) and undertakes research in everything from Microplastic Distribution to NSW Corals.

In addition to the work SIMS undertakes the bay is also a spot where Sydney Aquarium, in conjunction with the NSW Government and The University of Technology, is boosting the population of the Whites, or Sydney, Seahorse (*Hippocampus whitei*) through a breeding program.

The Seahorses thrive along the nets, in the sea grasses and the 'Seahorse Hotels'. You are very unlucky to dive and not see Seahorses at Clifton Gardens...but they are well hidden. To join the seahorses there is a healthy population of Tiger Pipefish (*Filicampus tigris*) that you often find on the area's sandy slopes.



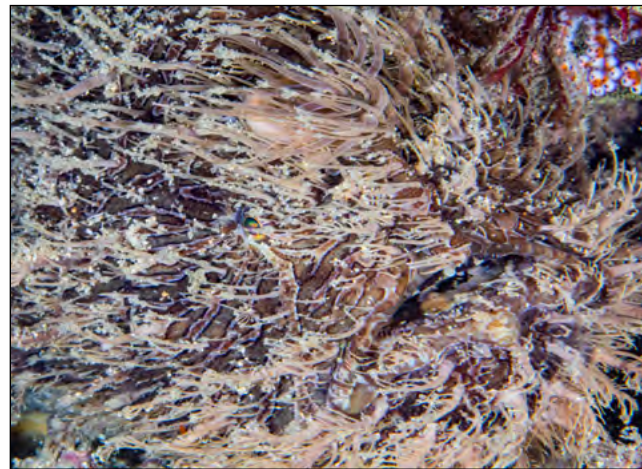
The Seahorses are a solid reason to be there...but are just a small part of what the site offers. Fantastically camouflaged Sponge Decorator Crabs (*Hyastenus elatus*) are always there... if you can find them. Start looking intently at patches of Orange sponge and you have a 25% chance of it being a crab.



In addition to the Decorator Crabs there are always Blue Swimmer Crabs (*Portunus pelagicus*) hiding between the pylons under the pier and Hermit Crabs (*Paguroidea*) scuttling around. The Pylons and Old nets are also home to a wonderful array of sponges.

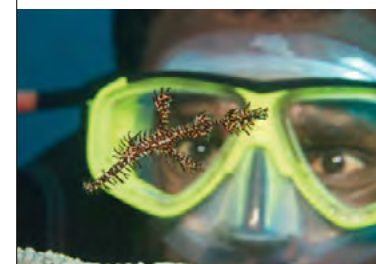
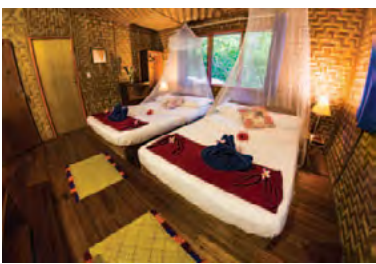
In addition to our crustacean friends there are normally a good range of Angler Fish, or Frog Fish, to find. The site commonly has at least two different species trying to lure in unsuspecting fish, the Hairy Frogfish/ Striped Anglerfish (*Antennarius striatus*) and Orange and Black versions of the Freckled Anglerfish (*Antennatus coccineus*).

In addition, you can also find the Eastern Frogfish (*Batrachomoeus dubius*) hanging around under overhangs, which despite its name is quite a different species.



So apart from the Frogfish and the Sea Horses what is there? Two other main species can be found in number and those are the Molluscs in the shape of Cuttlefish and Octopuses and the Nudibranchs and their relatives the Sea Hares.

There are Octopuses a'plenty, some quite large, and they are generally the common Sydney or Gloomy



Picture a small private island, with white sandy beaches, tall palm trees, beautiful tropical gardens, traditionally-built, comfortable bungalows, magnificent sunsets and fine food.

Surrounding this little hideaway are some of the most healthy & colourful reefs and best fish life this planet has to offer...

Octopus (*Octopus tetricus*).

You can find them roaming the sea grasses, squeezed into a hole, or living amongst the piles of the wharf. You can also see plenty of their cousins, the cuttlefish, and they include the Reaper Cuttlefish (*Sepia mestus*) and the Mourning Cuttlefish (*Sepia plangon*).

It is common to see mating pairs of Cuttlefish underneath the pier. At night you might also trip across a Striped Pyjama Squid (*Sepioloidea lineolata*) noodling around in the sand.

This brings us onto the Nudibranchs of which there are a wide range. They are generally, but not exclusively, the less vibrantly-coloured species such as *Aphelodoris varia* and

Dendrodoris gunnamatta, given that they are trying to blend in with what is a predominantly light grey sandy bottom.

Having said that I have included a few of the Nudibranchs I have seen, in and around the pier, and they rather disprove that theory! The above are the 'standard' Clifton Gardens fare but there is always the lure of the rare and different that keeps you going back. There is often a lone Australian Pineapplefish (*Cleidopus gloriamaris*) hiding under a plank of wood and the visit from the odd Ghost Pipefish (*Solenostomus paradoxus*), Dwarf Lionfish (*Dendrochirus brachypterus*), Snake/Serpent Eels (*Ophisurus serpens*) and the Stars and Stripes Pufferfish (*Arothron stellatus*) that makes life interesting.




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There are also Green Morays (*Gymnothorax funebris*), shoals of Yellowtail Scad (*Atrule mate*), passing Trevally, Fanbellied Leatherjackets (*Monacanthus chinensis*), Pygmy Leatherjackets (*Brachaluteres jacksonianus*), Three-bar Porcupinefish (*Dicotylichthys punctulatus*) and the many resident Brown Sabre Toothed Blennies (*Petroscirtes lupus*) to keep the diver and the photographer amused.

There really is so much at Clifton Gardens that it must be on your list of Sydney Dives.

You can normally park there easily (but you will pay...this is Sydney after all), there toilets and showers and a flat walk to the dive sites. Day or night this sight has a lot to offer...and if you cannot make it to Lembeh...Clifton Gardens is not a bad substitute. 





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DITCH THE GEAR
and discover a new way to explore

Fire Corals

What they are, what they do, how to spot them and where to find them.

I always wear gloves when I dive. They protect your hands against the sun, make it easier to grip the ropes on the boat and prevent injuries from accidental undersea contact with rocks or corals.

But gloves don't always protect you. The seas around Bali and Sulawesi are full of jellies from August to November, and in the Bunaken National Park, I put a finger down on what I thought was a bare piece of rock. It came up yellow and slimy, but otherwise I thought no more about it.

While we were ascending, I felt a sting on my cheek from a jelly, and rubbed the spot with my slimy yellow gloved finger, a big mistake. By the evening the whole side of my face was swollen and numb, and the place I had rubbed was really sore. The DM diagnosed it as a fire coral sting.

He said that toxin on the tip of my glove came from my accidental contact with a fire coral, and was what had caused the swelling

and pain. After a course of antihistamines and a lot of antihistamine cream the swelling subsided over three days and life went back to normal.

Fire corals are not actually corals at all. They live in coral structures, but they are more closely related to anemones and



jellyfish than to coral. If you look closely at certain corals you will see fine filaments sticking out of their pores.

These are the tiny stinging tentacles of the fire corals, called millepora.


They look rather like seaweed, and can easily be mistaken for harmless vegetation until they are touched. They also have a yellowish-brown, sharp, calcified exoskeleton which can brush and cut the skin. Because they blend so perfectly with their host, they are difficult to see, and it is safer not to touch any coral with bare flesh.

In parts of Brazil they are host to the yellowtail damsel fish, (*Chrysiptera parasema*) which is highly desirable for aquariums, and the coral hosts and fire corals are often destroyed by fish traders to get to the fish. Fire corals are listed on Appendix II of CITES, making them an endangered species.

There are 13 different known varieties, each having a different symbiotic relationship with the host coral. These include branching, plate and encrusting corals like lettuce corals.

We saw a lot of the fire coral host corals in Indonesia, but they are not as common on the East African coast, possibly because fire corals prefer protected reefs and sheltered areas. The coral growth on the East African coast is shallow because of the rough seas and unprotected reefs. Anyone who has ever dived Lettuce or Uniform Reef at Sodwana Bay will know that the lettuce coral is absolutely flat.

In Indonesia, however, branching and lettuce corals can grow up to 1.5m high, making them ideal hosts for fire corals. We were amazed to see lettuce corals in the Lembeh Straits growing to a metre high and home to the brilliant mandarin fish as well as to one of the stinging fire corals. They prefer to grow on coral outcrops and projecting parts of the reef where the tidal currents are strong, and they grow abundantly on upper reef slopes and in lagoons, although they can occur down to depths of 40m.

The traditional scuba diver's full wet suit covering originated to protect the diver as much from fire coral stings as it did to keep the diver warm. The diver's golden rule, look but don't touch, is a good one. 



The Bermuda Triangle

If you are interested in wreck diving, the best place to do so must be the Devil's Triangle. Think about it: planes, schooners, colliers, tankers, and of course the lost Atlantis... but some of the deepest trenches also lie here, so that will be diving for another day (or century).

The Bermuda Triangle is a big topic for debate as there are plenty of facts stating that there is nothing paranormal or mysterious about the area, yet in any good debate there are two opposing sides – more than enough questions abound that will make you believe that this is in fact a really strange place.

First things first, where is this place? Well, obviously close to Bermuda... Bermuda forms the most northern part of the triangle (in the North Atlantic Ocean) and from there, a point somewhere on the coast of Miami, Florida and the triangle is closed at San Juan, Puerto Rico. This is the area most authors use, although some authors differ and include the Gulf of Mexico. So already we have two schools of thought and we haven't even touched on the real mystery yet.

The first strange anomalies happened in the 1400s when the famous Christopher Columbus recorded strange compass bearings in that area. His logbook stated

that his crew observed "strange dancing lights on the horizon" and "flames in the sky". And this was not the last strange occurrence. After this plenty more planes and ships 'vanished' into thin air and this is where the real issue starts.

Probably the most famous disappearance in the Bermuda Triangle is that of Flight 19. In 1945, five Avenger torpedo bombers lifted off from Fort Lauderdale Naval Air Station, USA on an advanced over water navigational training flight. The crew, under the command of Lieutenant Charles Taylor, never returned. On that fateful day, an intercepted radio message was the first sign that the planes were lost. The message was believed to be between the leader of Flight 19 and another pilot indicating that the instructor not sure about his position and the direction of the Florida coast. The aircraft was also experiencing malfunction of its compasses.

Again the mention of compass malfunction. In a lot of the disappearances these two


words were also mentioned. There are numerous schools of thought about exactly what happens in the Bermuda Triangle and compass variation is one of them. Some groups believe that unusual local magnetic anomalies may exist in the area. This forms part of the natural thought reasons for the many disappearances in this Devil's Triangle. Hurricanes, the Gulf stream with a surface velocity of 2,5m per second, Methane hydrates (a form of natural gas on the continental shelves) and rogue waves are all more theories for the strange disappearances of vessels – although most of these will not influence aircraft.

Of course there is the school of thought that believes it is a supernatural phenomena. Some writers believe disappearances happen because of left over technology from the lost continent of Atlantis, which according to them falls partly within the Triangle. Others of the same school of thought attribute the abnormal events to UFO's.

Then of course you have the school of thought that believes that this is all rubbish and that there is nothing sinister about the Bermuda Triangle disappearances – people such as Lawrence David Kusche, a research librarian from Arizona State University. He concludes that the number of vessels and aircraft to disappear in this part of the world is not significantly more than in

other areas. He also mentions that with the disappearances that have happened, writers have not mentioned storms or heavy weather on the day of disappearance. According to the Naval Historical Centre in Washington DC, the five bombers that left US ground under the command of Lieutenant Charles Taylor, experienced stormy weather that day...

Kusche stated in his book, *The Bermuda Triangle Mystery: Solved* (1975), that, "The legend of the Bermuda Triangle is a manufactured mystery... perpetuated by writers who either purposely or unknowingly made use of misconceptions, faulty reasoning and sensationalism."

Hundreds of planes and vessels have been lost here over the past centuries and the opposite is also true. Daily, planes and boats travel this area and they arrive at their destinations unscathed. And no, there is no single theory that everybody feels comfortable with or that can deliver enough evidence to explain the happenings of the mysterious Bermuda Triangle. But one thing is a fact: Spanish treasure fleets used this route to bring various riches from the New World. And many of these Spanish treasure fleets did not make it out of these seas, so maybe it is not a bad idea to get some maps, organise a trip to Bermuda and maybe, just maybe, find some sparkling treasure. 



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Global Warning

Will our planet still be called the blue planet in 20 years time?

Earth is a beautiful planet. Seen from the moon it nearly takes your breath away. Green splashes of continent framed by the blue oceans, circled with a bright, transparent white atmosphere. But we humans are slowly choking our planet to death.

We are managing to do this by pumping carbon dioxide (CO₂) into the atmosphere at astronomic levels. The 2008 levels of CO₂ were 385 parts-per-million (ppm), an increase of about 55 ppm in 20 years – the natural levels are between 175 and 300 ppm. There is an exponential increase closely associated with the population growth curve. The question now is what is the relationship between the CO₂ levels, greenhouse gasses and, of course, global warming.

I'll start with the simple explanation of how the earth is warmed. The sun's rays

penetrate the atmosphere, which reflects most of them back into space. The rays that ultimately penetrate the atmosphere layer (infra-red range), hit the earth's surface, warm it and bounce back to the atmosphere. The remaining energy is then used for plants to grow, it heats the ocean's surface, which enables us to dive in tropical waters, and also penetrates the surface which allows coral reefs to flourish (the scuba industry's bread and butter).

By increasing the greenhouse gasses in the atmosphere, we thicken the atmosphere. The effect is that more rays are reflected off it and more heat (generated from earth) bounces back to earth – heating the area between the earth's crust and the atmosphere, causing the 'greenhouse effect'. It also causes rays to reflect back and thus acts like a giant mirror. The long term effect after we have built this giant greenhouse will be 'global

cooling' (another topic altogether).

Anybody who has been in a greenhouse will know what I am trying to convey here. The humidity and heat is overwhelming. Although we use this technology to produce plants for human consumption, just think what it would do to these plants if we steadily increase the temperature.

But let us backtrack a little to see how we caused this 'greenhouse'. We know that CO₂ is the major contributor, but there are a few more human generated gasses that are just as worrisome. The natural greenhouse gasses are water vapour (not clouds), CO₂, methane and ozone. The problem is that humans are increasing the concentration and ratio of these gasses, thus increasing the insulating properties of the atmospheric layer. Burning of fossil fuels and land changes are the biggest contributors of CO₂ and methane.

Fossil fuels are fuels from fossilised materials found in the earth's crust. They range from low carbon materials such as methane to high carbon materials like anthracite coal (which is used in most countries for the generation of electricity). Fossil fuels are a non-renewable resource which takes millions of years to form and we are depleting them much faster than they can re-generate – 86% of energy generated by humans is from fossil fuels. Industrial processes pump approximately 21,3 billion tons of CO₂ into the atmosphere per year, yet natural processes can only eliminate half of this. These natural processes include plants using CO₂ for respiration and absorption into surface water. The depletion of fossil fuels is forcing us to look into renewable resources such as wind, sunlight and water.

The effects of our actions


We have had a look at the cause, so let's look at the effects. The five major effects are: spread of diseases, warmer oceans causing more hurricanes, an increase in droughts and heat waves, economic impact and last, but most severe, the melting of the polar caps. In southern Africa we can already see some of the effects in Sodwana and Margate where severe storms have ravaged large parts of the beach and beach front properties.

Furthermore, coral bleaching due to increased ocean temperatures has already caused extensive damage to large areas in the tropics. The warmer water kills the algae that live symbiotically with the corals and causes the corals to die. There are also 30 'new' diseases worldwide and some old ones, which were under control, are back, like pocks, to name but one.

Over the past 20 years we have had 10 all-time records broken for highest temperatures, with the latest in 2008. Good news for the sun bathers, bad news for the polar caps. They are steadily melting and this influx of fresh, cold water not only raises the sea level (it will be an estimated 2m higher in 2050), but also causes major changes to the ocean currents. Warm water from the tropics is driven north in the Gulf Stream as far as Greenland. Here it loses heat due to evaporation, which also increases the density and causes the water to sink. This pulls down the warm water at a rate of 18 billion litres per second and keeps the conveyor belt going. This system brings warm, moisture rich air to Europe, keeping their climate temperate. When the cold, fresh water from Greenland and the ice caps reaches this system, it reduces the density and also cools it down to such an extent that the water does not sink anymore, causing the conveyor to stop. Although research is still ongoing, preliminary results show that this will cause extremely cold weather over Europe and possibly the next ice age.

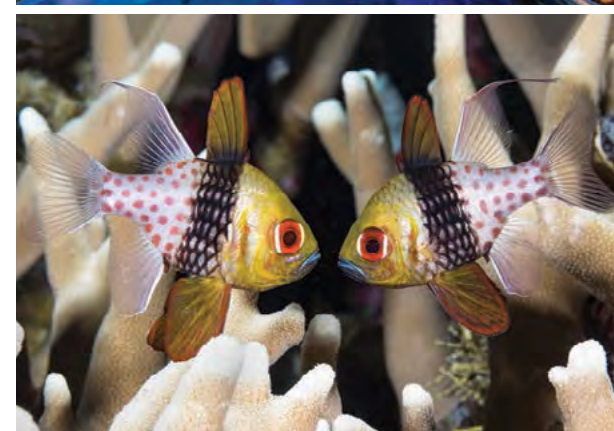
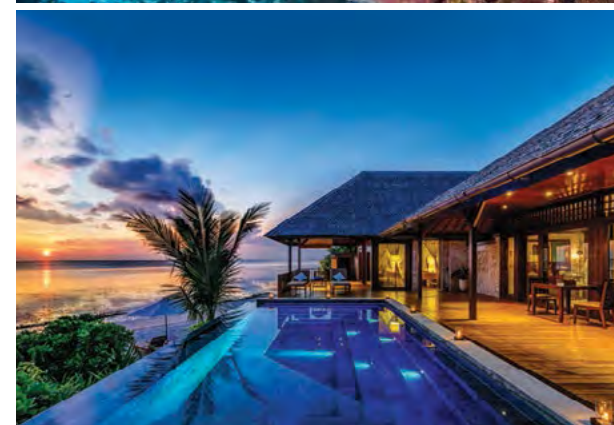
I have only touched on one of the effects – the other four major effects are articles on their own. If we don't start acting soon, we might not be able to hold our heads above the water any more. It might be fine for scuba divers, but bad news for those waiting for us on the beach. For a start, replace your light bulbs with the longer lasting, energy-saving type, try to only use recycled paper and switch off electrical equipment that you are not going to use. Let us heed the warning signs and stop taking the earth for granted.

DYK – Africa contributes 2,5% of the global CO₂ levels.

DYK – In 50-70 years from now, polar ice will not exist during the summer months. 



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GLOBAL NEWS

B-VIRUS FREE from BAUER KOMPRESSOREN

Highly effective breathing air protection against SARS-CoV-2 and other pathogens!


The new patent-pending B-VIRUS FREE virus filter offers highly effective protection against viruses, bacteria and moulds for firefighters and disaster teams.

BAUER KOMPRESSOREN has developed B-VIRUS FREE – a solution that eliminates viruses at the air intake stage. The system is designed to protect firefighters, divers, pressure chamber operators and medical staff from these hazards whenever they require respiratory equipment for their daily operations. The new B-VIRUS FREE protective filter system reliably neutralizes – depending on the charging rate of the compressor – up to 99.9% of the corona viruses, bacteria and special moulds can be removed from the intake air.

For BAUER, protecting the health of breathing air consumers has always been paramount. The B-DETECTION PLUS online gas measurement system already provides accurate measurements of the commonest hazardous substances associated with breathing air, such as CO, CO₂, moisture and oil, and eliminates them using BAUER filter systems. However, a new threat now lurks in the form of viruses like SARS-CoV-2, as well as bacteria and moulds.

These new dangers are particularly insidious because they are invisible and highly communicable – and cannot be measured by sensors. They can spread at lightning speed by contact or droplet infection. Inhaled in ambient air, they can pass through any commercially available standard air purification system. Even the high temperatures and pressure levels of the compression process have little effect on them because of their short exposure to the process.

Brilliantly simple and wholly effective, the chemical- and ozone-free technology of the patent-pending B-VIRUS FREE System uses a special UV light source to destroy pathogens in the intake air flow before they can reach the compressor. The highly effective 254-nm UV wavelength is absorbed by the pathogens' DNA, where the photons destroy the bonds between the DNA strands of the viruses, bacteria and mould spores and effectively prevent them from reproducing. B-VIRUS FREE can be ordered alongside any new BAUER system and is also easy to retrofit. The filter system is designed for flexible mounting to a wall and has a compact footprint for extra ease of handling and convenience.

Long maintenance intervals keep operating costs down. The filter does not require replaceable filter cartridges. The UVC light source has an extremely long service life of approx. 2,000 hours and is simple to replace. The control unit reliably displays the filter functions and includes visual and acoustic warning signals for the event of a malfunction, e.g. in a power cut. A standard 220/230V power outlet is all that is needed for operation. A version for regions with 110V power supply is also available. 

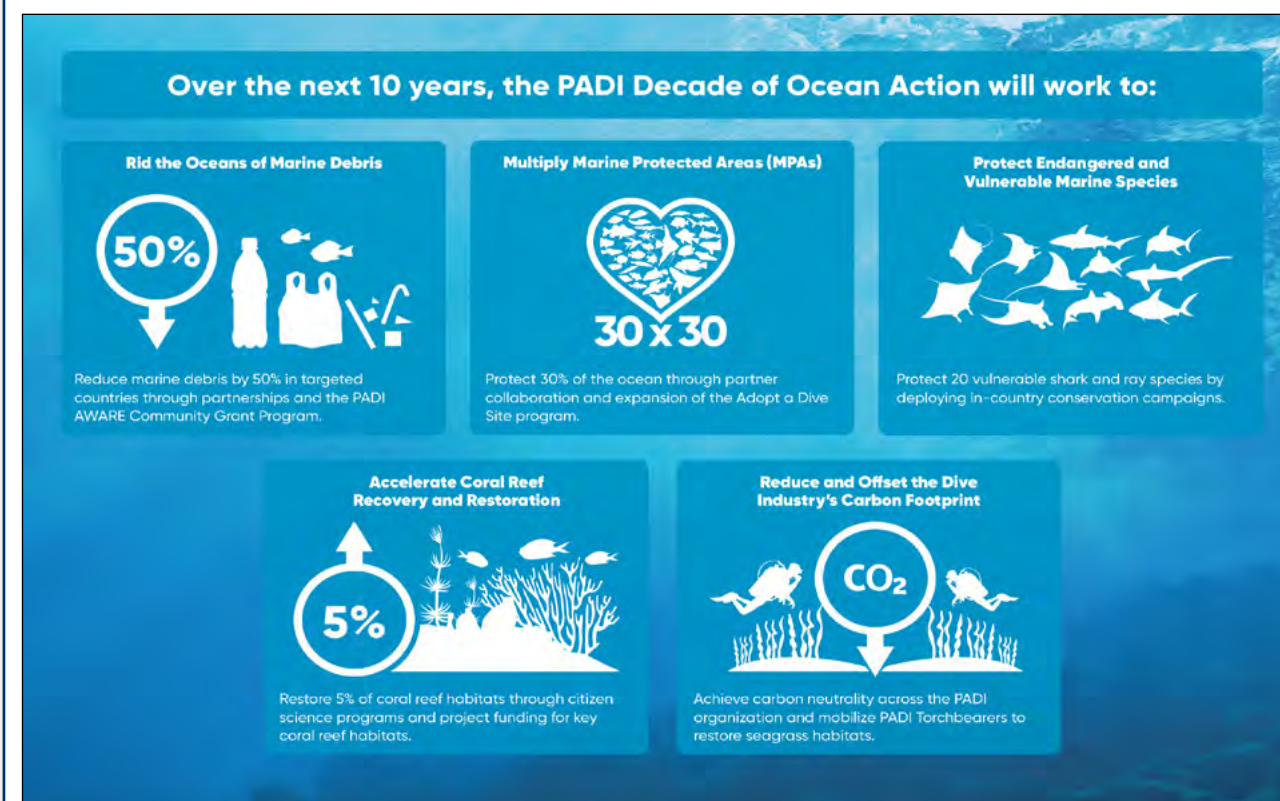


Introducing PADI AWARE Foundation – A Non-Profit Public Charity to Achieve Critical Ocean Conservation Goals

By Katie Thompson, Global Director, Corporate Social Responsibility, PADI Worldwide

PADI is committed to investing in our ocean, the future of the dive industry and in our dive communities around the world. In the face of rising threats to our ocean and the growing role divers can play in helping to restore a balanced ocean ecosystem, a natural and critical next step in the PADI organization's Save the Ocean mission is the formation of the PADI AWARE Foundation.

For more than 30 years, PADI and Project AWARE have worked together to address precarious issues affecting ocean health, building a truly unique voice for the protection of the underwater world. Transformed from an environmental ethic created by PADI® in 1989, to a separate nonprofit organization with global reach and a passionate community dedicated to protecting our ocean, Project AWARE has stayed at the forefront of emerging ocean issues and pressing global challenges.



Building on the legacy of the alliance, the evolved partnership will leverage PADI's strengthened focus on conservation and global reach to achieve shared goals and objectives aimed at harnessing the power of the global PADI dive community to restore balance between humanity and the ocean. By putting the weight of the PADI brand behind the charity, PADI and PADI AWARE Foundation can set ambitious critical ocean conservation goals on an unprecedented scale.


On Earth Day, PADI and PADI AWARE Foundation announced their joint blueprint for ocean conservation, commencing the PADI Decade of Ocean Action, joining the United Nations' universal call for a Decade of Action to achieve the Sustainable Development Goals (SDGs), specifically supporting the implementation of SDG14 – Life Below Water. By connecting the PADI conservation blueprint to the international agenda for sustainability, we take meaningful actions that help advance the global agenda designed to create a healthier people and planet.

To achieve the goals established under the blueprint, the PADI organization will engage and activate the growing global community of PADI Torchbearers to provide human resources that participate broadly and locally in ocean-saving initiatives.


As one of its first projects and an important part of working collaboratively with local communities, PADI AWARE Foundation will launch a Community Grant Program. Saving the ocean requires all of us acting together in thousands of ways on a local level, so these grants will provide much-needed financial resources to PADI Dive Centers and Resorts for local ocean-protection initiatives and activities.

"The Community Grant Program exemplifies our commitment to the Foundation's new mission to drive local action for global ocean conservation," says Danna Moore, Global Director of PADI AWARE Foundation. "This program will be the cornerstone of all of our work, directly addressing local community needs while advancing global policy goals tied to the United Nations Decade of Action," says Moore.


To further elevate and support PADI's Mission, PADI AWARE Foundation will expand and build new conservation programs, activist movements, public outreach, courses and partnerships that address key ocean threats such as marine debris, climate change, marine habitat loss and vulnerable species protection across the planet.

Learn more at padi.com/aware 


THREE DECADES OF OCEAN CONSERVATION




Helped secure international protection policies for over two-dozen vulnerable shark and ray species



Contribute groundbreaking science on marine debris removing 2 million pieces of trash from the ocean



Created the largest and quickest growing underwater citizen science movement on the planet



Helped educate millions of divers on the environmental threats facing the ocean and how to take action

MARES DUAL ADJ 62X – INTRODUCING THE DIVE INDUSTRY'S SMALLEST FIRST STAGE

Our latest regulator model, the Dual Adj 62X, includes the smallest, most compact first stage ever released by Mares, making it the perfect traveling diver's companion!

The 62X first stage comes in at a mere 63mm in height and weighs only 464g (DIN). This small-but-mighty first stage is 10% smaller and lighter than its 52X predecessor and has 30% less volume. It may be compact, but it still boasts all of Mares' innovative features, such as Auto Sealing Technology (AST) which protects against water entering the first stage. However, we didn't stop there...

The core parts of the 62X were re-designed to generate an even better seal, making it excellent for cold water diving. The addition of the optional Twin Balanced Piston (TBP) makes this one of the highest performing regulators in cold water.

Specific technical innovations of this first stage's internal workings include a new poppet seat that is now sharper with a smaller cone radius and decreased angle to define the sealing surface better.

The lightweight Dual Adj second stage offers smooth, easy breathing at all depths. Enhanced with pneumatically assisted design (P.A.D) and the unique, Mares patented Vortex Assisted Design (VAD), it is second to none for ease of air delivery. The newly designed adjustable breathing knob helps divers enjoy a customized breathing experience, even when wearing thick gloves.

The Dual Adj 62X goes above and beyond all performance tests and will impress even the most seasoned diver. It exceeds performance standards at 200m and uses proven technology at 400m. A regulator which provides high-performance at a competitive price, with all the features needed by today's demanding divers! 



Beqa - Fiji

The ultimate shark diver's dream.

“I hope that you are looking forward to meeting some of my girls. Don't let their size impress you, because my girls have a healthy appetite. The way to a woman's heart is through her stomach”, jokes Brandon Paige, the owner of Aqua-Trek. He's referring to the sharks which frequent Beqa Lagoon and with whom he has become very familiar over the years.



Aqua Trek Beqa is a Padi diving centre on the grounds of the Club Oceanus Resort in Pacific Harbor, Viti Levu, Fiji's largest island. Arriving at Nadi International Airport you will be greeted by local musicians performing traditional Fijian music helping to lift your travel grogginess so that you can endure another two-hour trip to Pacific Harbor.

The landscape on the way is beautiful and the southern coast of Viti Levu is exceptionally green, covered with dense, lush rain forest. Aqua-Trek is located only a quarter of a mile away from Beqa Lagoon, and shark diving is offered on Saturdays, Mondays, Wednesdays and Thursdays to prevent overfeeding. Sharks are apparently pretty religious animals because on Sunday, none of the operators offer shark diving and allow the sharks their day of rest.

Undoubtedly there is a special link between the Fijians and sharks. Fiji is the home of Dakuwaqa, the ancient shark god, protector of the reefs of Fiji. Although there seem to be slightly different versions of the legend, they

all sound like stories that could happen today. It boils down to the fact that Dakuwaqa wanted to take full control over all the reefs of Fiji. His first step towards "reef-domination" was to challenge a god that guarded the reefs around Suva, one of Fiji's islands.

The fight was so brutal and forceful that it created high waves that struck the coast, causing flooding and loss of life of the local population. He boasted about his achievement to Masilaca, who decided to teach him a lesson. Masilaca talks about the gods guarding the island of Kaduva who are so strong that they would probably be too much for Dakuwaqa to handle.

Blinded by arrogance Dakuwaqa rushes towards the island to show his dominance, only to discover that the god guarding the island is an octopus. Dakuwaqa attacked the octopus, but he soon found that he had met his match. The octopus coiled its tentacles around Dakuwaqa and nearly choked him to death. Dakuwaqa begged for mercy and promised the octopus that if his



life was spared he would never harm anybody from Fiji. Dakuwaqa has kept his promise ever since, and the people of Fiji have no fear of sharks when they go fishing or swimming.

Since the shark diving in Beqa is the real deal; no cage, no body armour, no chain-mail suit, and with the legend of Dakuwaqa in mind, it was good to know that nearly all our guides were from Fiji. Following the axiom "Better safe than sorry" we decided to stay close to them. "Would you mind paying attention?" It's eight o'clock in the morning and we just completed the customary drop-dead form.

The usual safety briefing follows. And yet, there is something different. It takes a while before we can put our fingers on it. The piercing smell of the bait coming from the feeding containers drifts around the boat making this a dive that fully engages all of the senses.

A truly 4-dimensional experience. Joining us was Brandon Paige, who started the idea of using fish scraps

from local factories to attract sharks to the lagoon. By doing so, he created one of the major tourist attractions in Fiji allowing anyone to get up close and personal with these magical animals. This close interaction can also allow scientists to study the many different species of shark encountered in ways previously not possible.

The dive plan is straightforward. Boats are moored to different buoys which are interconnected by a maze of other lines underwater. The descent is easy: follow the dive guide by holding on to the shotlines.

The predicted slight current is not so "slight" as "slight can be" and keeping our camera in one hand, we pull ourselves forward and down using the shotlines to a depth of about 20m. We have arrived at the Bistro! We are carefully directed in a semi-circle behind a low wall constructed of rock rubble.

This tiny wall separates us from a wheelie bin, just like the one you have at home, hanging in mid water. Huge



horse mackerel and trevallies are swimming around, but for the first 5 minutes not that much happens. The bottom is barren, devoid of any coral. One could even call the scenery boring. Is this where all the action is supposed to take place? Then Bull sharks, about three meters in length, appear swimming around us; their stocky build is impressive.

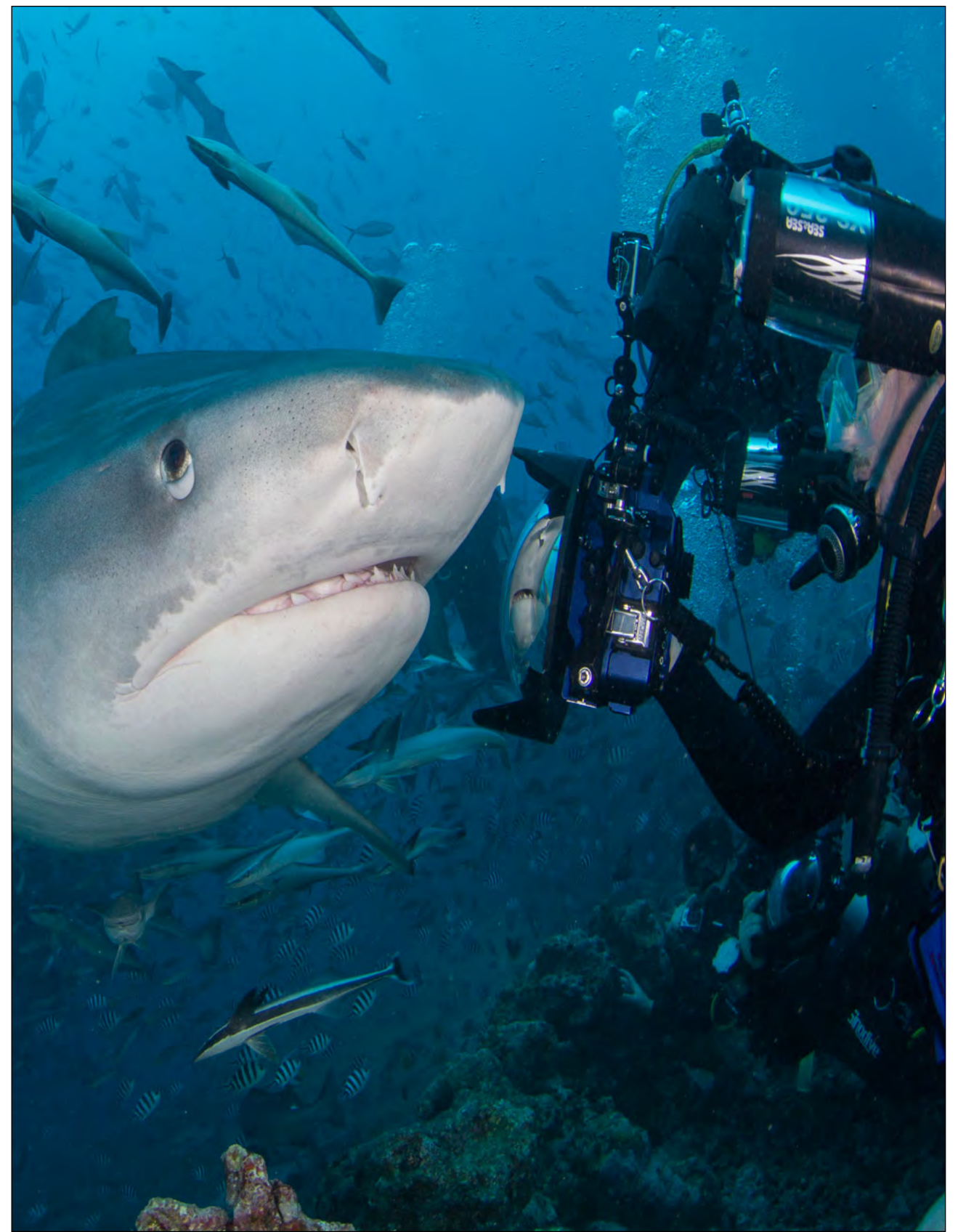
Their characteristic massive stout heads with wide girth just radiate sheer force and their disproportionately tiny soulless black eyes add to their character. There is nothing delicate or refined about bull sharks. Because the "girls" do never go hungry here, as evidenced by their "chubby" shape. Tawny Nurse sharks roam around the bottom like puppy dogs as they try to sneak in for a snack. In the background we see silvertips and gray reef sharks.

A single sicklefin lemon shark jostled other sharks to get a good position. They all seem to know what is about to happen. The feeder gives us an

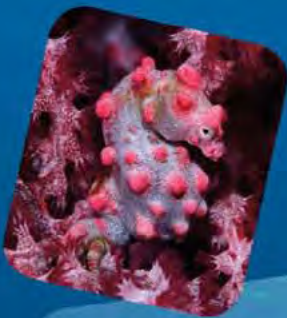
OK signal and he starts shaking the garbage bin. It appears to transform the bin into a vacuum cleaner because all fish are sucked towards it. In an instant the serenity has changed into chaos. A tornado of fish swirls around the bin. We can't even see the feeder anymore, he is simply surrounded by Paddletail snappers, Bohar snappers, Giant trevally, and all kinds of little fish. They are noisy and chaotic.

This scene is action-packed; initial fear is now replaced by adrenaline. It is difficult to portray the amount of action that the feeding has triggered. Thus, getting a clean photograph in this setting proves to be a bit more of a challenge than it was only a few moments before. Although the sharks are all around, they're mainly surrounded by huge schools of sergeant majors and other reef fish. Sometimes it's even difficult to see the sharks.

The sharks come in close, but they are always surrounded by small fish hoping to pick up some scraps of food. The bull



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sharks were organized and went straight to the point, but the tawny sharks seemed to come in from all possible directions, trying to suck their prey into their small mouths. The silver tip sharks stayed in the background, waiting for an opportunity to pounce, but when they decided to feed they were extremely fast paced. Get in, take food, and get out. Even a large moray eel managed to get his slice of the pie.

Our dive-guides would allow us to get as close to the shark-feeder as possible, while protecting us with a pole, held out towards a shark if it got too close. However, there were plenty of opportunities to get some close-focus, wide angle shots revealing the beautiful color and texture of the shark's skin.

Time flies when you are having fun and all too soon we have to leave the Bistro and go back to the "kids play ground". Here, Black-tip, White-tip and gray reef sharks wait there for any left-overs that float their way.

The current had picked up even more and during our safety stop we felt our bodies moving into a horizontal position, much like a flag in a 50km/h wind. Camera in one hand while firmly gripping the rope with our other hand, this was not the typical textbook example of a relaxed safety stop.

Once on the surface, we confirmed the head count: 7 different shark species were noted. Grey reef, white tip, black tip, silver tip, lemon shark, bull shark, and nurse shark all present in one single dive! Can you believe that?

The surface interval was spent listening to Brandon's Bega Lagoon veteran stories. He pioneered shark diving in the 1980s, recognizing the large amount of sharks in the area from the beginning; but it took several years to develop a safe way of introducing the average diver to the sharks.

Since 1999 Aqua-Trek has been working closely with the Fijian Government and



the traditional owners of the reefs to protect the sharks by having the reefs and the surrounding area declared Marine Protected Areas. In exchange, a fee of 20 Fijian dollars per diver goes directly towards the local villagers.

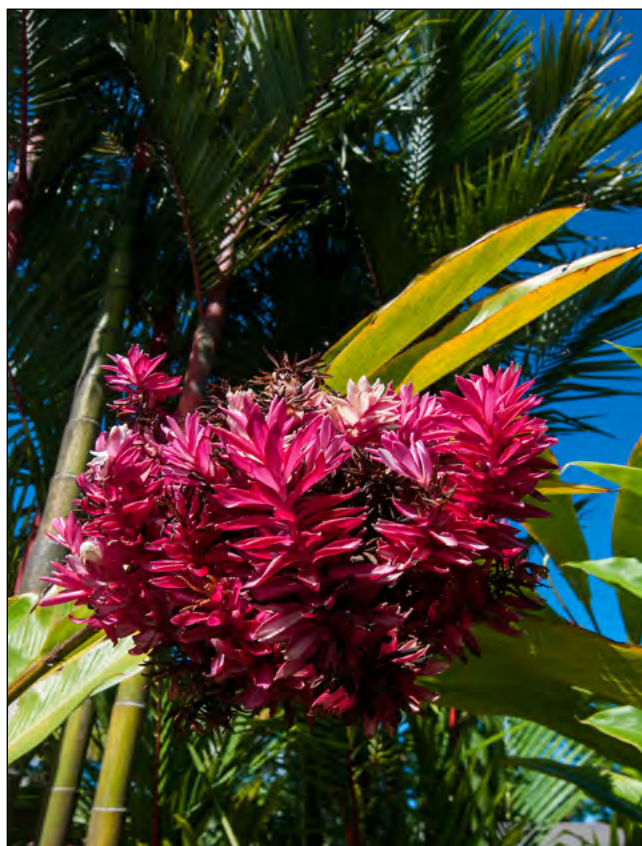
In this way the villagers have a vested interest in keeping the shark population healthy and protecting the reefs. Brandon explained that it is not only people who benefit from this deal. Biologists have come to the conclusion that the female sharks in Fijian waters are less prone to eating their offspring due to a healthy supply of food.

Furthermore, the females produce more pups per litter. On top of that it has been shown that the sharks don't stay at the same spot all their life but instead still migrate. Needless to say that Brandon also hopes to contribute to a positive image for the sharks and reverse the "Jaws effect".

Jona, one of the shark feeders, dons his chainmail while I remind him in a jesting manner about the pact that the sharks have with the locals of Fiji. Jona counters that the pact is with the sharks but that the other fish are not part of the deal. He shows me plenty of small bite wounds from jacks and giant trevallies. Jona explains that the feeding happens in two stages. A wheelie bin is hanging at 8m depth; this is the mid-water feeding site.

His role is to start the smaller fish in a feeding frenzy. That signals dinner time for the sharks. They have tried without it, hoping that the sound of the boat's engine would be sufficient. Unfortunately, only a few sharks came to check it out.

It also shows that the normal instinct of the sharks, triggered by the sound of the fish feeding frenzy, is still the best way to attract these beautiful sharks. Once on site, the sharks head down to the bottom feeding site. With a big smile, Jona says "It's lonely on the top". Sometimes you are in the middle of a cloud of fish, a tiger shark above you,



and several bull sharks besides and underneath you. "The ultimate way to teach you humility".

The second dive started very much in the same way but dramatically changed with the arrival of silvertip sharks. One of the most beautiful of all sharks, these guys are quick and determined feeders.

We had to keep them in our sight at all times, as they whizzed above and around us, showing their shimmering, iridescent silvery skin. As we watched the silvertip show, the bull sharks took their opportunity to move in. They were coming very, very close; with enough confidence to bump our camera domeports. Now, you really appreciate their size.

If that wasn't enough excitement, we now heard our dive guides frantically tapping their tanks and pointing towards the blue. A massive 4m tiger shark now moves in to steal the show. The big

female, a regular known affectionately as Survivor, made several passes.

Apparently she graces her presence to divers only every other week. During our dive briefing, it was noted that she had been around just a few days before, so we were told not to have high hopes. Clearly, Lady Luck was shining down on us. Survivor's dominance was clearly apparent: even the bull sharks moved to the background. It's no surprise, considering her size; this lady is the superlative degree of huge- the size of a mini submarine. Survivor was in a playful mood.

She paraded in front of our cameras and occasionally enjoyed using the divers as bowling pins. Some of her passes were just a few centimetres over our heads clearly showing her impressive striped flank. She would slowly swim straight up to the feeder and open her colossal mouth, allowing him to drop in the food: just like a hamburger at McDonalds!



TECH DIVING

A tight squeeze



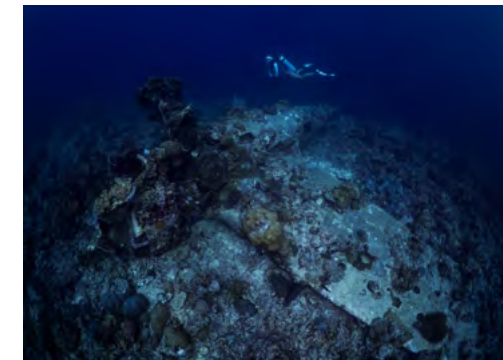
At one point in time Survivor decided it was time to play a bit with the paparazzi and their blazing cameras and she affectionately pinned down Theresa to the bottom. What a way to end a dive!

The subject of shark feeding is controversial and a topic of heated debate. Our shark diving experience in Fiji convinced us that it can be a great tool in shark conservation when done responsibly. We witnessed first-hand the positive impact the shark diving industry has on the local economy, people and marine system. The Beqa shark encounter helped establish Fiji's Shark Reef Marine Reserve.

On a more personal note: this particular dive impressed me beyond my greatest expectations. It was a shark diver's ultimate fantasy.

Sharks often evoke fear, but dives like this show that this fear is not justified. Dives like this dispel the myth that sharks are mindless and dangerous killing machines. They have distinct personalities, as we evidenced by their deliberate and curious interactions with the divers. This is a show not to be missed! 🐡





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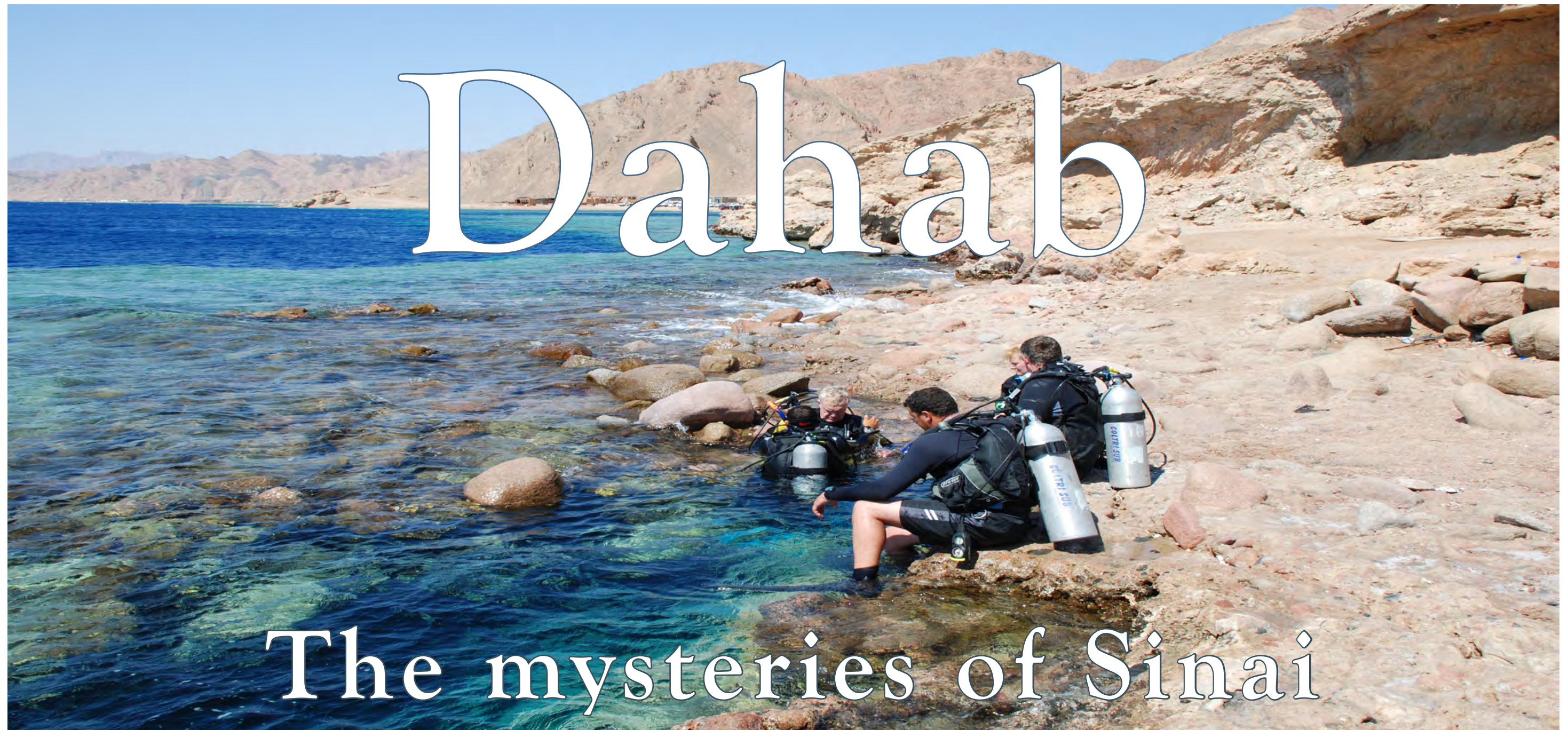
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The mysteries of Sinai



Dive the World

Dahab

By: Johan Boshoff

The Sinai is a mysterious and a special place where Moses and the Israelites wandered the vast and barren prison that is Sinai for 40 years. Long after the Ten Commandments were written, Bedouins adapted their lives to the harsh desert conditions of the Sinai and lived in the high mountains surrounded by desert.

Today there are only a few Bedouins that live their lives as their forefathers did, raising livestock and hunting. Today the Bedouins of the Sinai are going through dramatic changes and are forced to rapidly adapt to a new way of life due to the impact of tourism.

But changing their lifestyle opens up a whole new world for us to dive and explore the mysterious and an amazing place know Dahab.

The Sinai Peninsula, or Sinai, is a triangular peninsula that lies between

the Mediterranean Sea to the north and the Red Sea to the south – a portion is located in Israel and Jordan but mostly in Egypt.

The area is covered with thousands of mountains that are surrounded by deserts. There are times in Sinai when one feels as if the history of the entire world can be read in its stones, from the fossilised reefs of Ras Mohammed to the copper mines of El Maghara.

And lying on the east coast of the Sinai Peninsula on the Gulf of Aqaba, overlooking the Red Sea and Saudi Arabia, you will find the town of Dahab. It is one of the oldest and most famous dive areas in the Red Sea, offering some of the most exciting and spectacular diving in Sinai. And as Jacques Cousteau once said, "The Red Sea is a corridor of marvels – the happiest hours of my diving experience have been spent there."



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Dahab, which means 'gold' in Arabic, was named after its golden beaches. The Bedouins in the Dahab area are called Muzeina and are an important part of the region. Bedouins have changed with the times and now many live in and around Dahab, one of the reasons for the area's unique, relaxed atmosphere.

With bars, restaurants and cafes lining the beach of the bay, everywhere in the town offers relaxed seating, 'Bedouin-style', on cushions and low sofas, enabling you to enjoy the unique hospitality overlooking the sea and smoking a shesha (the traditional Arabic water pipe).

Divers from all over the globe come to explore Dahab's famous dive sites with its relaxing way of diving and the easy access to the amazing Red Sea underwater world. Mirage Divers offer a variety of trips to different locations – from traveling by Jeep to the dive sites or to secret locations which can only be reached by boat or by a camel safari, the traditional transport of the desert.

The Mirage Village Hotel in Dahab is situated on the northern side of Dahab's beach in the centre of the diving Mecca and has easy access to the southern, middle beaches, as well as one of the best known dive sites in the world – the Blue Hole.

A variety of dive sites can be found in the area with every site a different topography and a different adventure. Yet the best of all is the relaxing between the dives.

Imagine lying down in a Bedouin tent, sipping on the coldest and most refreshing juice in the world and waiting for the next dive which is only metres away.

There are approximately 17 dive sites around Dahab that will suit all levels

of divers, from beginners to advanced/technical divers.

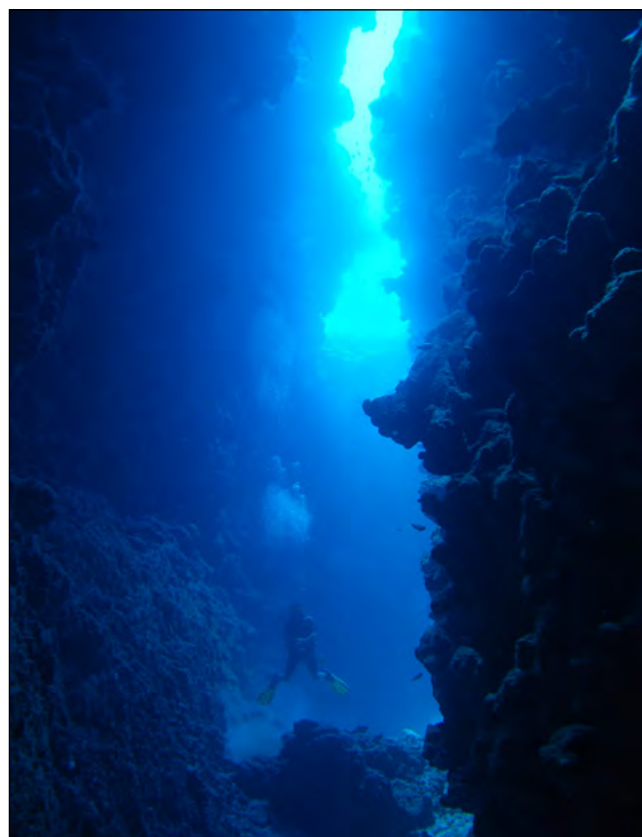
Unfortunately we had a limited time in Dahab, and if I only knew how good the sites would be, I would have stayed much longer. I had the opportunity to dive four of their top sites, but after what I saw, I will definitely go back to explore the rest of the wonderful sites.

The dive spots El Bells-Blue Hole

This dive is about 12km north of Dahab and it is easy to access with jeeps.

This dive spot has attractions for everyone who loves the sea, from scuba divers and tech divers to snorkellers and free diving records breakers.

Put simply, it is a perfect multilevel dive from the Bells to the Blue Hole itself (about 250m along a fantastic, lively wall). You start with a two minute walk past the Blue Hole until you get to the



Dive the World

Dahab

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Bells, a small U-shape form right on the shore, and under the surface is a chimney going down to 32m.

It is enriched with the sun's rays, giving the dive an excellent start. At about 24m there is a small arch where you can go through to the crystal blue waters of the Red Sea, one of the best parts of the dive.

By this time you are flying – the wall is on your right, lit up by the sun, and there is a sharp drop off underneath you to unknown depths. At the end of the dive you will find a lively, stunning saddle off the Blue Hole at 7m.

The view once you pass it is a breathtaking – a huge circle of clear, blue water which is 110m deep and 150m wide. Here you will understand why this a dive site that is renowned

the world over.

The Canyon

Just south of the Blue Hole, almost 10km from Dahab, was the best site that I dived in the area.

The access to the site is easy over the shingle beach in front of where you park your jeeps, and then cross the reef platform for a few metres before reaching the lagoon that then opens to the sea.

It is 3m deep and on its westernmost point there is a saddle serving as an exit point to the sea. Through the saddle you will pass by a very lively coral garden 5 to 10m deep (you will also admire it on your way back), then head straight to the Canyon with a small reef wall on your left. The Canyon is a deep fissure that opens



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in a north-south direction and descends to a depth of 54m.

Before entering the canyon you will find a place known as the 'fish bowl' which is home to the most species of fish that I have ever seen on a reef like this. (The 'fish bowl' is closed these days from penetration for environmental reasons).

After seeing this you will enter through its largest point and ascend down to a sandy bottom 28 to 30m deep, admiring the surreal light effects caused by the sun's rays.

The Islands

The Islands is a spot very rich in reef developments and marine life. It is situated a mere five minutes from Mirage Divers at the beginning of the



sand strip of the lagoon of Dahab. The entrance of the island is marked by a white sign and it is best to dive here during high tide as it is a wide reef platform.

During low tide you can see a small island of reef a bit further on, hence the name. You start the dive through a series of three hard coral pools of 7-10m with sandy bottoms surrounded by soft and hard corals.

You start your adventure by swimming in a north-easterly direction, passing threesallow reef saddles which separate the pools from each other.

The reef is endless, and afterwards you will get enjoyably lost admiring the rich fauna of the place. Yellowtail barracuda, groupers, lionfish, Napoleon wrasse and much more are abundant at the Islands.

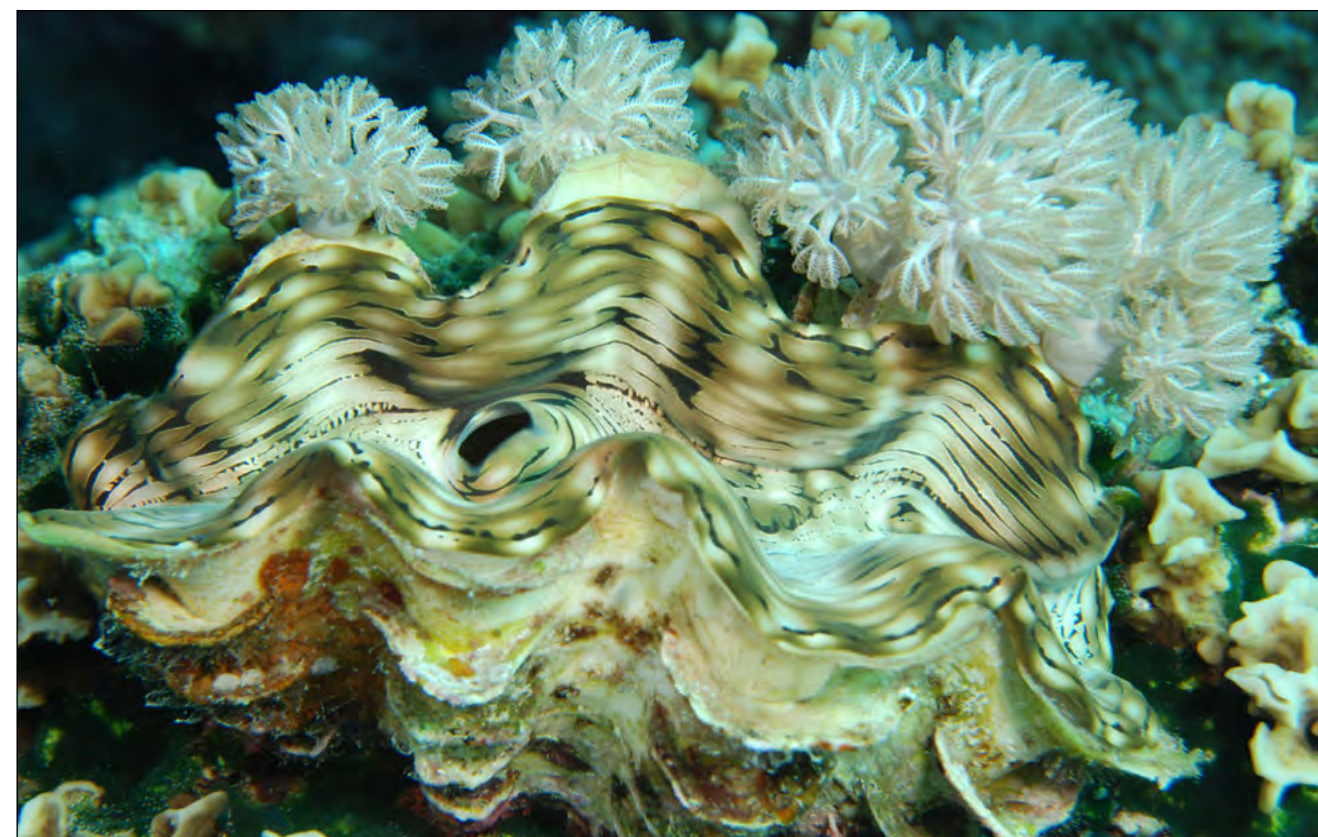
The Caves

The Caves is located about 15km from Dahab and it is the last dive you can do on the south side before the roads stop (divers then have to take a camel to Gabr El Bint).

The Caves has a special entry as you jump into the water to find a big sandy slope starting at 3m and going down to 30m. Facing the blue, you have a cave both on your right and your left, both of which are worth a visit. You can also do a drift dive for about 120m towards the south where you exit from a natural pool which opens to the reef.

Stone and Scorpionfish are abundant here, nudibranchs are everywhere along the hard corals and keep an eye on the sandy bottom for Pipefish and Sea moths. As the caverns are also full of fan corals and fish, this is a site that everyone has to dive.

There is plenty of accommodation choices in and around Dahab, but certainly one that stands out is the



Hilton Hotel with its private beach. It is one of the most luxurious accommodation options in the area with fresh water swimming pools all around the resort and beautiful rooms from Guest Rooms to Deluxe Rooms with sea views or swimming pool views. As the Hilton Hotels are known all over the world for their good service and food, you can't go wrong.


The hotel has everything that you will need, including shops and any entertainment that you could possibly dream of. The main restaurant, the Mirage Restaurant, allows you to start your day with the famous Hilton breakfast or end the day with a themed dinner buffet.

Locals call Dahab 'the Happy Village'

and they have hit the nail on the head – it is one of the nicest destinations that I ever visited and it is definitely the most relaxing. In the area there are lots of activities to do if you decide not to dive, including snorkeling, desert safaris, horse riding, quad biking, windsurfing, rock climbing, belly dancing and the famous Mount Sinai and the 'Path of Moses'.

Travelling to Dahab

When traveling to any country it is always advisable that your transport is organised through a reputable company.

In Egypt we used a travel agency which specialised in transportation services, from renting your own car to pick-ups from any destination. 



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Oxygen Toxicity for Divers

Oxygen toxicity is a serious condition, and many divers struggle to understand it. We know that monitoring oxygen exposure is important to our safety, but we may not know what happens if we exceed safe exposure limits or why those limits even exist. Following training guidelines and planning dives conservatively can reduce risk somewhat, but learning how oxygen toxicity affects us and how we can prevent it can mean the difference between a fun dive and one that ends in injury.

What Is Oxygen Toxicity?

Exposure to high levels of oxygen can have many harmful effects on the body, but there are two primary types of oxygen toxicity that affect divers.

The first is pulmonary oxygen toxicity, which typically occurs with prolonged exposure to elevated levels of oxygen. It often begins with inflammation of the upper airways that then spreads to the lungs. Manifestations of pulmonary oxygen toxicity include alveolar collapse and damage, decline in lung function and acute respiratory distress syndrome (ARDS). Pulmonary oxygen toxicity is

mainly of concern to divers doing very long technical dives (in the range of six to 12 hours) and divers doing repetitive technical dives over a period of days or weeks.

Central nervous system (CNS) oxygen toxicity affects the complex of tissues that makes up the brain and spinal cord and can be even more detrimental to divers because it can arise suddenly, causing vital tissue damage and possibly seizures.

CNS oxygen toxicity can occur with very short exposures to significantly elevated

partial pressures of oxygen and can potentially affect any diver breathing a compressed gas mixture containing oxygen. Divers should be able to calculate and willing to respect both the depth and time limits for their chosen breathing gas. Extreme exposures to oxygen can have various other effects including hyperoxia-induced myopia (nearsightedness), but these are less common and rarely life-threatening.

Understanding how molecular oxygen disrupts the CNS requires an understanding of how the human nervous system works. The nervous system comprises two opposing sides: the sympathetic and parasympathetic nervous systems. Every organ in the body is controlled by one or often both of these sides. Simply put, the sympathetic nervous system activates the body and prepares it for action, while the parasympathetic nervous system calms it down to promote recovery.

Within the central nervous system, nitric oxide (NO) is excreted by various cells and used to suppress the activity of the sympathetic nervous system and widen blood vessels. Normally, a fraction of these NO molecules bind with reactive oxygen species (ROS), which are byproducts of cell metabolism. The unbound NO molecules are left available to control the sympathetic nervous system.

When the body is exposed to too high a partial pressure of oxygen, all NO molecules can be bound to ROS, leaving none to suppress the sympathetic nervous system. When sympathetic activity becomes extreme, the body releases enormous quantities of adrenaline and noradrenaline in a reaction called an adrenergic storm.

This storm can cause seizures, narrowing of the arteries and a spiking of blood pressure and heart rate that may lead to capillary damage,

compromised gas exchange, cell or tissue death. Seizures that occur underwater are often fatal.

Who Is at Risk?

Rebreather divers, nitrox divers and divers breathing gases with high percentages of oxygen are at risk for oxygen toxicity.

Exceeding depth limits, failing to respond to a rebreather failure or making an inappropriate gas switch can quickly put a diver at risk of CNS oxygen toxicity. Mitigating these risks is not difficult, but it takes some preparation. Understanding — and complying with — training guidelines for switching gases at depth, calculating breathing-gas maximum operating depths (MODs) and responding to rebreather failures can effectively minimise your risk of an incident.

Accurately planning for your oxygen exposure with both your primary dive plan and a backup is critical. It is also important to practice responding to rebreather or technical equipment failures and develop a safe bailout procedure.

In the event of an injury requiring recompression, additional exposure to oxygen is guaranteed with treatment; it's not a bad idea to account for the additional oxygen exposure of recompression treatment.

Fortunately, CNS oxygen toxicity in a hyperbaric chamber is not particularly dangerous since there is no risk of drowning.

Operating within limits and employing appropriate risk mitigation are two of the best ways to protect yourself from oxygen toxicity. Understanding the causes and effects of oxygen toxicity can help keep you safe.

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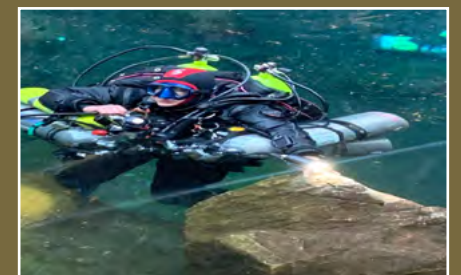
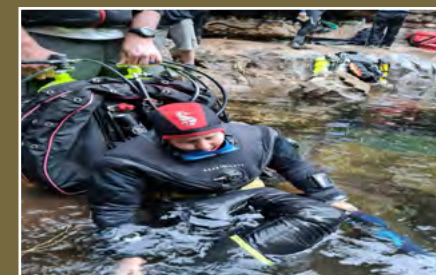
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World Record Dive

Karen van den Oever womens scuba diving depth world record attempt.



Exploration

World Record Dive

Breaking this record has been a personal goal of mine since about 2004/2005, when Verna van Schaik and Nuno Gomes respectively broke the female and male depth records.

Being a member of the Wits University Underwater Club, I was fortunate to have had the opportunity to know both these individuals and their achievements were a large inspiration for the attempt on this record.

I started technical diving under the tutelage of Nuno Gomes at Wits Underwater Club and continued to develop as a technical diver.

After leaving Wits Underwater Club, myself and my now husband, started

our own dive club/school, called "Somewhere Out There Diving", where I have been involved as a part owner ever since.

The idea of "Somewhere Out There Diving", was to create a business entity, for the purposes of out of the ordinary, expedition type diving trips. This married up well with the many technical diving expeditions we have undertaken, as part of the lead-up to the world record attempt.

I started SCUBA diving in 2001, proceeded into the realm of technical diving in 2006, where I gradually and progressively built up experience and skills to the extent where I was sufficiently competent and comfortable



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Exploration

World Record Dive

to attempt the women's SCUBA diving depth record. During the days preceding the record dive attempt, the dive team's first task was to place a shot line in the cave.

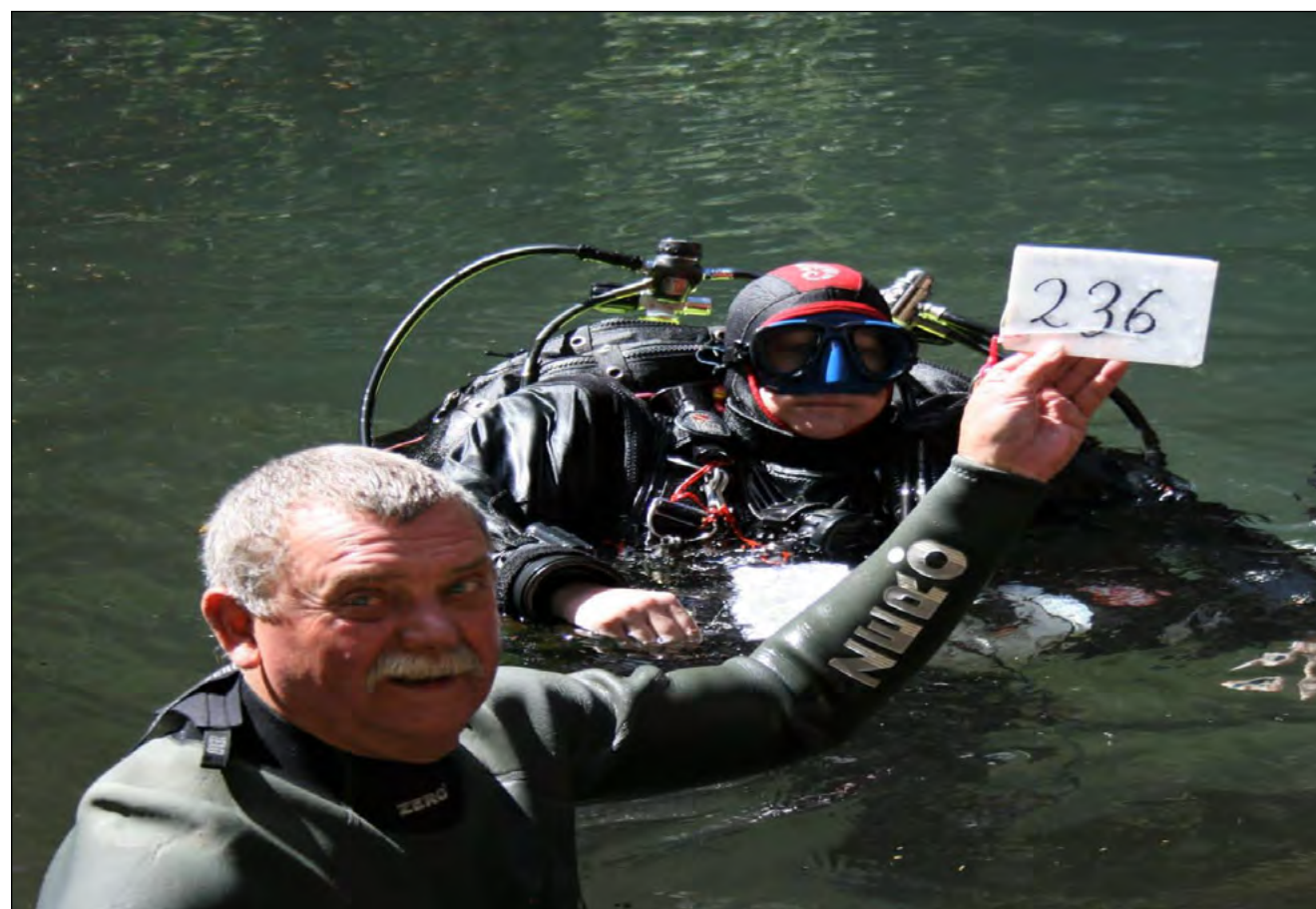
Over a number of dives and to different depths, staged cylinders with a variety of gas mixtures needed for the record attempt dive, were then placed on the shot line. Once complete, the record line, with the necessary depth tags, was put in place and no further diving was allowed before the main record attempt dive.

The women's depth record attempt dive took place on the 26th of March 2021 in the Boesmangat Cave, Mount Carmel Safaris Farm, Northern Cape, South Africa. The whole time had a nice early start, waking up at 4am the morning of

the record attempt. This would allow the dive to start as early as possible. This meant that the team descended down the hole to the waters' edge whilst a beautiful dawn was breaking over the rim of the hole. The intention was to start the dive at 6.30am, but eventually got underway with my descent at 7.10am that morning with Peter Reid, the deepest support diver, following a few minutes later.

I descended to 30m where I switched gases and then continued to 110m where I again switched gases as well as dropped off stage cylinders. After switching gases at 110m, I finned over from the stage line to the record line and began my descent to 236m.

I passed the first 2 tags (226m and 231m) and upon reaching the 236m tag,



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I hesitated briefly. Considering whether I should continue to the next tag but decided to stop at the 3rd tag of 236m. I clipped the 236m tag off the line and onto a d-ring attached to my dive computer strap for this purpose and then proceeded to inflate my wings to start my ascent.

However, when I inflated my wings, nothing happened. I did not ascend. Something was not right. I then started to fin, trying to assist my ascent by swimming upwards and by pulling myself up on the record line.

I started to slowly ascend. However, exerting oneself at that depth is not a good idea. Due to the density of the gas, developing hypercapnia will occur very quickly with exertion. The exertion of finning and pulling myself up on the line did cause me to become out-of-breath and I struggled to catch my breath again.

To make matters worse, whilst pulling

myself up along the line, I got snagged on the 226m tag which I had to unclip and drop to free myself. When I reached 211m, I briefly stopped and it was then that I felt the tug on one of my legs.

It was at this point that I realised my legs and fins had become tangled in, what looked like a polypropylene line that was attached to something at the bottom of the cave.

I managed to shake off the line and was then able to continue my ascent.

My first support diver, Peter Reid, was waiting at 200m and he later reported that he clearly saw me take the tag at 236m but did not see the loose polypropylene line until I had ascended back to 211m. We concluded that I must have become tangled in the line at 236m and then dragged it up with me to 211m.

Once back at 110m, I finned over to





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TANK	NST
240	42

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the stage shot line, where I picked up additional cylinders and did my first gas switch for the ascent. I also met 2 additional support divers at 110m (Don Hauman and Michael Partridge).

The support divers monitored my gas switch, to ensure no signs of isobaric counter diffusion developed and took some of the empty stage cylinders from me.

At 60m I met another 2 support divers (Jakob Iten and Atish Dayal). First to meet me at 60m was Jakob to monitor my gas switch and check on the status of all the deep divers before making his way back to the surface to deliver the first news back to the surface team. He was followed by Atish, who would stay with me for the next 1.5hrs or so until I reached 30m.

At 30m I again met up with 2 support divers, first Joseph Birtles to monitor my gas switch and check on the status of all the divers in the water before ascending to provide an update to the surface team. Followed by Francois Bain who would stay with me for the next hour or so until I reached 18m.

From 30m upwards, the support divers started bringing me warm fluids to keep me hydrated. At this point I realised that one of my dive computers, had



started malfunctioning and started giving inaccurate depth readings – at just shallower than 30m it was reading a depth of 1.7m and then started jumping to different depths and then back to the correct depth and then back to 1.7m.

I made the decision to disregard the information from the malfunctioning dive computer and completed the dive using my other dive computer.

At 18m I met additional support divers, first Hani Williams and then later Louis Henrico.

The total dive time was 7hrs and 18mins of which the first 15 minutes was spent on descent to the maximum achieved depth. Upon surfacing, I handed the 236m depth tag to an impartial witness, Theo van Eeden.

This was also witnessed by both Frank Slabbert and Kevin Dolphin of CMAS South Africa who were also impartial witnesses. 🏴‍☠️



Photo School

Film Sensitivity

In part four of "Expose it right underwater" we are going to look at 'film' sensitivity and the different methods that can be employed to get the correct exposure. Up until now we have discussed light, aperture, shutter speed and touched on depth-of-field. In this article, I am going to throw everything together and attempt to create a practical illustration of what you can go out there and practice.

When we talk about film sensitivity, we

use the term ISO. On many cameras today, this can be set either manually or automatically and it has a variety of different values.

If we have an ISO of 100 then it is considered to have a slow sensitivity but a good colour saturation. An ISO of 100 can be used for close-up or macro photography, especially if you are making use of strobes. On the other hand, if we use an ISO of 1600, then we talk about a

fast sensitivity but the result is very noisy. This 'noise' is seen in the form of small dots all over the photograph – in the old days we used to talk about the 'grain' on the photographs.

This ISO is very useful in low light conditions and deeper water. Changing the ISO of the camera allows you to have more freedom in changing the shutter speed or the aperture depending on the light conditions you are faced with.

There are many ways of setting up the camera to achieve the correct exposure but not all of them are going to be very practical underwater. For example, a tripod underwater is not very realistic. You also don't have infinite distance and unlimited light to work with, so we need to improvise.


There are some basic settings which will help you to get off the ground and grasp a better understanding of this concept.

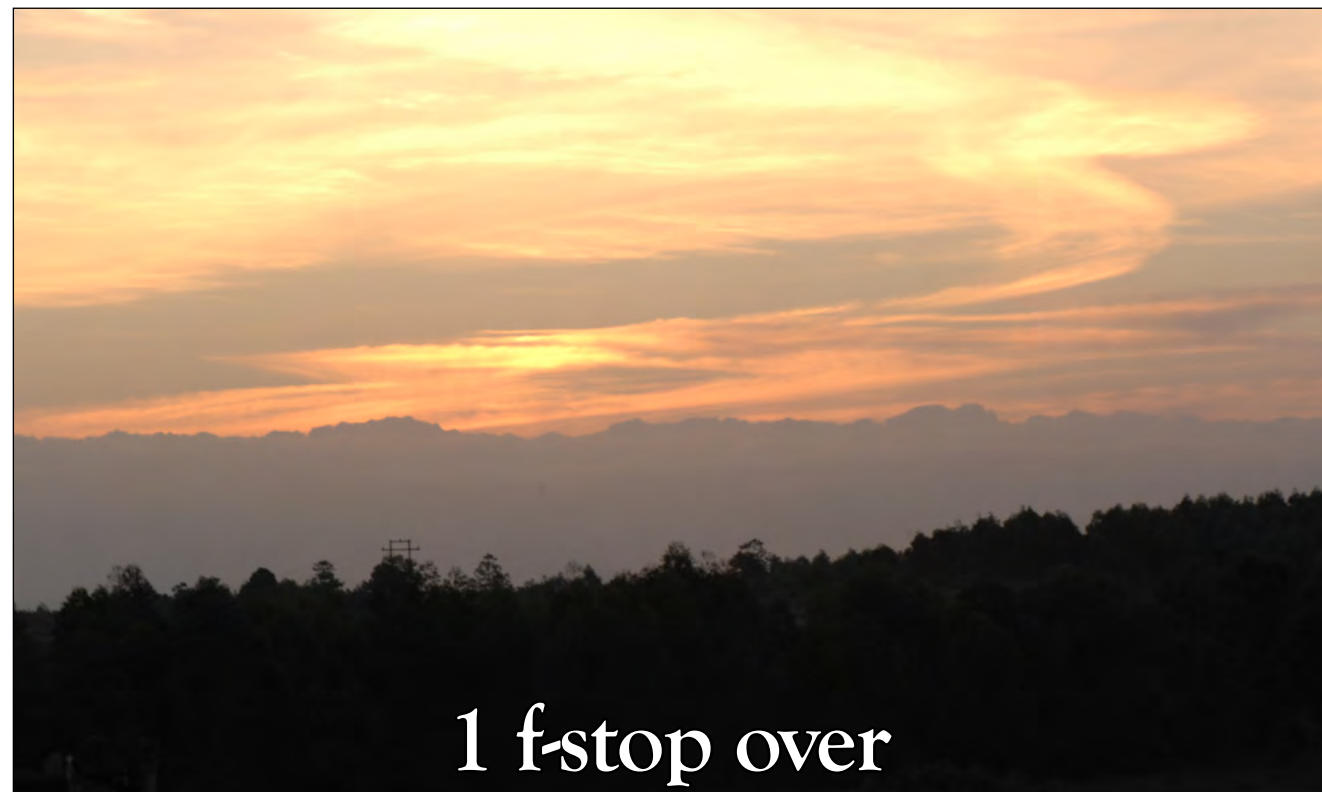
If you can set your camera to some sort of pre-setting then this could reduce the task loading that you are faced with – you are probably not going to remember

everything in the beginning anyway. A good start would be to set your camera to aperture priority. This means that the camera will automatically set the required shutter speed to obtain the correct exposure. Another way to ensure good exposure is by 'bracketing'. This is traditionally taking three photographs with one f-stop below and one f-stop above the recommended exposure.

For example, if f8 is the selected aperture, then take two extra photographs using aperture settings of f5.6 and f11 – this will allow you to choose the best result.

The same can be done when shutter speed has been set as a priority. Never just settle for one photograph, always take multiple photographs with varying settings to try and get the correct exposure.

As you become more experienced and gain more confidence with your camera, you will be able to start using the full manual option and really become creative with lighting. Remember that photography is after all just painting with light. In the next issue I will be discussing strobes and strobe placement. 



1 f-stop over



1 f-stop under

Nicolas Remy & Lena Remy

A journey through the Lens



Through the Lens

Photographer

Nicolas Remy and Lena Remy are a couple of underwater photographers and rebreather divers based in Sydney, they have spent a cumulated 1700 hours taking photos underwater. Their work has been awarded in local and international photo competitions, and Nicolas has written articles on their behalf for a diversity of print and web magazines.

This includes underwater photography equipment reviews as well as trip reports. Nicolas now teaches a diversity of underwater photography subjects, from beginner to expert level, both as one-to-one coaching and group classes, either online or in person.

Visit their website for more details: www.nicolaslenaremy.com
They got certified PADI open water divers in Bass Point (NSW) back in 2007, and immediately fell in love with the underwater world.

Their first 100 dives were spent without a camera, but Nicolas had already devoured two underwater photography course books before knowing what a BCD was! It took them time to save for their first underwater housing, giving them time to get comfortable underwater beforehand.

In 2008 they returned to their home country (France) and settled down there for about 10 years. From their home in Antibes (southern France), they would dive the Mediterranean Sea every week, plus the occasional overseas trip, which saw them visit the UK, Azores, Spain, Turkey, Egypt, Sudan, South Africa, Indonesia and Malaysia.

Nicolas and Lena were constantly looking for ways to have more "quality time" underwater, where they could properly focus on photography. PADI AOW certifications weren't enough to go self-guided in Southern France's dive boats, so they continued their education with CMAS 3* (and PADI Rescue Diver, for overseas trips) in 2011. By 2012, their search for better marine life approach and longer dives

saw them both moving to rebreathers.

After trying a few units, they have settled on rEvo rebreathers and haven't looked back since. Nicolas has spent 800 hours on his rEvo and Lena 500 hours on hers.


They dive their rebreathers for even the shallowest jetty dive, as they can see advantages at all depths, and like to keep their muscle memory sharp, which is best achieved with using the same gear on and on.

Nowadays their standard dive is 2h30 to 3h30 long, with their bottom time rather limited by surface commitments than anything else.

In terms of underwater photo equipment, their first camera was a Nikon D300 in an Ikelite housing, and a pair of DS160 strobes, with electric sync cords. They subsequently moved to a Nikon D7000 in a Hugyfot housing, and its ergonomic hands strap, and also adopted a 45 degrees viewfinder, the best thing since sliced bread! When becoming parents, they had they decided to downsize and had an Olympus OM-D EM-5 in a Nauticam housing for 2 years.

The compact size certainly was advantageous, but they missed Nikon DSLRs lighting-fast autofocus, and moved back to a Nikon D300s, and then bought one of the very first Nikon D500, and France's first Nauticam housing for this amazing camera.

They also own a Nikon D810 in another Nauticam housing, and strobes from Inon, Retra and Backscatter. For creative pursuits, they also use a number snoots, colour filters, and DIY bits and pieces to trigger strobes off-camera.

Practicing underwater photography as a couple means they have twice the enjoyment, two minds bouncing ideas around the next shot or best technique for a given subject, and also a second pair of eyes to review photos and offer (constructive!) criticism to keep improving their imagery. 

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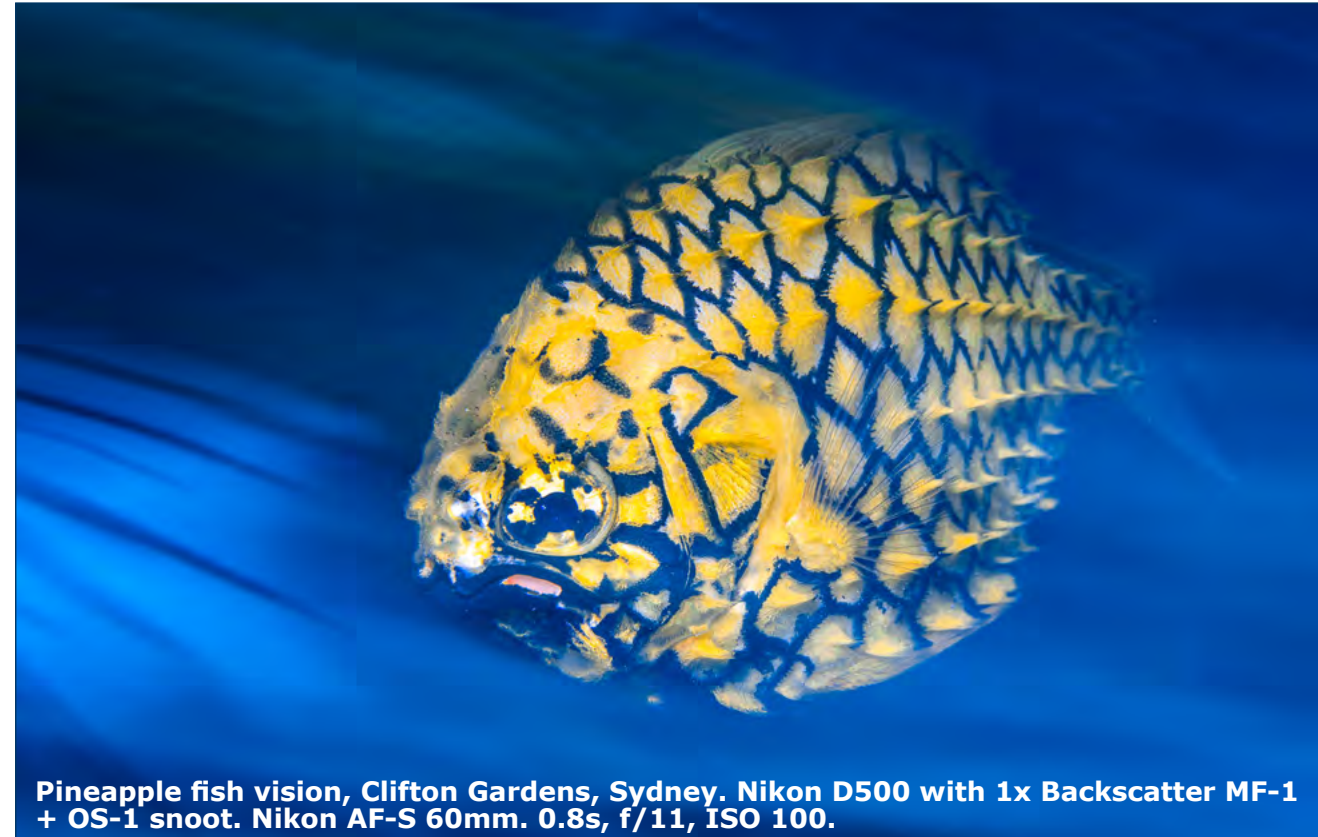
Lena and the dragon, Blue Fish Point, Sydney. Nikon D500 with 2x Retra Flash Pro, Tokina 10-17mm. 1/100s, f/9, ISO 200.



Intimidation attempt by male sealion, Montague Island, NSW. Nikon D500 with 2x Inon Z240, Tokina 10-17mm, 1/250s, f/8, ISO 200.



Male Mediterranean groupers fighting during breeding season, Cap Roux, France. Nikon D500 with 2x Inon Z240, Tokina 10-17mm, 1/80s, f/7.1, ISO 400



Pineapple fish vision, Clifton Gardens, Sydney. Nikon D500 with 1x Backscatter MF-1 + OS-1 snoot. Nikon AF-S 60mm. 0.8s, f/11, ISO 100.



The Three Fiat trucks, Umbria Wreck, Sudan. Nikon D500 with 1x Z240 on camera and 1x 240 off-camera. Tokina 10-17mm, 1/40s, f/7.1, ISO 400.



Port-jackson sharks mating, Cabbage Tree Bay, Sydney. Nikon D500 with 2x Retra Flash Pro, Tokina 10-17mm. 1/60s, f/9, ISO 200.

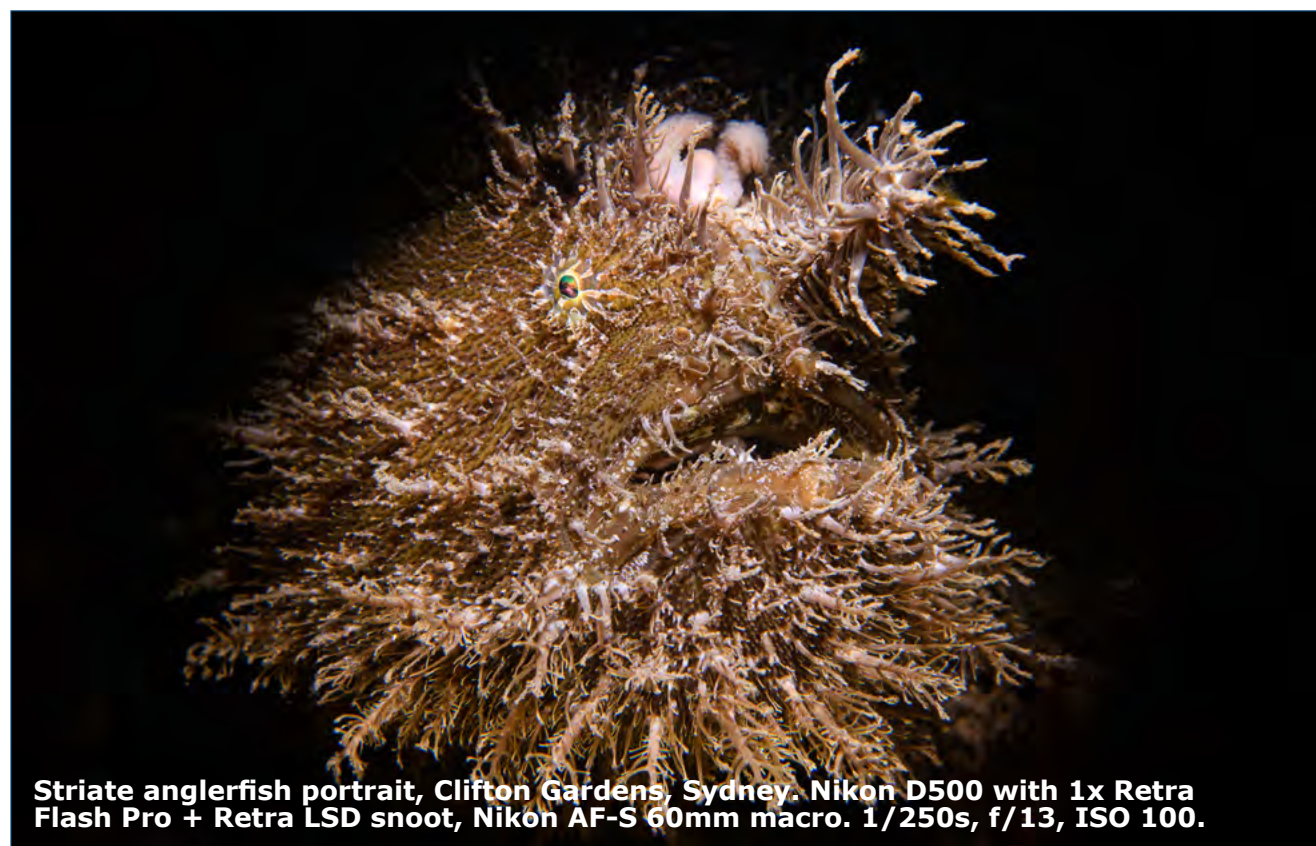
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Striate anglerfish portrait, Clifton Gardens, Sydney. Nikon D500 with 1x Retra Flash Pro + Retra LSD snoot, Nikon AF-S 60mm macro. 1/250s, f/13, ISO 100.



Undercover wobbegong, South West Rocks, Australia. Nikon D500 with 2x Inon Z240, Tokina 10-17mm. 1/160s, f/9, ISO 200.

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Two male cuttlefish (above) competing for one female, Clifton Gardens, Sydney. Nikon D500 with 2x Inon Z240, Tokina 10-17mm. 1/40s, f/10, ISO 200.



Seadragons courtship dance, Kurnell, Sydney. Nikon D500 with 2x Retra Flash Pro, Tokina 10-17mm. 1/25s, f/8, ISO 100.



Potbelly seahorse portrait, Kurnell, Sydney. Nikon D500 with 2x Retra Flash Pro. Nikon 105mm AF-S macro, 1/200s, f/5.6, ISO 160.

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Shark Encounters & Bites

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In order to appreciate the strength of a shark's bite, use the human bite as a reference. A gray reef shark exerts about 70 kg of bite force, twice the amount of pressure exerted by a human bite.

The severity of a shark bite is not only determined by the jaw strength, but by the destructive force of the teeth, too. Essentially, the bottom teeth serve as forks and the top row does the cutting. The tiger shark has the meanest set of teeth with the most destructive tissue-shearing force as it not only cuts but saws – all in one single biting action. To make matters worse, some of the larger sharks have an approach speed of up to 25 mph. Once the victim is taken, it can continue at about 15 mph, compounding the shearing force of the bite.

Having recovered from a bite on his left calf by a bull shark in the

Bahamas, Dr Erich Ritter embarked on an intensive forensic study on the damaging effect of the bites of different 'high-risk' sharks.

As chief scientist of the Global Shark Attack File, he compiled a team of plastics and polymer technologists, orthopedic surgeons, medical technicians and cinematic special-effects technicians. He wanted to analyze and recreate almost every aspect of a shark bite, including the angle and speed of approach and the bite force required to sever muscle and/or bone.

The flesh-ripping strength of a bull shark is 150 kg, and after finding out what force was required to rip his calf muscle right off, Dr Ritter was curious about the bite force required to bite through bone.

The lucky survivor of such an



Giant Stride

Shark Encounters & Bites

unfortunate experience was Heather Boswell. Working as a chef on a medium-size cruise vessel in the Pacific near Easter Island, she felt like a quick swim in the sea during a break and was attacked by a large great white.

Soon after it had grabbed hold of her, she felt a 'pop' as her femur was snapped. This was shown by Dr Ritter and his team to require a bite force of 400kg. Heather is the only known person to date to survive a bite as severe as this (see Table 1 below).

Body areas bitten

The following percentages represent the body areas bitten in attacks recorded since the mid-50s:

- Head – 2.4%
- Shoulders – 3.8%
- Hands & Fingers – 20%
- Arms – 23%
- Chest – 5.5%
- Abdomen and waist – 11.2%
- Genitals – 2.2%
- Back – 3.7%
- Buttocks – 3.7%
- Thighs – 33%
- Calves and knees – 40%
- Feet and toes – 23%

Note that all these percentages collectively exceed 100% due to multiple injuries occurring in the same attack e.g. trauma to the hands when fighting off the shark, or due to arms or hands being near the leg during the bite.

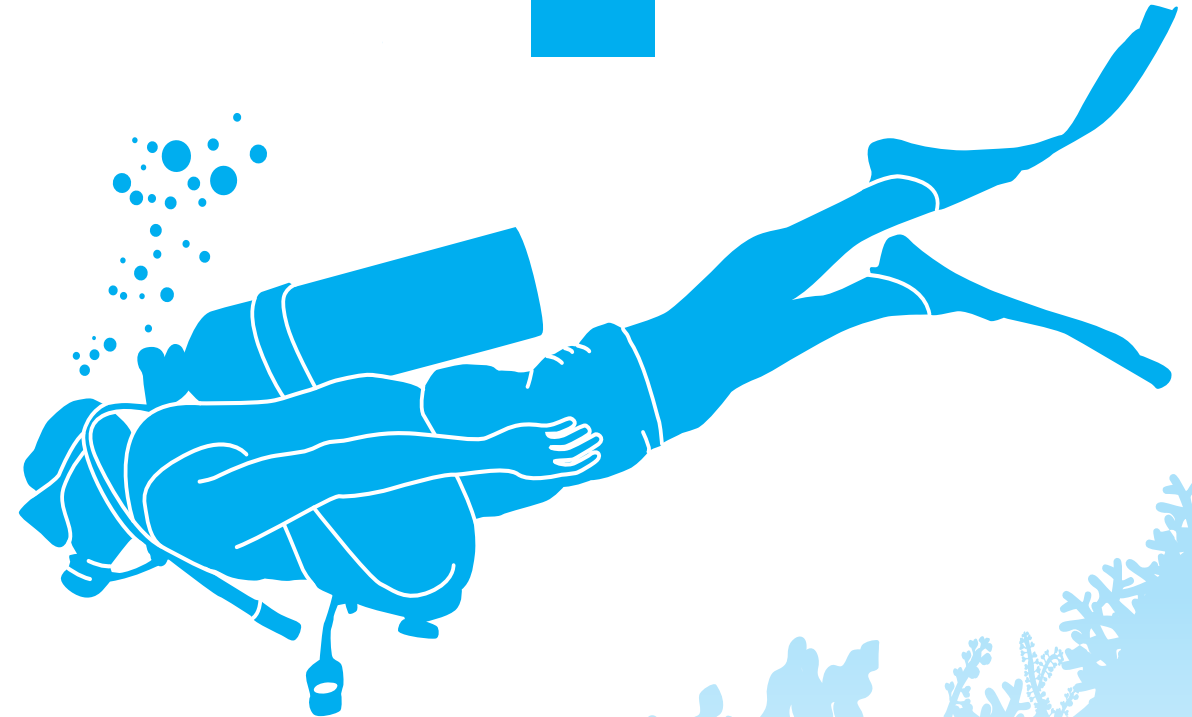


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The Severity of a Bite

Different sharks have varying degrees of destructive capability with their jaws or teeth. Your survivability depends on the damage done to various vital anatomical parts. The following is a simple guide in Tabel 1.

For immediate first-aid care priorities, the ABCD guide is best:

A – Ensure the patient’s AIRWAY is open to facilitate easy breathing.

B – Ensure that the patient is

with direct pressure and elevation alone will not be sufficient.

Although not taught in first aid, in these severe cases a tourniquet should be used from the start, because concern for loss of life is greater than concern for loss of the limb.

Remember, exsanguination (bleeding to death) ‘hurts more’ than an elective amputation.

Shock

The following guide is simple and useful for effective shock management in table 2.

Table 1:		
GRADE	ANATOMICAL PARTS AFFECTED	POSSIBLE OUTCOME
Grade 1	Both femoral arteries One femoral and one posterior tibial artery One femoral artery in upper 1/3 of thigh	Fatal
Grade 2	One femoral artery in lower 2/3 of thigh One brachial artery Two posterior tibial arteries Abdominal wounds with (major) internal organ involvement	Should survive if proper treatment is available
Grade 3	One posterior tibial artery Superficial limb wounds with no arteries cut Superficial trunk injuries	Always live if properly treated

Management of a shark bite victim

A severe shark attack is a nightmare to deal with, specifically when hypovolemic shock is compounded by multi-organ failure.

If large blood vessels are damaged, the body’s compensatory mechanism is severely challenged. Treatment priorities are illustrated by the 4 S’s:

SAFETY – Safety of the rescuer(s) and then the patient.

SEND – Summon advanced life-support assistance.

STABILISE – Stabilise the patient before rushing off to hospital on the back of a bakkie. Your primary focus is to stop bleeding and manage shock.

SCOOT – Getting the patient to a suitable medical facility and a surgeon as soon as possible, combined with the intravenous administration of whole blood products, will result in the best prognosis.

BREATHING and if not, provide assisted ventilations. If available, supplemental oxygen is invaluable to sustain metabolic oxygen requirements, especially if some blood is lost.

C – Monitor blood CIRCULATION and pulse rates in both unconscious and conscious patients. The radial pulse (wrist) is a crude but handy guide to indicate what you are dealing with. If the patient is conscious, but has no palpable radial pulse, shock is pretty well established and you need to hurry to arrange intravenous access promptly. If no radial pulse is present, you need to monitor the carotid pulse as your default assessment site. Please note, if there is injury to the arm or leg it is wise to check the ‘distal’ pulse – opposite the wound on either the wrist or top of foot, whichever is relevant.

D – DISABILITIES caused by complete or partial amputations do sometimes occur. To stop bleeding in such cases

Table 2:			
SIGNS & SYMPTOMS	COMPENSATING	DE-COMPENSATING	IRREVERSIBLE
Sweating	Excessively	Moderately	None
Pale skin / mucous membranes	Normal to slightly pale	Pale	Very pale
Breathing	Increased	Very fast	Slow and shallow
Pulse	Increased	Very fast	Slow and weak
Speech	Normal	Normal - confused	Confused - minimal
Level of consciousness	Normal	Normal - confused	Confused - coma
Capillary refill - nailbeds	1-2 secs	More than 2 secs	Pale – no refill
Blood pressure	Normal	Slightly lower than normal	Very low



Table 3:		
PRIORITY	CODE	STATUS
1	RED	Almost dead, dying or will die if no specialized interventions are started asap
2	YELLOW	Not critical but could become critical with time if no proper care is given soon
3	GREEN	Walking wounded (to prevent complacency with this category, please note that secondary infection from a shark bite could deteriorate to increase morbidity)

The Most Dangerous Sharks
The following list is a statistical illustration of the species that most often attack humans, starting from the least at No 1 to the most attacks by a specimen on humans at No 10. To indicate the risk of a specific shark's bite, a risk-index is used and is illustrated below in Table 3 as Priority 1, 2 or 3. With sharks, this risk-index is based on the size of the bite, size of the shark, teeth configuration, jaw anatomy, jaw strength and general tenacity. The list is provided by the International Shark Attack File from the Florida Museum of Natural History.

Note that the order of listing below has no relationship with the risk-index, but is in fact closely related to the Grades of injury in Table 1. It just illustrates statistically the ten shark species that do attack humans most often, in no

particular order.

What are the odds of a shark bite? Statistics reveal that in over 3 500 attacks recorded since 1580, only a fraction of all shark attacks were on scuba divers. Of all those attacks, 85% were close to shore, with about two-thirds in less than five feet of water. For the average person who enjoys the sea often, the risk of a shark attack is calculated to be less than that of being struck by lightning, winning the lotto or a coconut falling on your head.

Given the ratio of fatalities, about one million sharks are killed for every one of us. Remember, too, that not all fatal shark attacks were due to fatal wounds inflicted. If a body washes up ashore with only Grade 3 injuries and no witness reports, it is nearly impossible for a pathologist to determine if the

Table 4			
FREQ	TYPE OF SHARK	RISK-INDEX	COMMENTS
1	Lemon shark (<i>Negaprion brevirostris</i>)	P2/3	
2	Blue shark (<i>Prionace glauca</i>)	P2/3	
3	Hammerhead (<i>Sphyrna mokarran</i>)	P2/3	
4	Ragged tooth (<i>Eugomphodus Taurus</i>)	P2/3	
5	Grey reef (<i>Carcharhinus amblyrhynchos</i>)	P2/3	Most attacks on scuba divers
6	Shortfin Mako (<i>Isurus oxyrinchus</i>)	P2/3	
7	Oceanic whitetip (<i>Charcharhinus longimanus</i>)	P2/3	
8	Tiger (<i>Galeocerdo cuvier</i>)	P1/2	
9	Great white (<i>Charcharodon carcharias</i>)	P1/2	
10	Bull / Zambezi shark (<i>Charcharhinus leucas</i>)	P2/3	

cause of death was due to drowning or due to shock. Several shark bite victims could have survived the bite had they got to land or a boat sooner. The injury inflicted by the bite was debilitating and thus not allowing self-rescue in water – therefore the victim DROWNS.

Prevention
I suppose the best form of prevention would be not to get into the sea at all, but that is not practical advice. So, here are a few pointers to follow, specifically aimed at scuba divers and spear-fishermen:

- Scuba divers:**
- Do not turn your back on any risky species of shark.
 - Move away from any feeding frenzy or 'aromatic zone' i.e. injured fish, chumming.
 - When on the surface, keep an eye below you, not just on where you are going.
 - In an impending attack, punch the shark's nose, or, if it is a big shark, turn your back for the cylinder to take most of the blow (if your BC pops, ditch your weights).

- Spearo's:**
- Apply what you can of the abovementioned.
 - Watch your back all the time, especially with fish on your line.
 - Remember you are a fellow predator and in direct competition to a risky shark. Larger sharks have delicate hierarchies and you do not even feature in the pecking order.
 - If you have a fish and a risky shark approaches you, remember what they teach you in an anti-hijacking course – hand it over! No trophy fish is worth the risk of injury.

Tips gleaned from the accounts of survivors include to keep calm if you are taken, to go for the eyes and gills, and to do what you can to minimize

tissue shearing. Above all, never give up!

Closing thoughts
As the adage goes, 'We can't protect what we don't understand'. This is even more applicable with sharks. Unfortunately, the emotive aspect skews the objectivity of public opinion. To compound matters further, many people are not interested in the plight of the sharks. We as scuba divers are probably the least likely victims, yet our influence as ambassadors of the oceans and its creatures is quite profound and more objective. We therefore need to exercise our influence as much as we can. I hope this article has given you a better insight to the 'real' risks to divers and therefore better perspective of your place in the shark's world – not them in ours.

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The Mysterious Pygmy Pipehorse

I squinted, and edged closer to what looked like a branch of algae or a cluster of hydrozoans. My eye had to adjust to the minute scale of it. More interestingly, my brain had to re-train itself – default setting for me or indeed for a would-be predator is that amongst this scrubby red algae are just more algae, maybe a bryozoan or a hydroid, but certainly not a fish pretending to be a sprig of algae. Yet yes, there it was! Tiny. Unfathomably cute. Exquisitely ornate. I was looking at Sydney's Pygmy Pipehorse, one of the smallest and most cryptic fishes on Earth.

Giant Stride

Pygmy Pipehorse

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Yet yes, there it was! Tiny. Unfathomably cute. Exquisitely ornate. I was looking at Sydney's Pygmy Pipehorse, one of the smallest and most cryptic fishes on Earth.

It's about the size of a whip goby (the largest individual measured so far was 5.5cm long), but it looks like a seahorse that Pixar has made as cute as it could possibly manage, then almost straightened it out and finished it off by decorating it with feathers.

It's one part Pygmy Seahorse, one part Ghost Pipefish and one part red algae.

As over a series of dives I saw another, and then another, I can see that this feathery camouflage varies greatly between individuals; some are almost naked, while others have algae growing on their skin, and ornate feathered antennae and chin barbels.

I've had help getting my eye in and learning some of what little is known about these beautiful little creatures. Andrew Trevor-Jones of the Australian Museum is one of the few authorities on Sydney's Pygmy Pipehorse.

Andrew recognises individuals in the area around Sydney where he frequently dives, by the intricate patterns on their faces, in particular pink markings on their snouts.

He also thinks that it is possible that they change colour during their lives.



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In 1997 a young Sydney diver, Akos Lumnitzer, brought a tiny pipehorse to the Australian Museum for identification. The fish was sent to one of the world's leading tropical fish specialists, Rudie Kuitert, in Victoria. Rudie realised that the fish was a new species, described it in 2004 and named it in honour of Akos. It now revels in the scientific name *Idiotropiscis lumnitzeri*.

Sydney's Pygmy Pipehorse is known only from New South Wales - from the Sydney area south to Jervis Bay, around rocky coastal reefs from 6 to 30 metres depth.

Two other species of *Idiotropiscis* are known from Australian waters; Helen's Pygmy Pipehorse, *I. larsonae* (north-western Western Australia, not seen since 1984) and the Southern Pygmy Pipehorse, *I. australe* (South Australia and southern Western Australia). Like their cousins the pygmy

seahorses, we're almost certainly overlooking or missing other species. No-one knows much about the life cycle of these tiniest of pipefishes. Andrew has seen the same individuals in south Sydney for up to one year so maybe they live about a year?

Their dermal algae growth is presumably linked to their habitat but then why do some pygmies have plenty of algal tassles while near neighbours almost none? They're rather easy to overlook - Is their distribution wider than we know? How many broods do they have per year?

I suspect we'll learn more rather soon, as more of us notice them, go looking for them, watch them. Like some of the nudibranchs, the newly-discovered cephalopods or their cousins the pygmy seahorses or the sea dragons, now we know about them more of us are going to be paying attention.



The legendary Boesmansgat

Bushmansgat cave, in South Africa, has long been identified as a karst system with extreme depth potential. In the early 1980s, Charles Maxwell first made dives to a depth of 60m. Later, in 1988, I made a series of dives, with Diaan Hanekom, to a maximum depth of 123m. This was followed, a few years later, in early 1993, by a dive to 153m by myself.

On a major expedition in August 1993, to the same cave, Sheck Exley made a seven and a half hour dive to touch the bottom at 263m, I dived to 177m. Predictably, Sheck's dive was far from uneventful – he experienced signs of severe High Pressure Nervous Syndrome (HPNS) at about 210m, his entire field of vision became a series of small concentric circles with black dots in their centres, distant vision deteriorated and objects began to blur. He slowed his descent and paused at about 228m in the hope of relieving the problem. At around 224m he experienced itching all over his body that soon became a stinging sensation – tremors ensued and increased in intensity until he reached the bottom at 263m.

Exley later reported: "The tremors were quite intense by the time I reached the bottom, severe enough to make operation of my inflator difficult. My entire body began trembling, gradually escalating to uncontrollable shaking by the time I landed."

On ascent, all of these symptoms disappeared by the time he reached a depth of 102m.

The 1993 expedition was not without incident – Botie Scheun lost his buddy, Eben Leyden, at a depth of 60m. Fortunately the body was recovered soon after the incident.

During the following years I, a cave diver and a civil engineer living in Johannesburg, attempted to better Exley's depth with a dive to 230m early in 1994 followed by a dive to 253m shortly thereafter in the same year.

Later, in April 1994, tragedy struck. Sheck Exley died at 276m in the Zacaton cave in Mexico. It is thought that (HPNS) was the main contributing factor to his death. Sheck and Jim Bowden were attempting to break the 300m barrier; Jim survived his dive to 281m and became the new world record holder. Independent witnesses had verified the dive and his name was placed in the Guinness Book of World Records

Two years later, in August 1996, I returned to renew the challenge. An eight-strong team of divers, including a doctor, supported the attempt. As an extra precaution, a surface decompression chamber was assembled. From earlier surveys and attempts it had become evident that an even deeper penetration was possible and on one of these bids, in 1995, Deon Dreyer, a young diver, had disappeared during a dive. In an attempt to locate his body his parents had hired a remotely operated vehicle (ROV) to search the cave's bottom. Although the body was not found, the videotapes gave the explorers a greater understanding of the nature of the cave.

In 1996, I descended a shot line that had been placed, with the aid of an air-filled drum secured against the roof at 51m, directly over the cave's deepest point. The line's final position was thus at an angle of seven degrees from the vertical to link the entry point to the deepest point. By adopting a suitable dive profile I was able to maintain an angled descent to follow the line. A chest-mounted cylinder of air took me to 70m whereupon he transferred to one of the two side mounted cylinders down to 160m. At this point I changed to four back-mounted cylinders of heli-air for the remainder of the descent.

"Suddenly and unexpectedly the bottom came into sight, with only two of my torches still working (the two Sabre Lite beams lit up the bottom clearly; the other two torch bodies had been squashed by the pressure and the terminals were not making contact) my view of the bottom and moment of glory was short and sweet. I saw a lunar type landscape of gray silt with the odd small rock sticking out, and there was some slack rope on the flat bottom. There were holes in the gray silt where the weights had gone in, as well as a small ledge which I had to get past to reach the deepest spot about 5m away horizontally.

There was only one way – I had to swim whilst taking up the slack on the rope. Since I was negatively buoyant and had no time to inflate the wings (buoyancy aids) I landed on all fours. My worst nightmare came true: a silt-out at the bottom of a very deep cave with a slack guideline while on all fours and under the influence of nitrogen narcosis and helium tremors. My first priority was to stand up without losing balance or becoming tangled in or losing the line; the quads and two side-mounts did not help. I tried to swim up but failed and became dizzy. I relaxed and inflated the wings; it took 30kg of lift to ascend 15m and get out of the mud and silt."

I had reached an averaged depth of 282.6m, a new Guinness World Record which still stands today. In assessing the significance of these Bushmansgat dives it should be remembered that this site lies at an altitude over 1 550m/5100ft. Although this has minimal influence on the difficulties of descent, when this factor is taken into account for decompression purposes the corrected depth becomes 338m with the corresponding time and logistical implications. This twelve-hour solo operation was undertaken without the use of a diving bell or saturation system.

In South Africa, towards the end of 2001, Verna van Schaik was ready to take on the women; first she did the deepest cave dive

for a woman by reaching a depth of 186m at Boesmansgat. This was not enough and on October 25, 2004, Verna went back to Boesmansgat to become the first South African woman to get her name in the Guinness Book of World Records by reaching an incredible depth of 221m.

From October 2002 to September 2003 the team (Nuno Gomes, Leszek Czarnecki, Pieter Venter, Lenne Foster-Jones, Gareth Lowndes, Hermie Britz, Craig Kahn, Theo van Eeden, Sean French, Witold Smilowski, Joseph Emmanuel, Chris Serfontein and Buks Potgieter) dived Boesmansgat deeper and deeper with each trip. Eventually, Leszek and I reached a depth of 194m; this dive became the deepest cave dive done by a Polish diver.

Late in October 2004 Dave Shaw from Australia joined forces with Don Shirley from the UK. Don had settled in South Africa near Komati Springs but now they wanted to do some deep diving in Bushmansgat to find out just how deep their rebreathers could go. Dave Shaw got down to 270m and by chance or misfortune found the body of young Deon Dreyer at the bottom – his body had been on the rubble slope for the last 10 years. He marked the spot with his reel and decided to come back the following year to recover it. The dive was the deepest dive with a rebreather, and as such it was a new World Record.

Early in 2005 Dave and Don were back with a huge team of support divers, including Verna van Schaik, the deepest diving woman in the world. The idea was for Dave to go to the bottom and recover the remains of Deon Dreyer's body, supported by Don at 220m. The other support divers would remain shallower. The dive went terribly wrong when Dave, at 21 minutes total dive time, stopped moving and breathing on the bottom. His death was attributed to suffocation (respiratory failure due to increased gas density at great depth and thus increased resistance of gas flow, both in the respiratory airways as well as the breathing circuit of his equipment).

Don tried to help his friend by going deeper, and in the process he nearly died, first when the electronics of his rebreather imploded and later when he suffered from massive decompression sickness. Don has resumed diving but has become a more conservative diver in terms of depth.

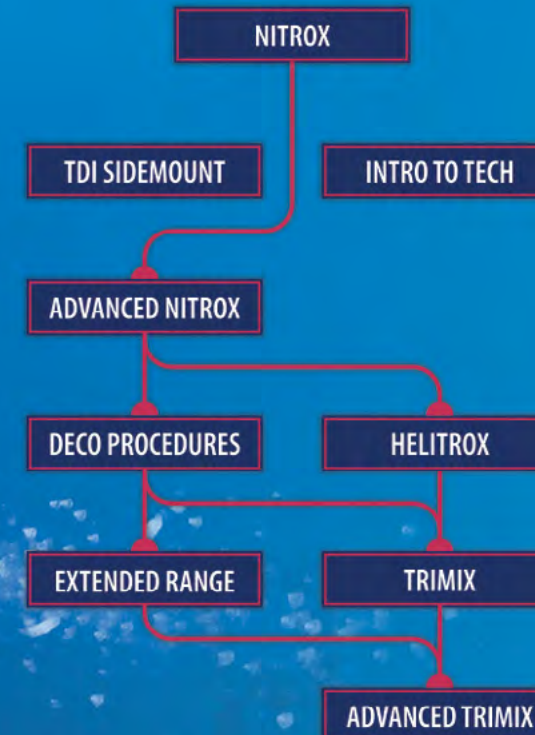
In closing, Bushmansgat is a site of extreme depth, not without its hazards. Even though divers have claimed depth world records in this cave, the cave has also claimed its fair share of diver's lives. █



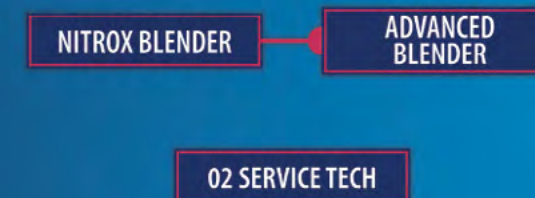
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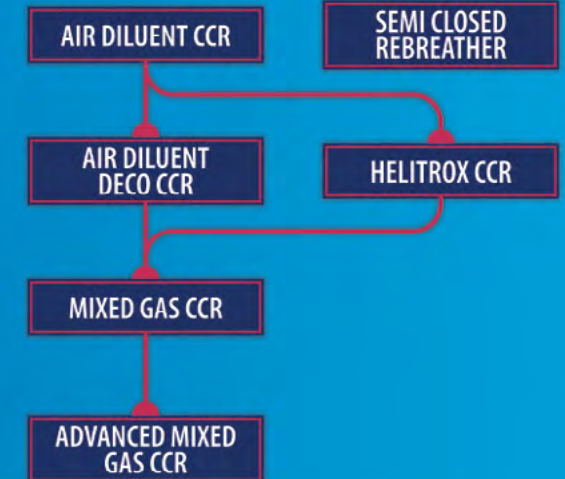
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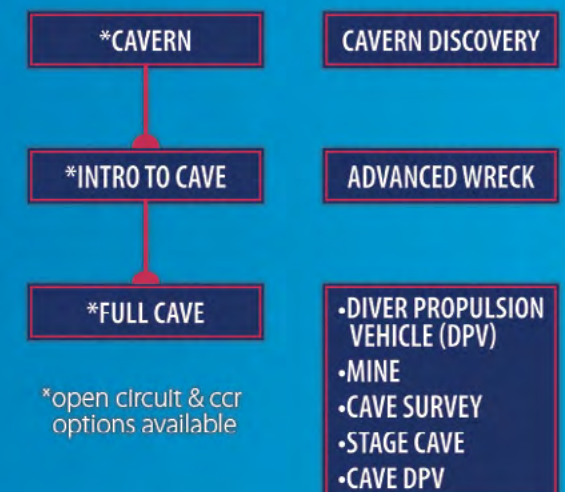
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OVERHEAD



PROFESSIONAL



Which are the Best Lights to use in Dark Conditions

Q & A

Nuno Gomes




The golden rule is to always have a minimum of three lights – one primary and two secondary ones. The primary will always be hand-held, will usually have a Goodman handle, and it will have the highest intensity and longest duration, normally about

double the dive time at least.

The two secondary lights are smaller and of less intensity and should last at least for the duration of the dive. These lights can either be strapped to the diver at a conveniently accessible place, or mounted on a helmet.

Many lights use LEDs and some use HID technology, which reduces the size of the batteries and increases the burn time considerably. They usually also have very high intensities.

I have seen three lights fail on one dive, so

most divers who do cave and wreck diving use much more than that on any one dive. The basic rule is rather be safe than sorry, so the more lights the better. Enjoy a luminous dive, and do not shine your light in your buddy's eyes! 

Barry Coleman




I have used most type of dive lights in their various forms and, with the exception of long cave lights, I have settled for a canister battery pack and light head with an umbilical cable. I find the ability to fit the canister out of the way, be it on the tank strap or

between the BCD wing and the shoulder straps, very convenient. The head can be clipped on to any part of the BCD without being in the way, and it can easily be removed when I want to use it, which is quite often. I have the Goodman handle that allows my hand to slip the light head

through the handle mounting on to the back of my hand, a very popular method with cave divers.

The light lasts about one and a half hours, while the batteries take about three hours to recharge, so I get a good day's dive and a recharge overnight. If I am planning a deep, penetration wreck dive I use the same torch and have another one as backup. The canisters do not have to be very big, because one is inside the wreck only for about 45 minutes, so burn time is well within limits. I am not a proponent of mounting torches on helmets for dives – looking your buddy in the eyes means you are restricting his ability to see. A helmet might be an option for a solo dive, though.

For cave dives, a minimum of two torches is standard. Again, the canister with cable and torch head is my choice for both primary and backup. Plus, I like to carry a small pocket-type torch. The difference with cave diving is that the battery life for both primary and backup needs to be a minimum of one and a half times longer than the expected dive time. 

Pieter Smith




For a primary light source you need a strong light that supplies enough illumination to explore or maintain direction in an environment where daylight does not feature. It is normally powered by a 12v power supply through a 20w to 50w light with a

beam of 8 to 12 degrees. The power source is strapped to a technical diver's harness or back-mounted tanks, and the light source is either on your arm or hand-held.

For a secondary light source it is best to use 3- to 4-cell C-battery diving lights that are strapped to your diving helmet. Their main function is to illuminate a diver's instruments (dive computer / compass / SPG etcetera) and his immediate

surroundings. Two such torches are normally sufficient. Note that a combination of any light sources on a diving helmet must be regarded as one light source only.

A backup light source is needed in case one or both primary and secondary light sources fail, therefore it must be easily within reach. It must also be able to give enough illumination for the diver to exit the environment successfully via the dive line or using direction markers. The backup light source must be carried in the diver's emergency triangle (shoulder to shoulder and down to the waist).


For all practical reasons, technical diving is solo diving and your own criteria therefore determine your lightning sources. 

Pieter Venter



Lights should be a personal and commonsense choice. The basic principle is three light sources. Technology has made giant leaps and the choices are endless. I use a reliable HID light with at least four hours burn time as a primary light, with two compact LED lights with 70 hours burn time mounted in pockets in my hoodie.

The LED lights are always on, provide sufficient light in case of primary light failure and make me visible to other divers. I make sure they work before I dive, so that there is no need to fiddle to find them and turn them on should the primary fail. They also illuminate what I am looking at.

The primary light battery canister is a stainless steel pipe that is attached to my back plate under my arm, out of the way but reachable if needed. A cable routed over my neck to my wrist connects the canister to the light head. The light head is hand-mounted with a Goodman handle, which allows the use of both my hands. The switch is on the light head and all of it is effective, reliable and simple. 

As we strive to survive, continue to await the reopening of the borders, international tourism returning, we'd like to take this opportunity to say thank you. Thank you to all the Sea Rovers Brethren who have helped and continue to help us in our efforts to support our crew through these difficult times.

If you wish to join our global fraternity of Sea Rovers Brethren then please consider booking your Bali Adventure today. Big discounts, no fixed arrival date required. And your deposit will go towards supporting the crew and their families. Or purchase an open-ended activity voucher, credit towards your next dive holiday. For every \$50 purchased we'll throw in another \$10 in credit.

Again from The Captain, Commodore and Crew, we thank you.



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10 Ways to Increase Your Child's Dive Safety



Diving as a family is one of the most rewarding activities for any avid diver. Not only does scuba diving introduce your children to a whole world of adventure most other kids their age will never explore, but it also builds self-confidence, independence, self-esteem, and gives them a more global view on life.

Adding children into your diving equation, however, also comes with additional responsibilities and considerations. Child divers are smaller, get colder faster, go through air quicker, and can be easily distracted.

That said, children are also fast learners and super resilient. We've come up with the top 10 ways you can increase your child's dive safety on every underwater family adventure you share.

1. Private Lessons

The best, most thorough way to get your child scuba certified is through private scuba lessons. Not only do private lessons give your child the one-on-one attention needed at a young age, but it also allows them to progress at their own pace, not feel rushed or intimidated, and usually provides the most flexible schedule. All things that will facilitate a young diver to feel more comfortable and

confident in the water.

2. Take your time

A weekend-long Open Water certification course is NOT the course for a young diver. Children need extra time to fully understand the academics of diving and LOTS of time practicing in the pool before venturing into open water. A weekend-long course will be too fast-paced and will not adequately prepare a child for safely diving out of the confined water environment.

3. Purchase youth-specific dive gear

Many times, stress experienced while diving begins with ill-fitting equipment. If your mask is leaking because it does not fit properly, your BCD rides up because it is too big, or you get cold quickly because your wetsuit is too large, you may move from an uncomfortable diver to a panicked diver quickly.

Since the design of most dive equipment is for adults, young divers can have a hard time finding gear that fits properly. It is well worth the extra cost to purchase youth-specific equipment to ensure your child is comfortable in the water.

The more comfortable they are, the safer they will be.

4. Practice, practice, practice

The famous phrase "practice makes perfect" is very applicable for young divers. Again, the more comfortable your child becomes in the water, the safer they will be, and there is no better way to become comfortable than repetition.

A great way to get more practice is through continuing education. Children can participate in many specialty programs, which will increase their dive skills and get them the repetitive dives they need to become proficient scuba divers.

5. Dive as often as possible

As stated in number four, practice makes perfect, and repetitive diving creates confident, strong, safe divers. This applies to both children and adults and is especially helpful when multiple dives are performed in a single day and over consecutive days. A family dive vacation is a perfect opportunity to get your kids underwater as much as possible.

6. Get them cpr/first aid and oxygen trained

CPR/First Aid and Oxygen First Aid training is not just for Rescue Divers. Having your children take these courses as Open Water divers gives them an extra boost of confidence in knowing that they will recognize what to do in the event of an emergency. Being prepared both in and out of the water creates more confident divers, significantly boosting your child's diving safety.

7. Teach them a proper buddy check

Diving is a life-long endeavor, and you want to do everything you can to make your children safe both now and as adult divers. Engraining in them the importance of a proper buddy check before each dive will do a great deal to ensure their dive safety for years to come.

8. Plan the dive for them, not you

Children cannot dive as deep and as long as adults; therefore, it is imperative that the dive be planned based on your child's abilities and not your wants. Yes, there may be a super cool wreck to explore at 25 meters (80 feet) deep, but with your young diver in tow, you will have to forsake your desire and take them to explore the shallower reef top instead.

There are many considerations, both with gear configurations (think take size) and dive type. You will have to adapt to the comfort and safety of your little diver.

9. Let them lead the dive


Let's face it; kids get distracted easily and tend to wonder. Their global awareness is almost non-existent, so if you plan on having them

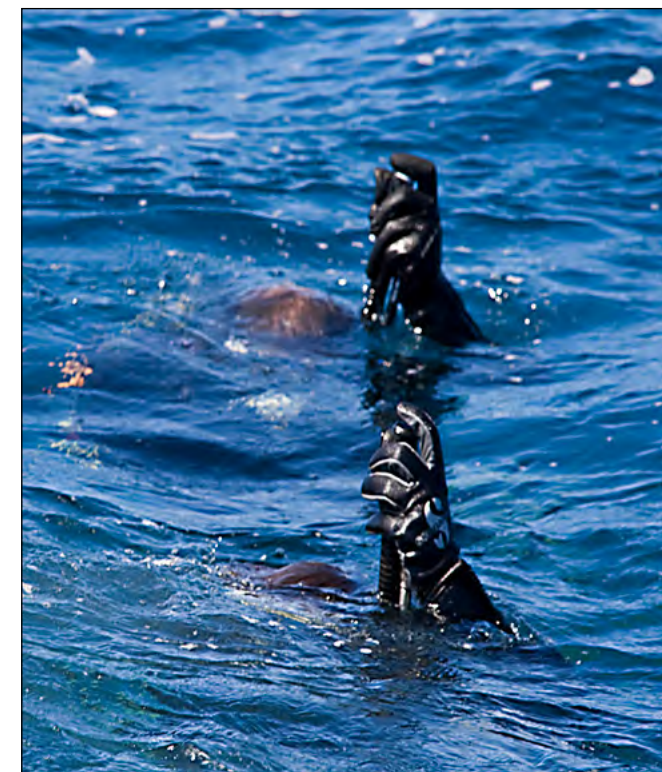
follow you throughout the dive, you will either be left continuously looking behind you or risk the possibility of losing them in a heartbeat. Instead, let your child lead you through the dive. Not only will this keep your kiddo in front of you where you can see them, but it will also give them a sense of responsibility, self-confidence, and accomplishment.

10. Become divemaster certified

Probably the best thing you can do as a diver to ensure your child's safety is to become Divemaster certified yourself. Until your youngster grows into an adult, you will be solely responsible for their underwater safety, leading them on every dive, watching their gauges, and helping them set-up and tear-down their gear.

This is the exact job description of a Divemaster, so why not earn the title that goes with it? As a certified Divemaster, your global awareness will be much broader, and you will be better trained in case of an emergency; all things that make your child as safe underwater as they possibly can be.

So what are you waiting for? Do not keep the wonder and excitement of exploring the underwater world all to yourself. Share it with your kids! It may take a little extra effort, but the memories will last a lifetime. There truly is nothing better than sharing the aquatic world you love with those you love most. 



Scuba Gear Essentials for New Divers

Learning to scuba dive is one of the most rewarding adventures in the world.

As a new diver, you are inundated with information about the aquatic world's physical properties, how to explore it, and the gear they will need to start diving.

Although most dive destinations worldwide rent almost every piece of equipment you need to go diving, there are a few essential pieces of scuba gear we recommend that all new divers purchase to always be ready for every scuba adventure.

Scuba Gear Essentials #1: Mask

A dive mask is one of the most important pieces of scuba gear you will own. It is your window to the underwater world, and without it, diving is impossible.

We recommend purchasing your



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own mask to ensure that it fits your face perfectly because nothing is worse than diving with a mask that constantly leaks.

Scuba Gear Essentials #2: Snorkel

Since you wear your snorkel in your mouth, it is a very personal piece of equipment. Not only is purchasing your own snorkel essential to ensure it fits comfortably, but it is the most sanitary option.

Scuba Gear Essentials #3: Fins

Purchasing a set of fins is high up on our list of must-haves for new divers. If you want a high-performing pair of fins that fit comfortably, buying instead of renting is the way to go.

Frequently, rental fins are worn-down and not as efficient as those you can purchase for yourself.

Having a nice pair of fins helps propel you through the water better, cutting down on fatigue levels and actually helping you conserve air and energy.

Scuba Gear Essentials #4: Booties

Most hard-working fins are of the open-heel variety and require the diver to wear dive boots (otherwise known as booties). Typically, dive stores do not rent out dive booties, so purchasing your own pair is essential. We recommend a 3-5mm zippered bootie with a thick yet flexible sole.

Scuba Gear Essentials #5: SMB

More and more dive destinations require divers to carry their own surface marker buoy (SMB) on every dive. Shore divers drag an inflated SMB with them while shore diving to mark their whereabouts, making boaters aware of their presence.



Boat divers inflate their SMB when surfacing to mark where they are during live boat diving so the boat can spot them and pick them up.

Scuba Gear Essentials #6: Gear Bag

Purchasing a gear bag may sound like a given, but you would be surprised how many new divers show up to the dive boat carrying all of their gear by hand.

A nice mesh backpack-style gear bag is perfect for hauling your dive gear to and from the pool, boat, or shore diving location.

Scuba Gear Essentials #7: Defog

The old wives' tale of using spit to defog your mask can work in a pinch, but nothing works better than actual defog. Buy a bottle and store it in your dive gear bag, so you never leave home without it.

Scuba Gear Essentials #8: Dive Log

Whether you set up a digital dive log in the MySSI app or go old school and keep a paper dive log, logging your dives is an important discipline to start from dive #1.

You will use your dive log to track your experience level and show it as proof of dive number when working on advanced ratings like Adventure Diver and Master Diver.

Part of the excitement that learning to explore the underwater world brings is getting to buy all the cool new stuff that goes with it.

The best place to start is with your SSI instructor or to visit your local Training Center, where you can get outfitted with the best scuba gear for your dive experience level and dive goals.

Welcome to the amazing world of diving! 🐠



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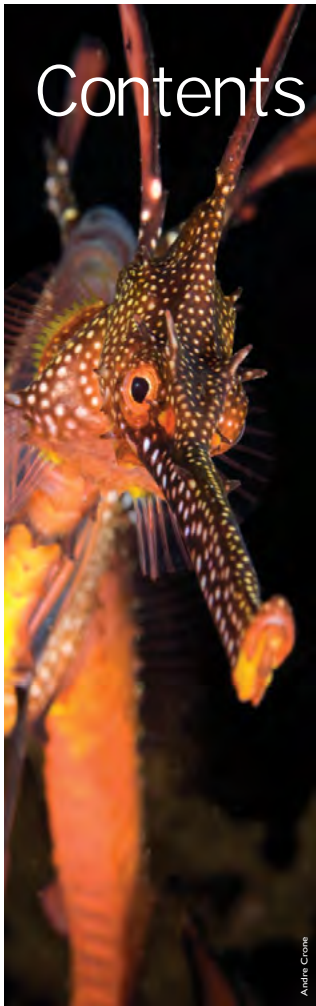
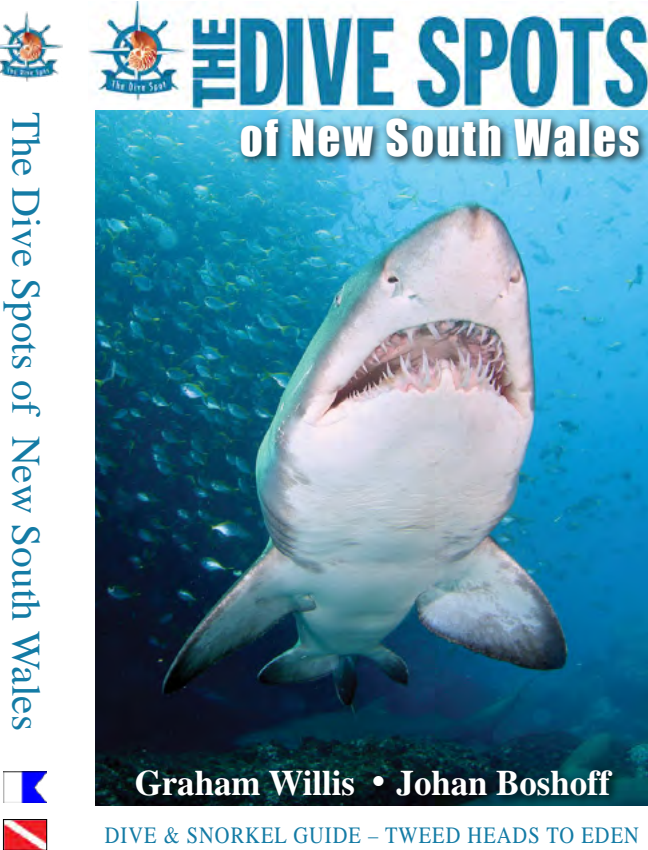
The Dive Spots of New South Wales is an indispensable guide for all levels of divers and snorkeler, broadening their horizons on places to visit and dive/snorkel in New South Wales.

Through extensive travel and diving, Johan Boshoff and Graham Willis bring you valuable information on more than 250 dive spots in New South Wales.

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 spots are star rated to cover depths, marine life and other essential information for the diving and snorkelling community.

To buy your copy for \$ 39.95, visit www.ozdiver.com.au or email info@ozdiver.com.au



GENERAL

How to use this book	4
Map of Australia	7
About Australia	8
Map of New South Wales Regions	15
About New South Wales	16
East Australian Current	24
Environment	290
Travelling Tips	292
About the Authors	294
Index of Dive Spots	296
Acknowledgments	298
NORTH COAST	
About the North Coast	29
Tweed Heads & Cook Island	34
Byron Bay & Julian Rocks	44
Solitary Islands & Surroundings	56



South West Rocks	74
Lord Howe Island	84
Port Macquarie	92
Laurieton	96
CENTRAL COAST	
About the Central Coast	102
Forster & Seal Rocks	106
Port Stephens / Nelson Bay & Broughton Island	116
Swansea	130
Norah Head to Terrigal	140
SYDNEY & SURROUNDINGS	
About Sydney & Surroundings	150
Northern Beaches	
About the Northern Beaches	156
Palm Beach & Surroundings	158
Narrabeen & Surroundings	151



Manly & Surroundings	163
Sydney Harbour	168
Southern Beaches	
About the Southern Beaches	180
South Head to Bondi	183
Bronte to Little Bay	189
Botany Bay	196
Cronulla & Port Hacking	204
SOUTH COAST	
About the South Coast	210
Wollongong to Kiama	214
Jervis Bay & Surroundings	228
Ulladulla	246
Batemans Bay	252
Narooma & Montague Island	260
Bermagui to Tathra	272
Merimbula to Eden	280

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 Species Guide

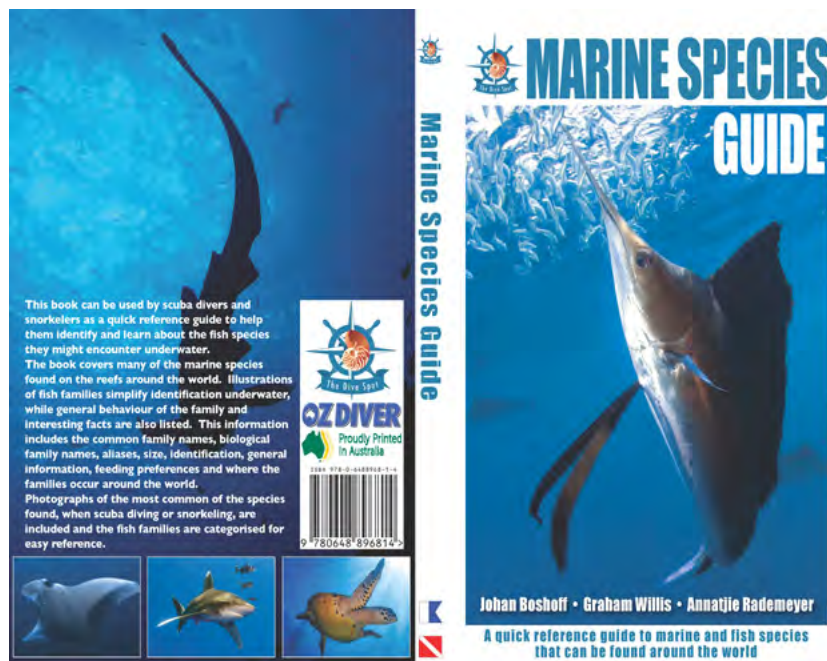
This book can be used by scuba divers and snorkelers as a quick reference guide to help them identify and learn about the fish species they might encounter underwater.

The book covers many of the marine species found on the reefs around the world. Illustrations of fish families simplify identification underwater, while general behaviour of the family and interesting facts are also listed.

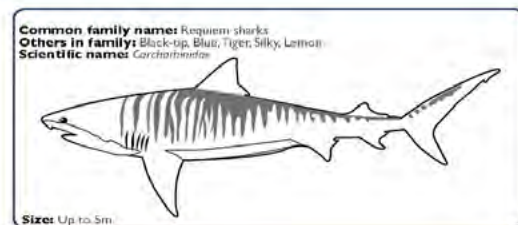
This information includes the common family names, biological family names, aliases, size, identification, general information, feeding preferences and where the families occur around the world.

Photographs of the most common of the species found, when scuba diving or snorkeling, are included and the fish families are categorised for easy reference.

To buy your copy for \$ 25, visit www.ozdiver.com.au or email info@ozdiver.com.au



Requiem sharks



Common family names: Requiem sharks
Others in family: Black-tip, Blue, Tiger, Silky, Lemon
Scientific name: *Carcharhinidae*

Size: Up to 5m

IDENTIFICATION
Tiger shark (*Galeocerdo cuvier*): Greyish upper body with distinctive darker 'tiger-like' stripes. Up to 5m long, average 3m.

Black-tip shark (*Carcharhinus limbatus*): Snout is pointed, long gill slits. Black tips on dorsal, pectoral, pelvic and caudal fins. Up to 2.8m long, average 1.5m.

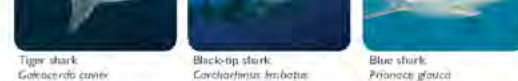
Blue shark (*Prionace glauca*): Long body, tapered at each end. Very long pectoral fins. Top of body darker blue. Tip of pectoral and anal fins are black. Up to 4.5m average 1.5m.

GENERAL INFO
Family consists of 12 genera and 59 species. The teeth are blade-like with a cusp. The sharks have five gill slits. They have a nictitating eyelid (third eyelid to protect the eye). Potentially dangerous.

FEEDING
Feeds on fish, seals, birds, smaller sharks, squid, turtles and dolphins.

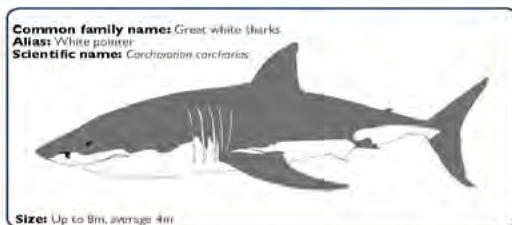
DISTRIBUTION
Widely distributed in all of the tropical oceans of the world.

Common species:



Tiger shark: *Galeocerdo cuvier*
Black-tip shark: *Carcharhinus limbatus*
Blue shark: *Prionace glauca*

Great white sharks



Common family names: Great white sharks
Aliases: White pointer
Scientific name: *Carcharodon carcharias*

Size: Up to 8m, average 4m

IDENTIFICATION
Large spindle-shaped body with a blunt, conical snout and large, triangular, saw-edged teeth. Large half-moon dorsal fin. Prominent black eyes. Lead-grey to brown or black above, lighter on sides, white below.

GENERAL INFO
Lamnidae family consists of 3 genera and 5 species. The Great white is the only surviving species in the genus *Carcharodon* - *Megolodon* is extinct. The Mako, Salmon and Porbeagle sharks also fall under this family. Upper and lower lobe of the tail is nearly the same size. Females are generally larger than males. Weighs up to 2,200kg. Ovoviviparous. Potentially dangerous.

FEEDING
They are carnivores and eat primarily fish, but are also opportunistic feeders. They will eat rays, dolphins, whales, seals, turtles, sea otters and penguins. Hunt with ambush technique.

DISTRIBUTION
Occurs in all subtropical oceans of the world.

Common species:



Great white shark: *Carcharodon carcharias*
Great white shark: *Carcharodon carcharias*
Great white shark: *Carcharodon carcharias*

Scubapro A2 Dive Computer

There is a saying "big things come in small packages" and that is what the Scubapro A2 Dive Computer is: a big computer in a small housing. I always fancied small dive computers and when it was time for an upgrade, I found exactly what I needed.

By Johan Boshoff

I needed a watch type computer that did everything I wanted it to do. I was looking for a dive computer for recreational scuba diving but that could also be used for my technical diving and the Scubapro A2 Dive Computer offered everything. From recreational diving to full technical diving and it even works for my rebreather.

The Scubapro A2 Dive Computer is a fully functional wristwatch-style dive computer with a high-resolution, hybrid matrix display with large numbers, making it easy to read underwater, even in adverse conditions, and even easier to use and navigate.

You can choose from six dive modes: Scuba, Gauge, Freediving, Trimix, Sidemount and CCR. Its Predictive Multi-Gas algorithm can accommodate up to eight gases (21-100% O₂) plus two in CCR mode. The digital tilt-compensated compass provides easy navigation underwater or on the surface. And when the diving is done, cord-free connectivity using a Bluetooth LE interface lets you easily sync with a PC, Mac, Android or iPhone, for data downloading and more. The A2 has wireless air integration which can handle multiple transmitters while monitoring tank pressure and providing true remaining bottom time based on a diver's workload from breathing. An optional heart-rate monitor belt allows the A2 to record heartbeat and skin temperature, providing even more vital, individualized information that can be factored into your decompression calculation.

Features

- Wireless air-integration can handle multiple transmitters, monitor tank pressure and provide true remaining bottom time (RBT) calculations based on the workload from breathing
- Digital tilt-compensated 3D compass allows for easy navigation
- Predictive Multi-Gas ZH-L16 ADT MB algorithm accommodates eight gases (21-100% O₂) plus two in CCR mode
- PDIS (Profile Dependent Intermediate Stops) calculates an intermediate stop based on N₂ loading, current and previous dives and breathing mixes for better diving
- Microbubble levels let you adjust the level of conservatism in the algorithm to match your experience level, age and physical conditioning
- Heart rate monitor records heartbeat and skin temperature (with SCUBAPRO HRM Belt only) that can be factored into the decompression calculation along with workload
- Multiple Dive modes: Scuba, Gauge, Apnea, Trimix, Sidemount, CCR
- Sport mode offers sport-related functions like a swim stroke counter, activity counter (pedometer) and stopwatch
- High-resolution hybrid matrix display with large numbers is easy to read under water, even in adverse conditions
- Intuitive menu and four button controls make it easy to navigate through the system
- Lightweight design is so comfortable on the wrist you won't want to take it off
- Modern design with full watch functions is perfect for topside time-keeping as well as underwater data tracking
- Max Operating Depth: 394ft/120m
- Bluetooth Low Energy interface lets you download dives to any iOS or Android device or PC/Mac
- Firmware can be user-updated by going to scubapro.com
- CR2450 battery is rated for up to two years/300 dives
- Included: Protection foil, Quick Card, Arm Strap Extension, Read First (user manual is available online).

Optional equipment: Transmitter and heart rate belt



If watch type dive computers is your thing, then this one is for you.

The Eloquence of the Sardine

Humans have identified just a fraction of the 2.2 million species living in the sea. Roughly 91% of all marine species remain unknown: myths still to be written, discoveries still to be made, blank pages with room to dream . . .

In the book *The Eloquence of the Sardine*, already translated in 17 languages and released in August in Australia, french biophysicist and diver Bill François takes us on a global underwater tour to discover the secret life of fish, with a host of fun facts and amazing discoveries.

As a small boy, Bill François was frightened of deep water. Until a chance encounter with the elusive sardine set him on course for a life in marine science: a mission to better understand and preserve the underwater world, to find his place in that ecosystem and learn how to converse harmoniously with the ocean.

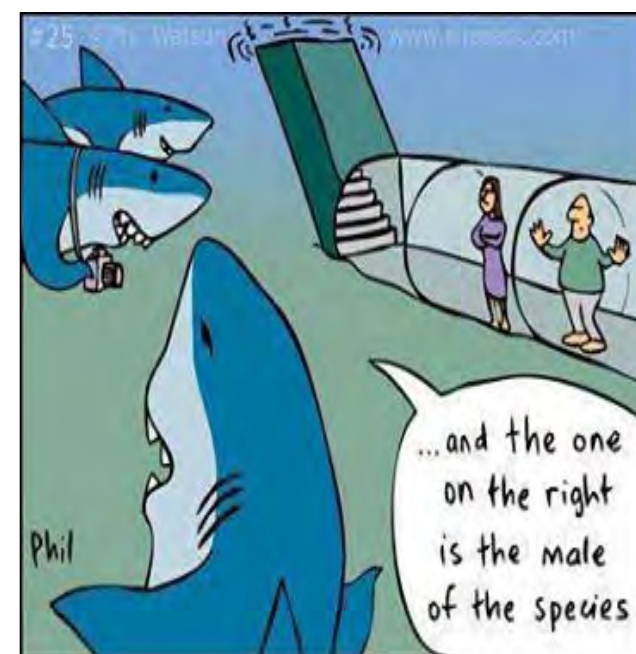
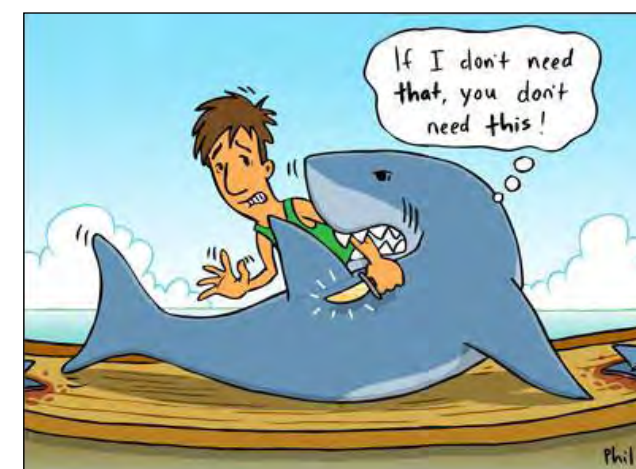
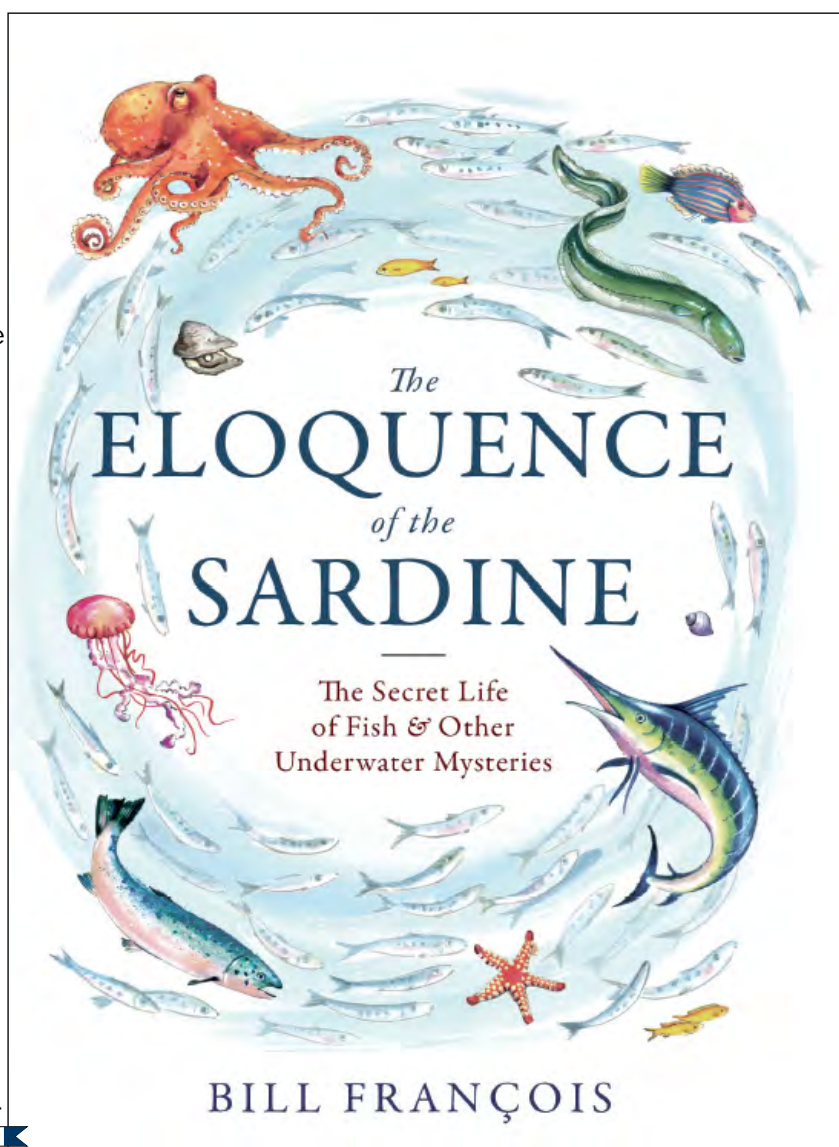
This is the beginning of a journey full of life and discoveries, vibrantly told in this small book of narrative nonfiction.

François unpicks the sound of the sea – an underwater symphony orchestra voiced by a choir of fish – and deciphers the latest scientific discoveries on the immunity of coral and the changing gender of wrasses. We visit the depths of underwater Paris as François delves into the mysterious world of the eel, and explore an extraordinary three-generational friendship between humans and killer whales, and the role a shoal of herrings played in Cold War tensions.

Drawing on history, myth and legend, but always grounded in science, *The Eloquence of the Sardine* will change the way you think about the sea in a poetic way. This book is aimed for all the ones who love the ocean and are curious about it : divers, sailors, fishos... Even experts in marine biology should find some original facts in it.

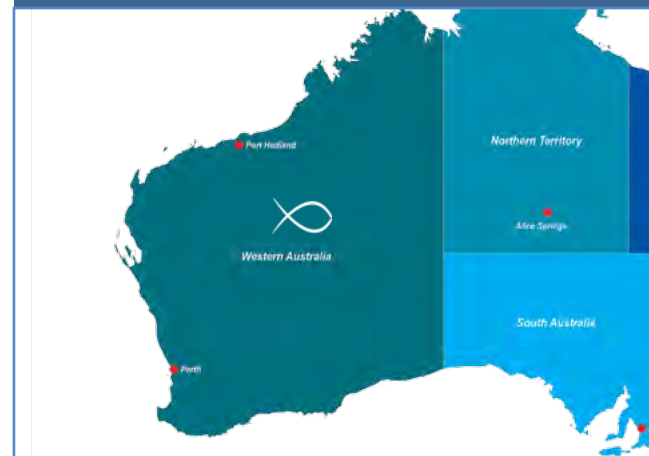
But it will also open the eyes of those who don't know this universe yet. It can thus be a nice present to introduce your friends and relatives to your passion for the underwater world.

The Eloquence of the Sardine – Bill François
Release date : Aug. 31st 2021
Editor : Little, Brown
<https://www.hachette.com.au/bill-francois/the-eloquence-of-the-sardine-the-secret-life-of-fish-and-other-underwater-mysteries>



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South Australia



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Web: www.sharkcagediving.com.au

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Mail: barrettn80@hotmail.com

Web: www.nbscuba.com.au

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Mail: info@divingadelaide.com.au

Web: www.divingadelaide.com.au

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Web: www.uecofsa.org.au

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Phone: 0408365216 or 0352722181

Mail: steve@ausdivinginstruction.com.au

Web: www.ausdivinginstruction.com.au

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Web: www.baycityscuba.com

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Web: www.divevictoria.com.au



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Web: www.scubaworld.com.au

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Mail: admin@ozaquatec.com

Web: www.ozaquatec.com

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CONTENTS

Regulars 3 - Editor's Dico 4 - The Team Letters 7 - Log Book Dive the Continent 9 - OZ News 15 - Port Kennedy to Esperance Weird and Wonders 31 - Manta Ray 33 - Climate changes 35 - Photographers Dive Med 39 - Hyperension Dive the Globe 41 - Global News 47 - Manta Mambo 61 - Ras Mohammad 73 - The Hilton Wreck Explorations 77 - World War II - Part II	COVER PHOTO New Trends www.petermbeck.com 	Through the Lens 87 - Photo Competition 91 - Photo School 93 - Editing School Giant Stride 97 - Shape Up 105 - A last glimpse 115 - Micro infiltration Technically Speaking 119 - Dive Planning 123 - Q&A - Backup Instructor Diaries 127 - Log Gear Talk 129 - Kiting Up 135 - Reviews Safety Stop 139 - Funnies Dive Operators 141 - Listings
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Nicolas Remy & Lena Remy