

APRIL / JUNE 2016

OZDIVER

AUSTRALIA'S PREMIER DIVE MAGAZINE

**DIVING
WITH
PLATYPUSES**

**RED SEA
WRECKS**

PANAMA

**WAVES
PART 11**

**MANTA
MYSTERIES**

BAHAMAS



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





Editor's Deco stop

Underwater photography is the new “in thing” to do in the diving industry. Digital cameras and waterproof housings have become relatively cheap and just about every diver can now afford to take one on their dives to capture a few special moments or scenes.

With the amount of digital cameras and video camcorders in the water today, it's not surprising that divers are discovering more and more new species of marine life. In the old days you would see a fish and try to describe it to your dive master after the dive. If they couldn't help you identify the animal, you'd be forced to bury your nose in marine books to find it. After a couple of photos, everything starts to look the same – you could easily spot one that looks almost like the fish you saw.

Today, you simply click a few buttons on the camera when you get back to the boat and the dive master will be able to see the exact fish you saw. This means that an accurate description of the animal is given and it can be identified correctly. Sometimes people hear divers' tales about magical animals they saw while diving and don't believe them. Nowadays, you can prove it was real by showing these disbelievers a photo of the creature!

Safety while diving and the environment are the two most important aspects underwater photographers should take into consideration. I feel one of the worst things a person can do is to believe that they can learn how to dive and take photographs at the same time. You should learn how to dive first and only then pick up the camera.

The second problem is just how far a diver will go to get the perfect shot. Some underwater photographers stand on corals and damage them terribly while harassing the fish just for a photo. The fish become stressed and panic and can often get injured against sharp rocks while trying to escape.

When it comes to personal safety, diving buddies are a good idea. But what happens when both of the divers have cameras? Who is watching who? Surely one of the divers shouldn't have a camera and should be watching over his buddy instead of looking through a lense? Remember, if you dive alone, you will die alone.

Remember, the ocean is your responsibility. Dive smart.

The Editor & Publisher

Johan Boshoff

-it is all about the journey and not the destination

Genesis 1:1

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

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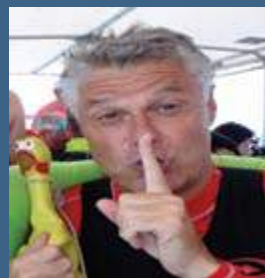
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COVER PHOTO
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www.bartlettimages.com



Christopher Bartlett

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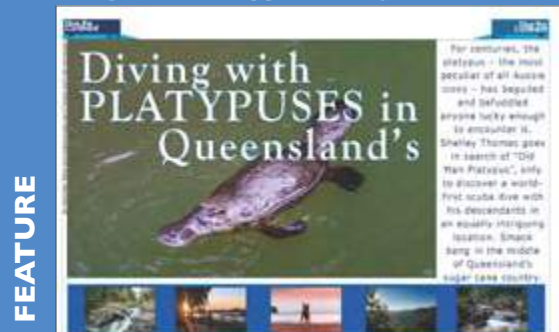
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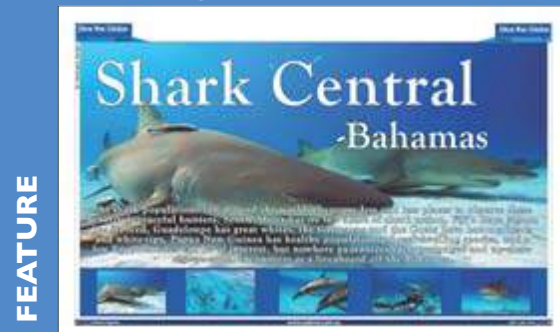
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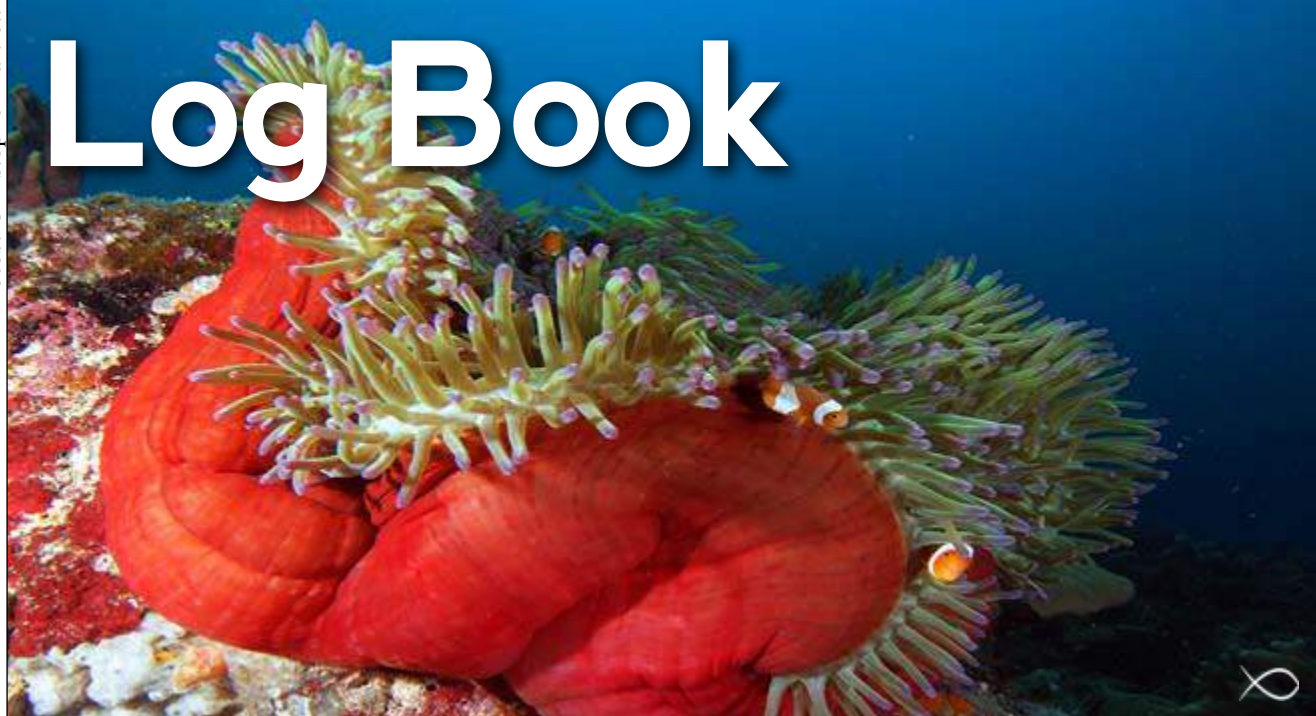
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Log Book



Almost Became the Wreck

By Mark Walters

My wife and I managed to sneak in a (very expensive) two-tank dive earlier this month. We were excited about getting into water that was warmer and supposedly cleaner than our local dive spot diving back home. As it turned out, this was to be my 100th dive, in the worst conditions I have ever dived in and a classic example of what not to do when scuba diving.

Our first dive was on the a wreck, which lies on the seabed 33m down. My hired weight belt buckle did not lock closed, so the DM suggested I double the end over & tuck it under to try secure the belt. This seemed to work. Common sense should have kicked in right there and I should have refused to dive.

But instead we rolled over the side of the boat into very poor viz (about 2 to 4m) and followed the DM down the shot line. The group was swimming really fast and my wife was lagging behind me at the back of the group. In the time it took to look back and check on her, when I looked forward I could no longer see the rest of the group or the shot line. I stopped so that she could catch up, and together we continued the descent to the wreck. We found the wreck shortly thereafter, but the rest of the group was nowhere to be seen.

There was a huge surge around the wreck and we had to hold onto it to avoid being pulled off. At that point I felt my weight belt come loose. Luckily I was able to grab it and I stuck it through the front clips of my BC. Here I made my second mistake.

I should have aborted the dive at this point, but with the cost of dives on my mind, I was stubbornly going to try get my moneys worth. So despite the pea-soup viz and the surge, we decided to continue the dive, circling the wreck anti-clockwise.


This took us head-on into a much stronger surge, so bad that we had to pull ourselves across the deck of the wreck, which was lying about 30 degrees off vertical. Around the back of the wreck the surge was not so bad, and we could look into the port holes where there were large dense shoals of goldies just inside the wreck. My wife then pointed out a massive Brindle Bass (about 2m long, 1m wide) that was circling behind us and checking us out.

Around the next side of the wreck we found the bubbles of rest of the group and signalled to them with torches, eventually they came up to our depth. At this point I stuck my head into the next port hole, only to encounter some extreme surge coming out of the hole.

This did two things. Firstly it blew me off the

wreck, and secondly in the process I lost my weight belt. Frantic signals to my wife to swim to me got the desired effect. She quickly cottoned onto what had happened and allowed me to use her as my "weight belt" while dumping our air. To his credit, when I signalled to the DM that I had lost the weight belt, he immediately took his belt off and passed it around my waist. Only then did we abort the dive.


There was one major lesson I came away with: Over-confidence and being obstinate will eventually get you into trouble. There were four other lessons I re-learnt the hard way:

1. If you have an equipment failure before the dive, do not try jury-rig it. Fix it properly or abort the dive.
2. For any equipment failure during the dive, end the dive immediately.
3. If you encounter conditions beyond your training and experience, put your pride in your pocket and end the dive.
4. Check all wreck portholes and openings for surge before sticking your head inside! 



WIN

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

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



OZ News




AUSTRALIA INTERNATIONAL DIVE EXPO (AIDE) 2016

The third installation of the AUSTRALIA INTERNATIONAL DIVE EXPO (AIDE) 2016 is set to be held from 10 -11 September 2016 at the Royal Hall of Industries, Moore Park, Sydney. Staged at the precise time when divers are gearing up for the diving season that starts in September, the Expo will spare no expenses to ensure divers are aware of the Expo.

Inspiring newbies to attend the show and satisfying the thirst for knowledge and information of the thousands of active divers, while encouraging inactive divers to re-activate their diving passion will be a major focus for next year.

Australia's diving market is becoming more and more important in both emerging and developed economies. Diving tourism is rapidly becoming one of the key pillars of socio-economic development, contributing to economic growth exports and jobs. We strongly believe it is now time to generate new business in the Australia diving market.

A dedicate trade session (B2B) will be also take place in 2016 as part of AIDE's business platform to further engage and bring together industry suppliers and partners. Activities will include a feature on the history of diving, a presentation by Disabled Divers International (DDI), a photographic display of the underwater world by various photographers from Australia including South East Asia and presentation by experts from various dive field. Free photography for Uni students will also be part of the program too. The entrance fee will be AUD\$7.00 onsite. Online registered fee will be at AUD\$5.00. Trade Visitors, Media Representatives, Disabled Divers, Senior Divers, University Students and Children aged under 17 will get free expo admission.

Exhibitors keen to participate in AIDE 2016 are advised to register their interest from 1 November 2015. Visit www.australiadiveexpo.com for more information. 

**AUSTRALIA
INTERNATIONAL
DIVE EXPO
AIDE**

Giant Glass Pod Now Lets You Eat Dinner With Great White Sharks

By Andy Wells


One of the problems for anyone who goes into a shark cage to get a better glimpse of them is all the gaps.

Sure, you may be behind some iron bars but how many times have you seen a great white shark poke its snout inside, getting a little close to tasty humans for comfort?

Well, now you can go underwater in a protective glass box - and you can even stuff your face while looking out on the maneaters.

An Australian company called Adventure Bay Charters have created the world's first 360 degree glass viewing pod - putting an end to the fear of gaps that are a bit too big.

Remaining completely dry, and with no need for any pesky diving equipment, thrill seekers can casually sit down and watch as the great white peer inside and down a pipe of Pringles at the same time. You could even play a few tunes while you're down there to really add to the mood - Jaws theme included. (If you wanted to scare yourself half to death, that is).

Six people can fit inside the pod so you can have a full on shark party, maybe take a few selfies, knock back the odd glass of wine. 



Seizing the Depths – OZTek2017

Not to be missed OZTek2017 represents an opportunity to meet, listen to and learn from some of modern diving's most accomplished personalities.

Bookmark your diaries to avoid disappointment.

When: March 18/19, 2017 – make a note now!

Where: Australian Technology Park - a premier Sydney venue minutes away from the city's CBD, shopping and entertainment districts

Speakers are selected from around the world and topics span the entire range of diving from mysterious wrecks and magnificent underwater cave systems, through to the latest innovations in equipment and imaging technologies – something for everyone to enjoy.

New speakers arriving for the first time down under, include:

- Cristina Zenato (Shark researcher/conservationist and Cave diving instruction and Exploration).
- Becky Kagan-Schott (Emmy Award winning underwater cameraman, photographer, and technical scuba Instructor),
- Vic Verlinden (Author & Photographer specializing in deep wrecks),
- Amanda Cotton (Photographer & Conservationist)
- Bruce Partridge (Programmer & Creator of Shearwater Research, Bruce brings a unique perspective to the world of dive computers.)

... as well as un-missable favourites:

- Associate Professor Simon Mitchell (leading authority on hyperbaric medicine)
- the unforgettable Jill Heinerth (prolific Canadian author, underwater explorer, filmmaker and conservationist); and

OZTek **March 18-19 2017**
DIVE CONFERENCE & EXHIBITION


Not-to-be-missed second timers:

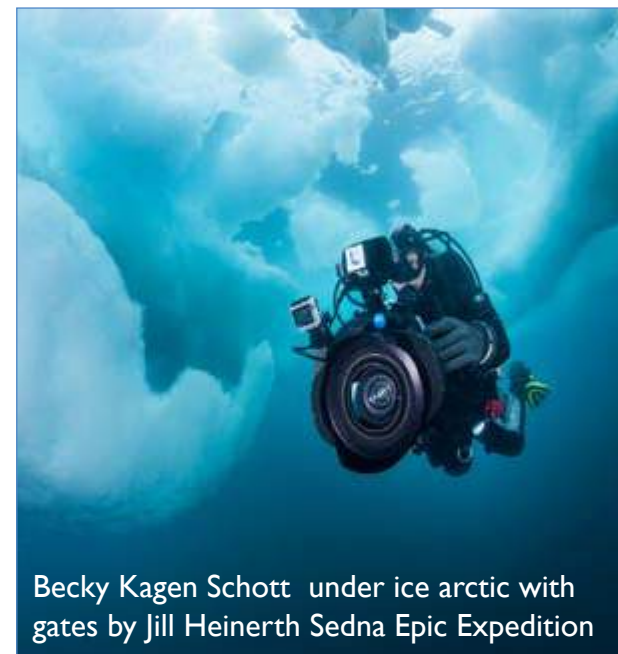
- Barry McGill (deep wreck photographer / CCR instructor trainer whose main focus are the deep water shipwrecks around the Irish coastline)
- Brian Kakuk (underwater photographer, writer, explorer, cave diving instructor and conservationist, Brian is a leading authority on the underwater / underground environments of the Bahamas) ...

Discover ALL the incredible OZTek speakers online with more to be announced as the event draws nearer. <http://www.oztek.com.au/The-Speakers>

ASIDE from the real-life adventure & exploration, this action-packed weekend includes:

- A full-scale dive exhibition. Everything divers require; from cameras to compressors, regulators to rebreathers, snorkels to scooters, face masks to fins. Big or little - it'll be on display. (www.oztek.com.au/OZTek2017-Exhibitors)
- Dive Travel - Discover your next travel destination with liveaboards, resorts and awesome dive sites waiting to be unearthed (www.oztek.com.au/OZTek2017-Exhibitors)
- Underwater Photography – Unbelievable, amazing, brilliant, awesome images on display from world class photographers in our 2nd Underwater Image Exhibition - including the winners of the OZTek 2017 Underwater Imagery Competition (terms & conditions on the website now – registration opens September 2016)

Mark March 18/19th, 2017 in the diary today and bookmark the website www.OZTek.com.au to keep up-to-date on the latest event details. 



Becky Kagen Schott under ice arctic with gates by Jill Heinerth Sedna Epic Expedition



Vic Verlinden

Dive Schools / Operators / Organisers / Instructors

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

Here's what we need:

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

Please send to info@ozdiver.com.au 



OZ DIVER



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Diving with PLATYPUSES in Queensland

For centuries, the platypus – the most peculiar of all Aussie icons – has beguiled and befuddled anyone lucky enough to encounter it. Shelley Thomas goes in search of “Old Man Platypus”, only to discover a world-first scuba dive with his descendants in an equally intriguing location. Smack bang in the middle of Queensland’s sugar cane country.





"... he plays and dives in the river bends in a style that is most elusive; with few relations and fewer friends, for Old Man Platypus descends from a family most exclusive..." - Banjo A. Paterson's "Old Man Platypus" (from the book, The Animals Noah Forgot)

A township nestled in Australia's sugar cane capital, on the doorstep of the nation's largest continuous stretch of sub-tropical rainforest. Finch Hatton, 80kms west of Mackay is arguably the last place you'd

expect a seasoned PADI scuba diving instructor to set up shop.

"It sounds crazy, right?" quips Luana, the brains behind a unique ecotourism venture, Rainforest Scuba, offering a world-first opportunity for people to experience a freshwater scuba dive with platypuses in Oliver's Pool.

It really is a magical experience when you first see a platypus – particularly when sitting quietly, watching them underwater.

"The great thing too is that platypuses are not at all bothered by scuba divers, because we're dark and blow bubbles just like they do. I was over the moon when I first encountered the girls at Oliver's Pool."

The girls, as Luana affectionately calls them, are what she refers to as three "resident" female platypuses: Penelope, Laticia and Anita.

Dr Tom Grant, a biologist studying the platypus, based at the University of New

South Wales, chooses an entirely unscientific term – "mind blowing" – to describe what he witnessed at Oliver's Pool.

"In the 40 years that I've been studying platypuses, I've never seen anything like it," Dr Grant says matter-of-factly. "You can even stand on the banks before it gets dark and watch a platypus dive to about two metres or more and forage around on the bottom, pushing things aside and actually get into feeding. That's unbelievable!"

Ironically, he learned to scuba dive back in the 70s, when he first started studying the platypus and wanted to observe its underwater behaviour. He soon gave up. The problem being that everywhere he dived was in "pretty turbid water"; a common feature of platypus habitats, solely located on the eastern side of Australia.

"It's normally the kind of water in which you can hardly see the end of your arm," he explains. "I think in all the time I went diving back then, I saw one platypus that swam close to me and another one on the





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AIDE 2016



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Photo by Matthew James Smith

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surface, which I actually didn't see until it touched my mask and we both got a shock at the same time."

By contrast, Dr Grant says "extraordinary" water visibility at Oliver's Pool allowed him to watch numerous interactions between platypuses, including courtship dances and grooming sessions.

"I saw males and females grab each other's tails and circle around. I don't think I've seen that more than twice before. I saw one male chasing another and watched three or four episodes of platypuses getting up on logs or out on the bank to groom."

Dr Grant gives Luana's world-first Rainforest Scuba venture the thumbs-up: it's "low impact", with the added bonus of potentially capturing valuable information and population data about a species best described as more secretive than shy.

The next day, sitting with Chris Ayre, a director at Broken River Mountain Resort, two platypuses appear at one of the viewing platforms, including the smallest one Chris reckons he's ever seen in 12 years.

It's well past 9am. A time considered outside recommended platypus spotting hours – generally falling an hour or so before dusk and the same period after dawn. It's at these times that people are most likely to see platypuses diving to forage for prey (insect larvae, shrimp and worms) at either end of all-night feeding sessions.

Chris knows there's always the chance that platypuses will emerge from their burrows at different intervals during the day, particularly around mating season, which starts a couple of weeks earlier in Queensland, running from late July to September.

Acclaimed Australian wildlife filmmaker and ardent naturalist David Parer spent two platypus mating seasons at Eungella

(in 2001 and 2002) shooting key segments of the award-winning ABC documentary "Platypus: World's Strangest Animal". Not from some hidden bunker, but while staying at Broken River Mountain Resort, setting up his camera on well-worn visitor paths and viewing platforms.

Oddly, David says the high tourist footfall worked in his favour: "Platypuses, which in many places are very, very shy, at Eungella are habituated to people. They're seen almost guaranteed every day."

The only drawback, he adds, is that the water is too murky to film below the surface.

Back at Oliver's Pool, I'm standing on the banks sizing up river pebbles that I can see perfectly on the bottom.

I spot a cormorant perched patiently above. An opportunist that dives alongside platypuses, dining on small fish and shrimp flushed out by his companions' foraging – a fascinating game of tag-team.

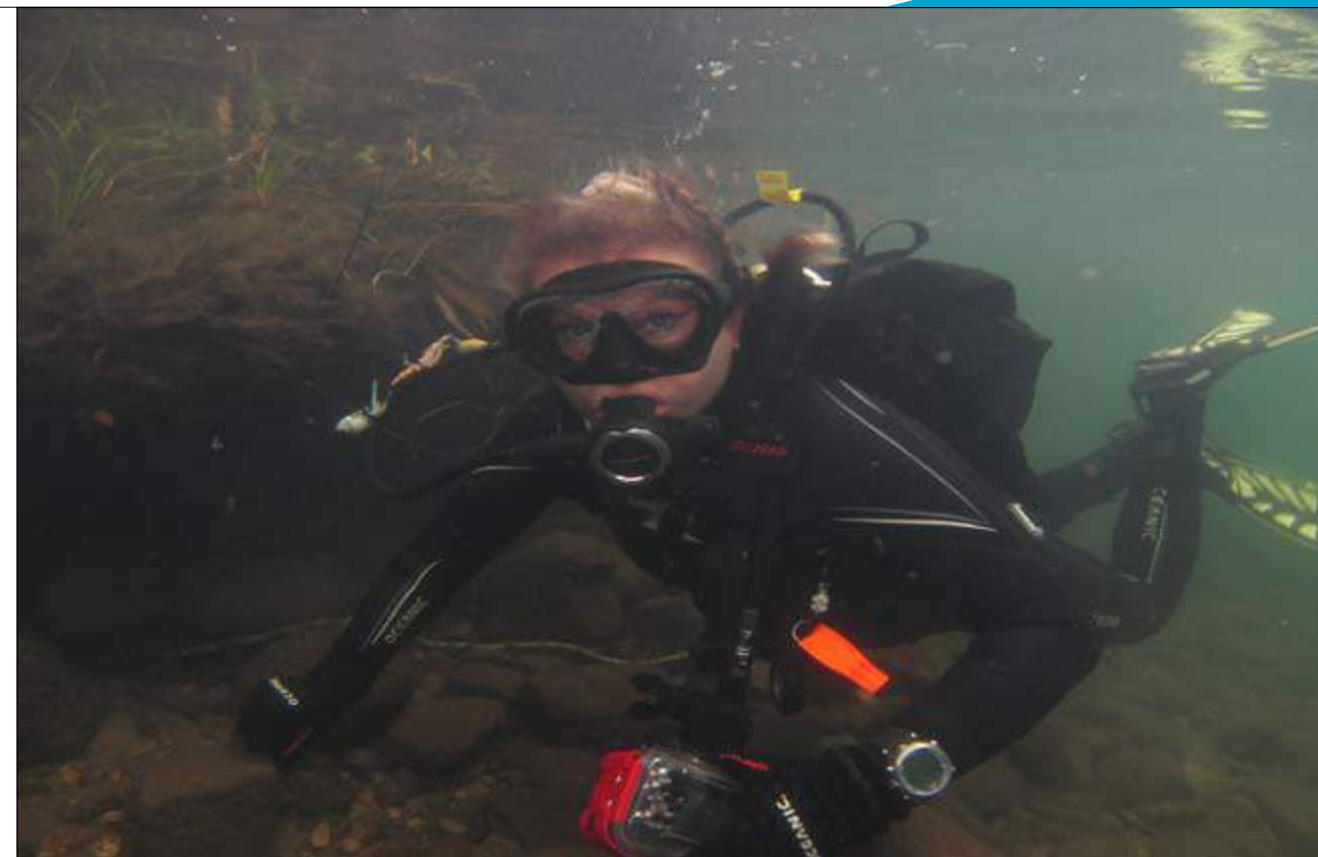
While Mr Cormorant is clearly unruffled, I desperately scan the water for any sign of Penelope the platypus and friends. Ever the optimist, Luana takes pains to explain that she can only ever promise a chance of seeing "the girls", particularly during a daylight scuba dive. A bit like flipping a 20 cent coin.

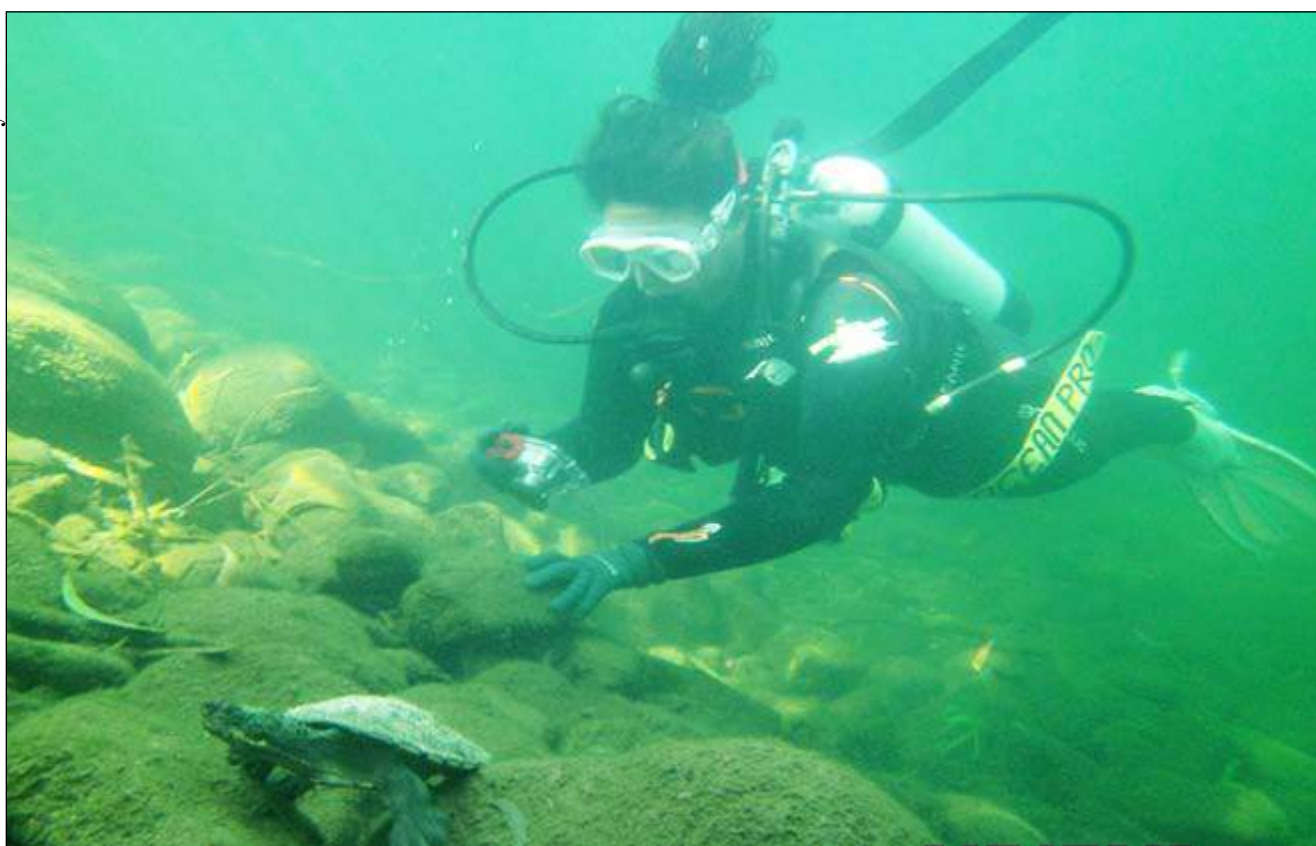
On this occasion, the odds are not in my favour. But that's the beauty of nature and, like so many others, I'm hooked for life.

Penelope: you're on my "bucket list" to come back.

Take the plunge: Rainforest Scuba caters to beginner and advanced level divers, with groups capped at a maximum of three or four people: www.rainforestscuba.com

- Put your walking boots on and pocket some easily mapped-out national park walks through Eungella and





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3. Rebreather & technology innovations
4. Dive travel – Liveaboards, resorts & awesome destinations
5. Underwater Photographic Exhibition
6. Underwater Photography workshops by world-class photographers
7. Pub night with the OZTek
8. Gala Dinner & OZTek Award presentations

Diarise the dates Today!
18-19 March 2017

Discover every detail, speakers & exhibitors on the website
www.OZTek.com.au

Enquiries contact:
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Mackay Highlands, with the option of also tailor-making your own special wildlife checklist

via: <http://www.nprsr.qld.gov.au/parks/great-walks-mackay-highlands/index.html>

- Harness up for an Avatar-esque experience at the top of the rainforest canopy: www.forestflying.com
- If you're signing up to blow bubbles with platypuses, check out Finch Hatton Gorge Cabins, www.finchhattongorgecabins.com.au
- The Advanced Ecotourism Certified property offers four self-contained cabins and a restaurant, ideally located close to Oliver's Pool and walking tracks that lead to swimming falls connected to Araluen and Wheel of Fire waterfalls.
- Foodie's fear not: the Criterion Hotel in the township of Finch Hatton is renowned for its fine cuisine, as is Broken River Mountain Resort [www.brokenrivermr.com.au], and, if heading up the range, don't miss the Eungella Chalet [www.eungella chalet.com].

au], which, hands-down offers the best view from its restaurant and bar. Finally, if coffee's your religion, pull into Coffee Devine, a church-turned café surrounded by sugar cane fields on Mackay-Eungella Rd at Pinnacle, the only route from Mackay to Finch Hatton and on to Eungella National Park.

- Looking for a guided tour? Reeforest Adventure Tours offers everything you could possibly ask for, including the popular "Platypus and Rainforest Eco Safari" and other day trips to Cape Hillsborough National Park, the Farleigh Sugar Mill and Mackay's historical city sights: www.reeforest.com.au

STRANGER THAN FICTION:

No living mammal is more peculiar than the platypus — an evolutionary enigma and Aussie icon, featured on Australia's 20 cent coin, and the sole representative of its family (Ornithorhynchidae) and genus (Ornithorhynchus).



The platypus has been the subject of great controversy, baffling scientists, naturalists and evolutionary theorists ever since 1798, when a dried skin of a platypus, collected by Governor John Hunter in New South Wales, arrived back in England.

How could it be possible? A small amphibious mammal with webbed feet, a bill like a duck, fur like an otter and mammary glands! A biological riddle that lays eggs; suckles young on milk; and walks like a reptile, with males also possessing venomous spurs on their hind ankles.

Not surprisingly, scientists initially wrote the platypus off as an elaborate hoax perpetrated by skilled taxidermists stitching together the bill of a duck and other parts of unknown mammals. London's British Museum of Natural History still holds the first dried specimen.

Until the beginning of the 20th century, the platypus was hunted for its thick fur, made into hats and rugs, with the latter requiring about 60 pelts.

Today, the species is protected by legislation and cannot be killed or captured (except for scientific research, including tagging).

PLATYPUS FACT FILE:

The scientific name for the platypus is *Ornithorhynchus anatinus*.

Species: *anatinus* – meaning "duck-like" in Latin.

Genus: *Ornithorhynchus* – derived from the Greek word "ornithorhynchos", meaning "bird snout".

The common name "platypus" is the latinisation of the Greek word "platypous", meaning flat-footed.

The question of how to pluralise platypus has created much debate. You can't say "platypi" because the word has a Greek root, not a Latin one. But using the Greek form

"platypodes" is similarly not recommended. The expert consensus: platypuses.

The platypus, together with the echidna, belongs to a separate order of mammals known as monotremes, which differ from all other mammals because they lay eggs.

Platypuses are endemic to the eastern side of Australia (Queensland, New South Wales, Victoria and throughout Tasmania), and are dependent on rivers, streams and bodies of freshwater. Since 2006, the IUCN has listed the platypus as "Least Concern" species.

Platypuses were once found in South Australia, but are now extinct from that state, except for an introduced population on Kangaroo Island.

Due to their secretive habits and mobility, it is almost impossible to assess population numbers. It is estimated, however, that there are almost certainly thousands of platypuses in each of the states in which they are found.

Of note, they are vulnerable to human activity such as fishing and littering, and can drown after becoming trapped in Yabby pots and nets or ensnared in discarded fishing line, hooks and other rubbish (eg plastic cable ties, six-pack holders, elastic bands).

Platypuses can only hold their breath for a relatively short period and, when trapped or struggling, will drown in less than five minutes.

Platypuses get larger from north to south. In north Queensland, platypuses are much smaller than their southern counterparts, with adult males generally weighing just over a kilogram and females around 700 grams. By contrast, in Tasmania, a male can weigh up to three kilograms.

Unusually for quite a small animal, platypuses are quite long-lived, surviving up to 21 years of age both in the wild and in

captivity.

A baby platypus is about the size of a lima bean, but weighs 500-800g just four months later when it first leaves the nesting burrow, although classified as a juvenile until the age of two.

Platypuses can eat anywhere from around 13 to 28 per cent of their body weight each day, but a mother feeding nestlings on milk can eat much more. They feed mainly during the night over an extended period of 10 to 12 hours.

Incredibly, they dive approximately 75 times an hour to forage for insect larvae, worms and small freshwater mussels, snails, shrimps and crayfish (yabbies), primarily found on the bottom of rivers and streams.

They also hunt "blind", closing their eyes, ears and nostrils when foraging underwater. The bill is their primary sense organ, equipped with receptors sensitive to touch, and with electro-receptors, believed to help them detect electric fields given off by prey, including the tiniest flick of a shrimp's tail.

Platypuses stay underwater for between 30 and 140 seconds, stuffing their cheek pouches with food collected from the water bottom, to eat while floating on the surface between dives.

They do not have teeth, and instead grind their food between horny plates of keratin, which are constantly worn down, only to continuously grow back, very much like finger and toe nails.

Platypuses are also surprisingly fast. They have been recorded swimming at around 1 metre per second (3.6 kilometres per hour), but during normal foraging swim at around 0.4 metres per second (1.45 kilometres per hour).

Besides acting as a stabiliser when

swimming, the tail is used for fat storage. Up to 40 per cent of the platypus's body fat is in the tail, believed to be stored for periods of low food supply or for when the female is providing milk to growing nestlings.

Although platypuses hunt in solitude, cormorants and azure kingfishers can be quite clever and are sometimes seen diving with a platypus during feeding. A fascinating game of tag-team: for as the platypus stirs up the bottom and eats what its bill can sense, shrimp and small fish are also flushed out and quickly targeted by the opportunist cormorant or kingfisher. These birds can be seen waiting patiently around platypus habitats in the hours before dusk and after dawn.

When not foraging, the platypus spends most time in its burrow, tunnelled above water level, in the bank of a river, creek or a pond. There are two types: "nesting" and "camping" burrows.

The combination of naturally low body temperature at close to 32°C (about five degrees less than that of humans), and a thick fur coat, means that platypuses can quickly overheat if exposed to hot conditions on land

Platypuses sleep in a curled position on one side. They exhibit long periods of rapid eye movement (REM) sleep, associated with dreaming in humans. However, no-one knows if platypuses dream!

Platypuses should not be handled. However, if it is necessary to pick up a sick or injured platypus, or one hooked on a fishing line, the safest option is to grip it by the middle or end of its tail (not the tail base) in order to avoid being potentially spurred in the event it's a male. Platypus venom is not lethal, but can cause severe pain to humans.

The platypus is largely a solitary animal, but several individuals can share the same body of water. There is little evidence that

platypuses remain in male-female pairs. Certainly, males are believed to have nothing to do with rearing the young and have larger home ranges than females.

Platypuses breed once a year. A female can lay one to three eggs, though usually two, and it is believed that she incubates them between her lower belly and curled-up tail.

Male and female platypuses have a single physical opening (known as the cloaca), used both for reproduction and excretion.

The birth of the first platypus in captivity, in 1944 at Healesville Sanctuary, outside Melbourne, created international headlines, despite the fact that World War II was still raging. She was named Corrie and was born under the care of zoologist, the late David Fleay. More recently platypuses are breeding successfully in both Healesville Sanctuary and at Taronga Zoo in Sydney.



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DEEP DOWN YOU WANT THE BEST

Great White



The Great white shark is second only to the Orca as the ocean's largest and most powerful predator. Wrongfully portrayed as a monstrous killer, this species has seen its share of persecution, however, more recent findings reveal the Great white for what it truly is – a magnificent predator with an amazingly non-aggressive nature.

The Great white shark is classified into the Lamnidae or mackerel shark family (a sub order of Lamniformes) which includes five species; the Great white, Longfin mako, Shortfin mako, Salmon shark and the Porbeagle shark. Members of the lamnidae family are grouped together because they share similar characteristics, such as a torpedo shaped body, no nictitating membranes (inner eyelids), jaws extending well behind the eyes, caudal keels and a pair of five large gill slits almost entirely in front of the pectoral fin base. The lamniformes order of sharks also contains the second largest of all sharks (and fish), the planktivorous Basking shark (*Cetorhinus maximus*), which can reach up to 10m in length.

The Great white shark is known to be a highly transient species, inhabiting a particular area for only a few weeks at a time before moving on. This species is principally an epipelagic dweller (living in the upper part of the water column) of neritic (nearshore) waters. However, it ranges from the surfline to well offshore and has been recorded from the surface down to depths of over 1 000m. This shark commonly patrols small coastal archipelagos inhabited by pinnipeds (seals, sea lions and walruses), offshore reefs, banks and shoals.

This species has a distinct dual colouration with a darker grey/brown dorsal (upper) side contrasted by a white ventral (under) side. Other noticeable characteristics are the animal's relatively large eyes which, with the help of strong ocular muscles, can be rolled inwards during predations to protect the sensitive pupil area. It also has protruding lower jaw teeth like some other species of lamnoid sharks (Mako, Ragged-tooth and Salmon sharks).

The Great white shark also has distinct lateral (sideways) caudal keels, which help to streamline the tail strokes for efficient swimming. This keel is also found on other species like the Tiger and Whale sharks. This species distinct crescent (half-moon) tail shape creates a large tail surface area which results in very powerful tail strokes, enabling amazing ambush attacks on seals which can result in the shark breaching clear out of the water.


Great white shark teeth are broadly

triangular and heavily serrated. This tooth shape allows Great white sharks to target large prey items that cannot be swallowed whole. Each shark tooth is equipped with pressure and position-sensitive nerves, while the shark's jaws have a high level of dexterity, enabling the shark to use its mouth to manipulate and examine objects in its environment.

Like most shark species, the Great white is not designed for extended periods of exertion, thus their feeding behaviour is characterised by short powerful bursts, ambushing potential prey. If initial ambush attempts are unsuccessful, the shark rarely has the endurance to capture its escaping prey. These constraints mean that the shark will hunt at times of day when ambush tactics are most likely to be successful. Early morning and evening provide just the right light conditions to conceal the shark but reveal surface prey, such as seals.

Great white sharks are known to be extremely selective predators. The gut contents of Great whites caught in shark culling programmes in the world, reveal that smaller sharks (Dusky's) and rays made up the most common prey group, this was followed by bony fish and mammals (dolphins) respectively. This information, however, does not give a complete view of this shark's diet. Great whites in other regions is known to specifically target seals and other pinniped's as an important part of their prey. Great whites are also known to scavenge, being particularly fond of energy rich whale blubber.

The Great white is the third largest existing shark, commonly reaching lengths of 4-5m and weighing between 800-1 200kg. The largest specimens are believed to attain a length of over 6,8m, weighing in excess of 1 900kg and are estimated to live for over 30 years.

Great white sharks produce a relatively small number of young, around 6-8 per litter every three years, with a gestation period between 14-18 months. Length at birth varies from 110-165cm. Male Great white sharks are considered mature between 8-10 years (4m) whilst females mature at an estimated 12-13 years (4,5m). 

Waves

In PART II of 'Waves' Neil takes us on the 'journey' that a wave will travel, from being 'travelling energy' up to the time it breaks on a shore.

How does the water movement in a wave affect us as divers? The first point to note is that when waves move over the ocean it is not water that is travelling, but rather energy. Therefore as wave energy travels, new waves are constantly being created while the older waves disappear.

If you were to observe a group of waves generated in a pool or sink, and focused attention on an individual wave crest, you would see that as the crest moved further away from its source, it became slowly smaller and eventually disappeared.

You would also be able to note that a new wave had been formed behind the crest which you observed to decay. Thus the total number of waves in the 'group' remained the same, even

though individual waves were constantly created and destroyed. The same is true of waves in the ocean. If groups of waves are then simply travelling forms of energy, what is the motion of water particles in individual waves? The easiest way to visualise the water motion in a non-breaking wave is to imagine the motion of a cork floating in a pool when a wave passes by.

As the crest approaches, the cork moves upwards and forwards to its highest point, after which the cork moves down and backwards to its lowest point in the trough. Essentially the cork has travelled in a circular orbit, and has hardly moved forward at all. This then confirms the idea that there is little net transport of water by waves.

The motion of the cork is the same as the



motion of a water particle in the upper part of the wave. Waves decay rapidly with depth, and therefore deeper particles have smaller orbits. This fact means that on deeper dives, or on days when there are smaller waves, there may be no influence on divers at depth. The actual depth to which a wave reaches is equal to half the wavelength of that wave. For example a wave with a 20 m wavelength will only be felt to a depth of 10 m, below which it will be undetectable.

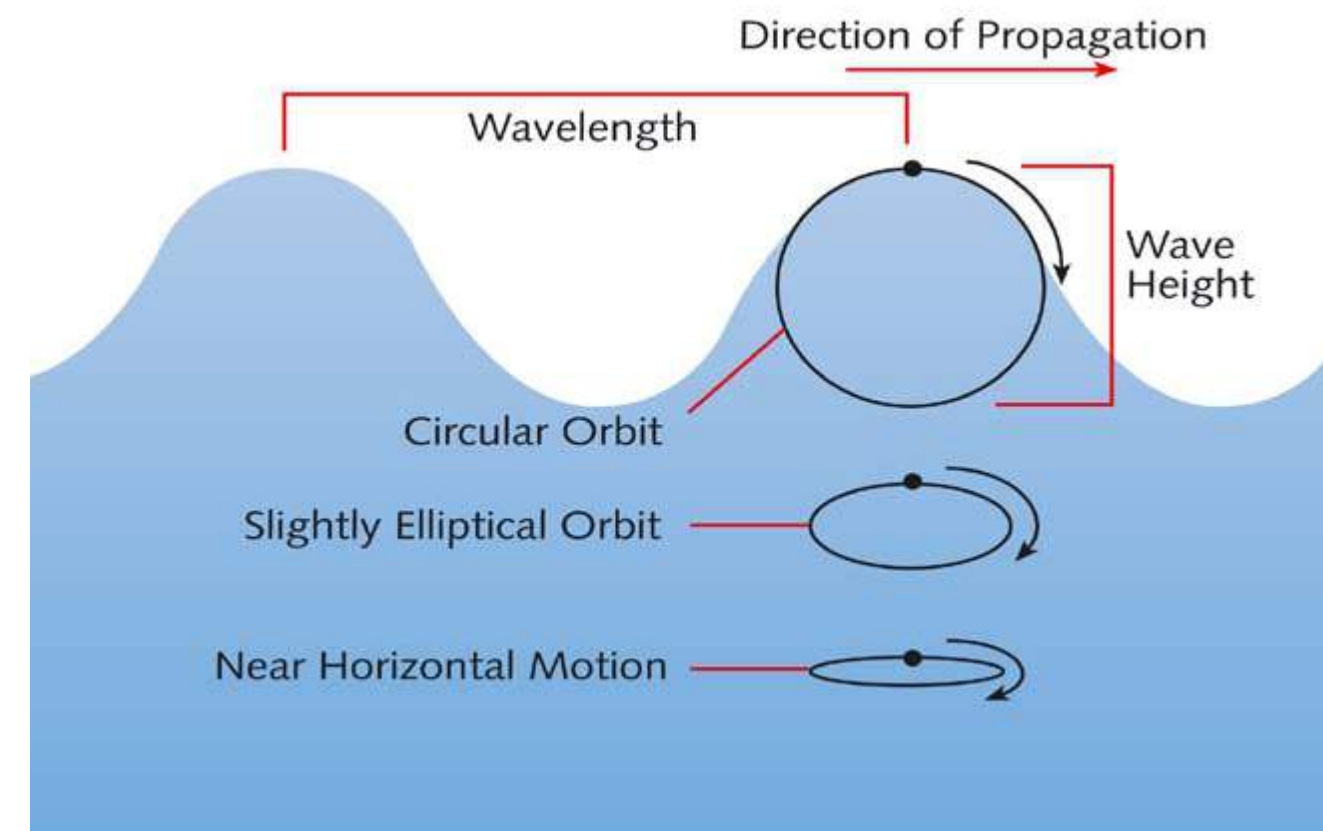
If a wave does reach to the bottom, the water particles there must move horizontally, since they cannot move up and down through the ground, and similarly at middle depths the orbits of the particles are elliptical (fig. 1).

The movement of water particles at different depths beneath a wave dictates how we as divers experience the force of that wave. Divers near the surface will experience both vertical and horizontal forces, as the water particles carry out their circular motion with the passing of a wave. While at your safety stop, large waves can therefore cause you to undergo large and unwanted vertical (and horizontal) movements. While at the bottom, the affect of the waves is felt only as a horizontal force, inducing forward-back motion, provided that the waves reach that depth.

It should be noted that the above information applies to so called 'deep water waves', which are waves which cannot 'feel' the bottom (i.e. according to the relationship given above, if the water depth is greater than half a wavelength). For example our wave with a 20 m wavelength will be a deep water wave at water depths greater than 10 m, however, as the wave approaches the coast and the water depth becomes less than 10 m the wave becomes a shallow water wave. When waves become shallow water waves and can feel the bottom they undergo dramatic changes. Firstly the waves slow down, and their wavelength decreases. The fact that the waves can feel the bottom means that they are guided by the undersea topography, an effect called refraction.

As the wave moves shoreward and decreases its wavelength, the height of the wave steadily increases. This continues until the point where the water depth is approximately 1.3 times the wave height, at which point the wave becomes unstable and breaks.

The instability occurs because at that point there is not enough water ahead of the wave to support the wave crest, and as a result it collapses. When a wave undergoes its final act of breaking, it dissipates the energy that it gathered from the wind - possibly thousands of miles away. ◀



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OCEAN ARTISTS

Van Wangye Shiming (Singapore)

UNDERWATER PHOTO & VIDEO SEMINAR

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Is the floating albatross going the way of the Dodo?

The albatross has peacefully roamed our planet's oceans for around thousands of years. Unfortunately this ancient bird's long existence is now severely threatened

The albatross has had a difficult existence since early Europeans first started exploring the world. Sailors hunted the albatross for food, and sport, as the large seafaring ships explored new lands.

If being hunted for food and sport was not enough, the early 19th century brought the harvesting of entire colonies for their feathers, used as down or in the manufacture of women's hats. This harvesting led to the near extinction of the short-tailed albatross.

The 20th century once again presented its own albatross killer in the form of longline fishing. Longline fishing is a fishing technique where a main line, which can be up to 130km long, is baited with thousands of hooks attached at intervals behind a fishing vessel.

Longline fishing kills an estimated 100 000 albatrosses every year. Before the line sinks the albatross dives for the bait attached to the hooks – the albatross gets hooked and is then pulled under water to its death.

We still have much to learn from these amazing flying animals. The flying technique of the

albatross, known as dynamic soaring, allows it to fly many thousands of kilometres with less effort than it takes to sit on a nest. An albatross can soar for hours without beating its wings by gliding across wave fronts, gaining energy from the vertical wind gradient. They almost appear to float. Some species have been recorded flying over 20 000km in less than six weeks.

The albatross has mastered flying to such an extent that many man-made gliders are now based on the albatross.


The International Union for Conservation of Nature (IUCN) recognises 21 species of albatross. 19 of these are under global threat of extinction and the other two are near threatened. The WWF also classifies the albatross as a priority species, meaning it is one of the most ecologically, economically and/or culturally important species on our planet.

The albatrosses, of which the flying bird with the longest wingspan, the wandering albatross, is family, faces the same threats to its existence as all sea birds. Longlining, trawling, floating plastic, climate change and

the introduction of predators to their habitat all threaten this species with a similar fate to the dodo.

So what makes the Albatross more vulnerable than other sea birds? Albatrosses take up to 10 years to reach breeding maturity. A pair will produce only one

chick per year, and some species of albatross only breed every other year. This slow breeding bird is unable to reproduce quick enough to guarantee its own survival.

Albatrosses and not only stuffed albatrosses standing next to stuffed dodos in museums. 



Diving and the body systems PART I

Discover the implications of scuba diving with a host of common medical conditions

Endocrine (Diabetes) Condition

Diabetes mellitus (DM) is a disorder of the endocrine system, manifested by one of two things: an insufficient production of insulin or the resistance of the body's cells to the actions of insulin despite normal or high levels. People with DM often have excessively high blood glucose (BG), called hyperglycemia, or an excessively low BG, better known as hypoglycemia.

Diabetes mellitus itself has two major forms: Insulin-requiring diabetes (IDDM, Type 1),* for which insulin must be given by injection to

control blood sugar levels, and non-insulin-dependent diabetes (NIDDM, Type 2), which may be controlled by diet or by oral medications (oral hypoglycemic medications).

The main risk to the diver is the occurrence of hypoglycemia, which can manifest itself as confusion, sweating, rapid heartbeat, unconsciousness and even death. High blood sugar levels, or hyperglycemia, may also cause unconsciousness, although this usually develops much more slowly than hypoglycemia. Impaired consciousness underwater leads to almost certain death. Although hypoglycemia occurs most commonly in Type 1, it can also occur in individuals taking oral hypoglycemic

medications. Hypoglycemia experienced during a deep dive may be wrongly perceived as nitrogen narcosis.

Although hypoglycemia or hyperglycemia can occur daily, other problems can develop over the long term in persons with diabetes. These maladies include: retinopathy (alterations in visual acuity), disorders of the kidneys, coronary artery disease and changes in the nervous system, including abnormal nervous conduction and atherosclerosis, which can cause poor circulation in the limbs.

Fitness and diving

Divers with diabetes are at risk of sudden loss of consciousness. This carries the ultimate risk of drowning and implies additional risks for their dive buddies. Individuals with diabetes, however well the diabetes is controlled, should not be deemed as fit to dive without restriction. Those who meet certain criteria can dive provided they dive in accordance with detailed, specific procedures (See Diabetes & Diving – current practices demonstrate that many with diabetes do take the plunge – by Guy de Lisle Dear, M.B., FRCA, Alert Diver, January/February 1997). Divers with diabetes should be examined periodically for complications of their disorder that may disqualify them on the grounds of additional risk.


Medication used in treatment

Sulphonylureas (drugs that possess hypoglycemic action) such as glipizide, glibenclamide, chlorpropamide and tolbutamide may interact with numerous other drugs used to lower BG. Biguanides (metformin) may cause self-limited (gastrointestinal side effects and may cause problems* in individuals with renal, liver or heart diseases. Acarbose (an alpha-glucosidase inhibitor) is also used in conjunction with other agents when the more simple sulphonureas do not work adequately to control blood glucose. Insulin acts to lower BG. In general, diving with diabetes is not recommended. An additional consideration is that insulin requirements may change substantially with the demands of exercise and diving.

* There is a small risk of lactic acidosis which is markedly increased by any condition that reduces metformin clearance (acute or chronic renal impairment) or compromises oxygen delivery and predisposes to tissue hypoxia (acute or chronic respiratory or cardiovascular insufficiency) in persons with renal, liver or heart diseases.

Additional information

- * Diabetes.com – www.diabetes.com
- * The National Institute of Diabetes and Digestive and Kidney Diseases or (NIDDK) – www.niddk.nih.gov
- * Diabetes & Diving: Current practices demonstrate that many with diabetes do take the plunge – How safe is it? By Guy de Lisle Dear, M.B., FRCA, DAN Assistant Medical Director, Alert Diver, January/February 1997.

Note: The acronym IDDM actually stands for the older term insulin-dependent diabetes mellitus, although the newer term for this condition is termed insulin-requiring diabetes mellitus, and is still represented as IDDM. The diabetes community currently is in transition between nomenclatures. 



Global News

Swim Through the Oceans at Your Desk With Google's 360-Degree Seaview

Richard Vevers left the world of London advertising to go to Australia and chase his dream of making a career in underwater photography—a source of fascination for him since his teen years in landlocked Bromley, England. Now, he and his team at the Catlin Seaview Survey, thanks to a partnership with Google Street View, may have created the most viewed underwater imagery of all time.

"I saw that there were a lot of issues going on underwater that were out of sight and out of mind," said Vevers. "I saw that as an advertising issue. Our solution was to reveal the ocean and let the conservation organizations do the rest."

Vevers and his team capture gorgeous, immersive, 360° images of all six major global coral regions to be used as baseline data to monitor their swift degradation. "We started off with coral reefs because we've lost 40 percent in last 30 years, and because of the effects of climate change, it's not likely to slow down," said Vevers. "This will give us an incredible, unprecedented baseline to measure change. These environments will be hit more and more by storms and bleaching events. It's the recovery that is so critical."



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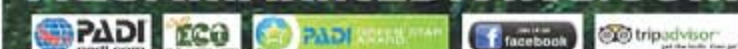
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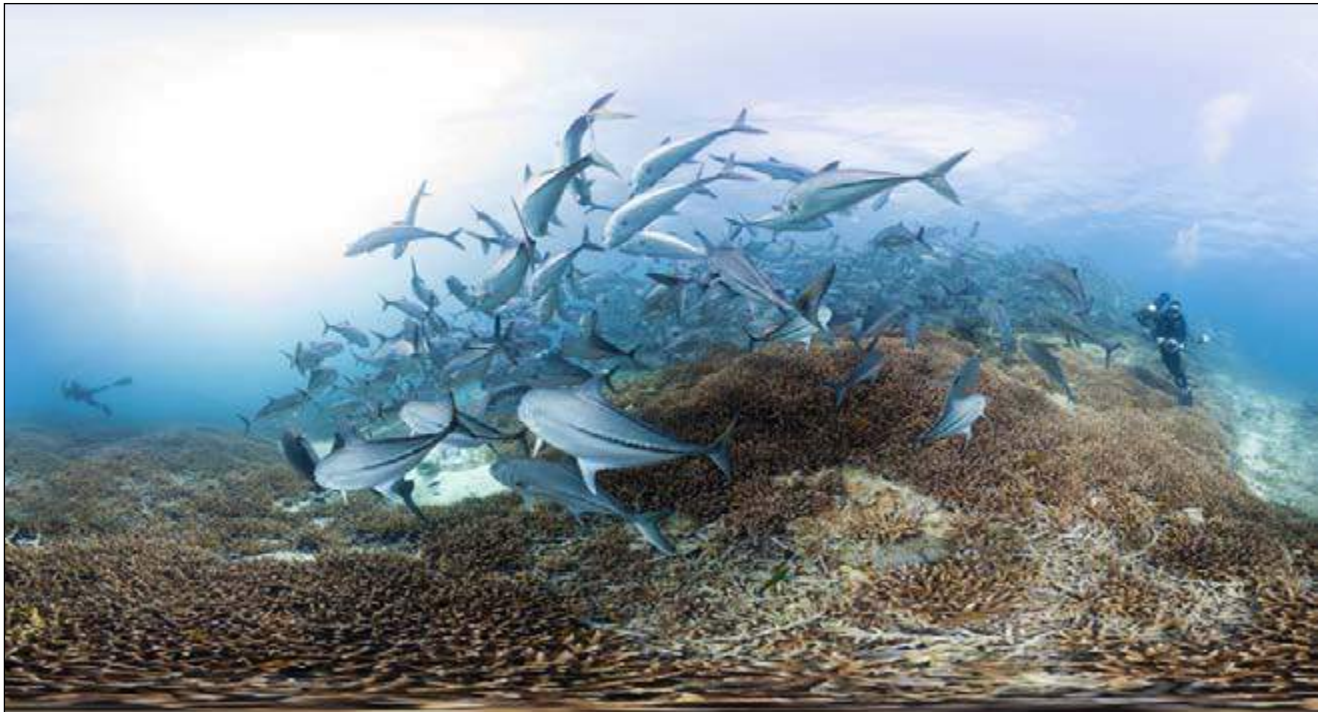
The team started with Australia, then moved on to the Caribbean, and this year will continue on in the Coral Triangle of Southeast Asia. Next year they will dive in the Indian Ocean, followed by the Red Sea, and finally the Pacific. The Catlin Seaview camera rig was modeled after the Streetview Trekker backpack-mounted camera pod and contains three Canon 5D cameras in a spherical waterproof housing, controlled by a Samsung tablet, and propelled by a Dive X underwater scooter. Seaview divers routinely cover 2 kilometers in a dive and generate 3,000 panoramic images in a day. Only a fraction of the best are uploaded to Google Street View, but all are processed into the Catlin Global Reef Record—an open source tool available to any marine manager or ocean researcher.

In his line of work, Vevers routinely finds himself in jaw-dropping marine environments. “You don’t know what’s around the next corner,” he said. “When you’re in remote places like the really far north part of the Great Barrier Reef—which takes two days of steaming just to get there—and you jump in the water, it’s truly wild.

You get buzzed by baby sharks straight away, shooting up from the depths, and then there are magical encounters with manta rays that check themselves out in the dome of the camera.”

The Seaview Survey has also captured countless manmade wonders in the depths. The Underwater Museum of living sculptures off the coast of Cancun, Mexico, the Antilla Shipwreck off Aruba, and the Christ of the Abyss off Key Largo, Florida are all included in the Seaview collection. Vevers’ team is currently developing an autonomous underwater vehicle to be deployed by 2017 to cover even more of the ocean. “These AUVs can stick to a meter and a half above the seafloor and hover at one knot,” he said. “They could cover 12 kilometers in a day, which would scale the project significantly.” These craft would also be perfect for retracing previous paths to measure the impact of say, a large cyclone on a sensitive stretch of reef.

“This is science that has not been possible on this scale before—to measure impact and create new baselines with which to measure recovery,” said Vevers. “I think it’s safe to say that we’ve taken Street View to places they weren’t imagining when they named it.”



RAID Opens in Belgium

RAID International is proud and very excited to announce the establishment of their Belgium Regional Office under the strong leadership of Filip Coysman: CEO, Steffi Coysman: COO, Katelijne Buydaert: CFO and Bert Wallaert: Back Office Director. The RAID Belgium Regional Office will be a full service facility providing on the ground support for the growing number of RAID Instructors and Dive Centres that see RAID as a real alternative to what other training agencies have to offer.

Making the announcement, RAID International Training Director Paul Toomer said: “the Belgium office will administer RAID’s affairs in Belgium and will assist other RAID offices throughout Europe to develop RAID generally and forge valuable partnership with local dive industry stake holders. Filip, Steffi, Katelijne and Bert between them have extensive knowledge of the region and in particular dive instruction and retailing, developed over several years. They know what it takes to develop and maintain a successful business, so we at RAID International could not be happier than to bring these extremely experienced industry personalities into the RAID global family”.

Paul Toomer went on to say: “the establishment of RAID Belgium is an awesome development. I am absolutely thrilled! It fills in yet another part of the globe where RAID is emerging as the training agency of choice of diving professionals unafraid to take a serious look at us and when they do, they jump on board”.

RAID Belgium over coming weeks will develop their infrastructure but for the moment you can contact Filip Coysman and the RAID Belgium team at:
Fonteinestraat 10
8740 Pittem
Mobile : +32 475 596652
www.scubaturtles.be

To learn more contact your local RAID Regional Office or find all the information you need on all RAID programs at www.diveraid.com and freediving at www.freedivingraid.com. Also visit us on Facebook at <https://www.facebook.com/diveraid>

Send us your news.

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

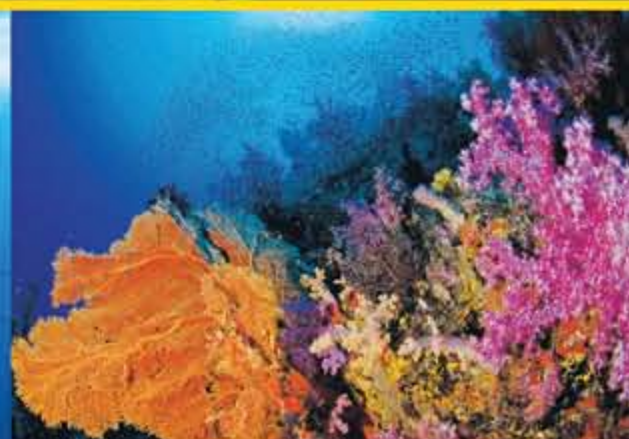
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*Breathtaking underwater world,
magnificent marine creatures and coral formations,
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Shark Central -Bahamas

As shark populations fall around the world, there are less and less places to observe these beautiful, graceful hunters. South Africa has its fair share of shark action, Fiji's Bega lagoon has its feed, Guadeloupe has great whites, the Galapagos and the Cocos have hammerheads and white-tips, Papua New Guinea has healthy populations of reef-dwelling species, and a few Egyptian sites can be of interest, but nowhere guarantees such prolonged and up-close-and-personal encounters as a liveaboard off the Bahamas.



By Christopher Bartlett After flying to West Palm Beach, Florida, I boarded the 12-berth Dolphin Dream II and met up with my companions for the next six days and our host, Captain Scott Smith. Initially attracted by its spotted Atlantic and bottlenose dolphins, Scott has been visiting the banks off Grand Bahama for the past thirty years and has an intimate understanding of the tides, currents and reefs.

I was sharing a room with Mike from Texas, a veteran of two Dolphin Dream expeditions, and the rest of the passengers were a single US female, an American couple, an Aussie father-daughter combo and a group of five Dutch divers. Over dinner a few shark stories were swapped, and there was a distinct air of happy expectation, possibly assisted by Captain Scott declaring that all beers on the trip were free. As soon as dinner was over we left our moorings for the night crossing to the Bahamas.

Once at Tiger Beach we moored up to a buoy.



A steel drum with bits of fish carcass stood on the aft of the port deck, to which Scott added some fish offal and some tuna heads before he started pumping the stinky grey gunk out into the sea. Plastic crates were filled with more carcasses and some fresh snapper the crew had caught, and were suspended aft of the dive deck and from a couple of buoys. Within 10 minutes dorsal fins appeared and lemon sharks dotted the bright blue ocean.

The pre-dive briefing was simple and succinct. We would be moored here for at least 24 hours, as the sand was 6m below the boat no buddy pairs were obligatory and the only limit on dive time was the rate we used our air.

"Don't hang around on the surface, don't fondle the sharks, do have fun. Pool's open!" The lemons cruised around the dive platform and we waited for a gap in the traffic to stride in. Travis and Connor of the crew handed our cameras down and we sunk down to the sand.

Five lemon sharks, all pretty much fully grown 3m specimens, one of whom was in the latter stages of pregnancy, glided around with much more grace than a human in the same state, checking out the bait boxes but pretty much ignoring us divers. Mostly they stayed close to the sand, occasionally resting and opening their mouths to pump water through their gills to breathe without swimming. I'd never encountered lemon sharks before and the thing that struck me was the number of remora hanging off them. One of them must've had over 20 suckered up to its brown-bronze skin. A 3m tiger shark put in a brief appearance and then moved on. Contrary to popular belief, tiger sharks are shy and wary; they don't grow so big and so old by blithely approaching anything new without much caution. The lemons, on the other hand, and a fearless loggerhead turtle, happily cruised around us.

At such a shallow depth and with very little finning to do, my first dive lasted over two hours as I lay on the sand and let the sharks swim around me, making the most of the light and shooting without my strobes and using manual white balance. After tea, cake and a battery change, I headed back down for more of the same. After another hour underwater a 3,5m tiger with a permanent, lopsided grin turned up and swam around in an oval pattern, coming up to one of the bait boxes, and then gliding away to reappear a couple of minutes later, over and over until I was low on air again and my stomach was rumbling.

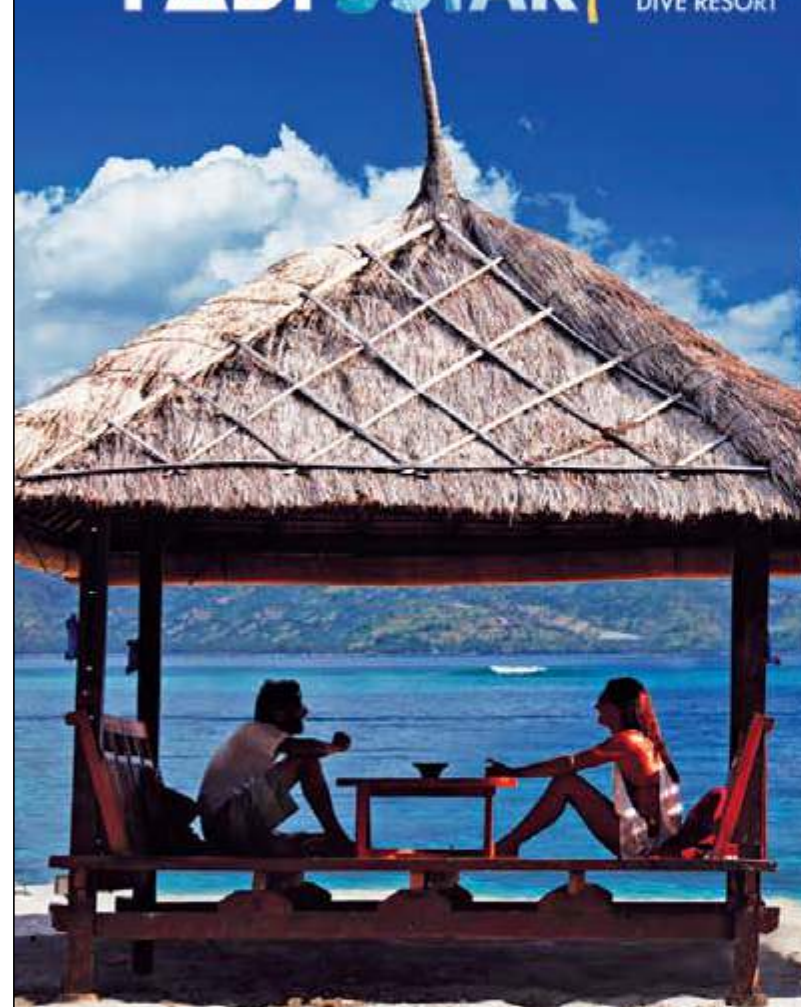
We stayed moored up at Tiger Beach overnight, and after breakfast the lemon shark contingent had grown to 14, the smallest being over 2m long and around my age. Mature lemons can live an estimated 70 years, mainly living off a diet of slippery fish, hence their long and pointy teeth. The pregnant female was still around, and her bloated abdomen looked ready to release her litter of eight to twelve live pups. I wondered how that worked – would they just slip out as she swam around, or would she go through the same drama as human females?

I swam under the boat to beyond the bow and inspected the chain we were moored to. Running perpendicular to the boat, its wrist-thick links were adorned with coral growth. A small rock harboured an eel and cleaner shrimp and a school of cottonwicks decorated some





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finger coral in the early light.

In the afternoon we upped anchor and went to a spot where dolphins are regularly seen. With two lights dangling under the boat we slipped into the silent, otherwise inky black ocean as soon as curved fins appeared on the surface. Underwater the ocean was alive with high-pitched squeaks as the spotted Atlantic dolphins darted around us, teasing those of us with cameras. It was impossible to get a clear, in-focus shot, but was most amusing as the dolphins appeared like ghosts and whirled around as if to say to their fellow mammals "hey human, this is how to dive."

The next morning Scotty cruised around looking for his friends and within forty minutes had identified the unmistakable notched dorsal fin of Chopper, the alpha male of the area, who he had first seen thirty years before, and we jumped in. Scuba was impossible as firstly by the time we'd have kitted up and jumped in they would have gone, and more importantly, the dolphins were after some fun. The best way to prolong any interaction was to free dive down and twirl and spin in the most dolphin-

like way possible. Travis used a UPV to keep one pod interested, as I followed another. Every time they seemed to be disappearing I'd dive down to five metres and spin/twist as much as I could and they would come straight back, chirping and chattering and shaking their heads in approval. Incredible.

After lunch we moored up at The Mountains, thus named due to the reef topography. The tops of the reef (or peaks of the mountains) were 13m deep, and the sides sloped down another 17m to a sandy bottom. The sides had small caves, overhangs and gullies with plenty of reef life and coral coverage. Connor placed a bait box on a ridge and soon more than a dozen Caribbean reef sharks had joined us. They were a mixture of juveniles and sub-adults, the longest being two-metres long. A nurse shark put in an appearance and was soon using her mouth, adapted to feeding from the floor, to suck bits of fish out of the crate. It was a scenic site, but for the time being was tiger-less and lemon-free. When my buddy and the other divers were low on air they ascended to the boat overhead. I was alone and sat on the bait box for five minutes of shark-petting. Some people say it's wrong to touch wild animals, I



used to too. Then I learnt to put sharks into tonic immobility, and the only thing I now consider 'wrong' about it is how absolutely amazing it feels. It feels like being in love with a big fish.

For our third dive of the afternoon we visited the Sugar Wreck, a shallow wreck that has been broken open by successive storms but that is home to large schools of snapper, turtles, French angelfish and lobsters. Being a shallow site it was a good choice after the deeper dives of the afternoon. As the sun dropped and the moon began to shine, a lobster scurrying across the rocky bottom caught my eye and I stayed down so long watching it, that it ended up as a night dive.

At The Mountains I lay in the rocks next to the bait box, more like a sniper in dead ground than a diver. It did occur to me at one point that I was lying next to a box of dead fish and must've looked pretty deceased myself, other than the odd bubble stream. To a fish equipped with the unique electrical-field-detecting seventh sense that is the ampullae of Lorenzini, however, we must have appeared very much alive and inedible as the two dozen sharks

cruised merrily over and around our hideouts. There were plenty of lemons and reefies again, a nurse shark and a hammerhead, possibly the daddy of the family the great hammerhead, Sphyrna Mokorran, in the distance.

We headed to the sands where Connor was going to do a feed. As we knelt or lay in a circle the lemons cruised in along the bottom and started getting a little frisky. One of my strobes was given a sniff and a nibble and my grey free diving fins seemed to catch their eye. I was lying prone in the sand to get a lemons' eye view when I felt my fin being tugged gently. I turned to see a male lemon shark feeling my fin like a puppy with a new toy. I gently pulled it away and the curious chap moved on. Three shy tigers turned up and had a short mosey around before disappearing into the blue, and then it was time to head back to the boat. As I finned I felt myself kick something. Rather odd as I wasn't over any reef and was a few metres off the sand. I looked round and saw my fin-fancying male lemon shark friend again, sort of sniffing out my left fin again. As soon as he saw me looking at him he skulked off on a tangent like a naughty schoolboy.



By Christopher Bartlett

The lemons and the Caribbean reef sharks hung around the boat though, and after dinner we jumped in and did a night dive – with sharks – an excellent if slightly unnerving concept. The two lights hanging from the stern and the dive platform lights cast a circle of light close to the boat, but a few fin kicks and I only had the light of my torch to rely on. It was pretty eerie. I sensed something behind me and saw two 3m lemon sharks coming up on my right shoulder. When I shone my torch on them they circled once and swam off to inspect some other divers. Good fun, but pretty creepy, and I found myself drawn to the lights of the boat. I wondered if a tiger would show up, and waited half an hour, but if one was there she stayed out in the darkness.

On the second dive Connor took down some bait for a feed, and the tiger was certainly keen. We were in a loose circle on the sand and Tigger was coming in close to each diver,

sometimes head on, moving in calmly but assuredly. Sensibly divers let the graceful giant fish pass, moving out of its way or gently pushing it aside with a camera housing or dome port. I wasn't sure whether I was imagining it or not, but I seemed to get extra attention, or maybe it was the white diffuser plate on my larger strobe. I moved behind a low rock encrusted with coral and an orange barrel sponge to compose images with a more interesting foreground, and held my camera for portrait shots, the smaller strobe positioned to the side to illuminate the foreground, the larger strobe up in the air. Tigger came in to the bait box and past Connor, and then went up and over my bit of rock and I snapped away, noticing her pause briefly and eye my strobe again. On her second pass, just as I had got a good shot, she twisted her head back to the right. I saw her nictating membrane flutter over her right eye, and then my strobe was in her gaping maw. This wasn't a nibble like



yesterday, she had a firm grip and was not keen to let go. As it was a four-day-old camera and wide-angle lens in the housing, I wasn't willing to let go either. She was over the top of me, her mouth to my right, her underbelly above me. After four or five seconds I started to get worried about the state of my strobe, so I reached up and gave her a tummy rub with my left hand, manoeuvring my camera out of her mouth with my right, and thankfully she let go. I decided to stick to video and landscape format shots for the rest of the dive.

On the last dive of the trip we moved over to the reef and the bait was placed at a sandy crossroads where two gullies intersected. The tiger from the first dive was joined by a second of the same proportions, and just as we got out of the water, a third, larger female turned up. She was close to 4m long and had an impressive girth to match. I hung in the water and savoured their graceful magnificence, the result of 400 million years of evolution, and thought what an amazing five days it had been. For anyone who wants shark action from dawn to dusk, with plenty of tiger shark time, this is the trip of a lifetime.

Shark facts

- Around 100 million sharks are killed every year, mainly to supply the Chinese demand for shark fin soup.
- The fins are cut off the live shark and it is dumped helpless into the ocean, no longer able to swim.
- Shark fins provide no flavour, only texture that can be replicated with gelatine or other thickening agents.
- As sharks reach sexual maturity at a late age and produce a small number of young, the fishing pressure on them is far too high.
- In many areas shark populations are down by an estimated 90% and some species are on the verge of regional extinction.
- As apex predators, sharks play an essential role in keeping our oceans and reefs healthy and balanced.
- The planet's oceans provide up to 80% of our oxygen supply through photosynthesising plankton and plants.
- Commercial shark fishing was banned in the Bahamas in July 2011.
- Only a few species are protected internationally.

- If shark fishing and finning continues the effects will be disastrous.
- Join www.sharklife.co.za to help educate people and protect sharks.

Other facts

- Annually, worldwide, 1 000 people are killed by falling coconuts.
- You can avoid sitting under a coconut tree, but you'd think yourself mighty unlucky to be hit and killed by lightning, yet it happens 1 000 times a year.
- Crocodiles kill an estimated 500 people per year.
- In the US alone, in 2010 dogs killed 32 people and cows murdered 22 people
- In the UK there were three human deaths caused by cow attack.
- There are, on average, 70 reported shark attacks per year worldwide, resulting in five fatalities.

Indigo Safaris organizes tailor-made trips to Dominica covering accommodation, diving, hiking, guided walks, and vehicle rental. See www.indigosafaris.com or email info@indigosafaris.com 





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By Stef Mallaci Photos: Jake Schubert

Panama; the secret's out!

We dive the Bocas Del Toro archipelago to discover exactly why divers are swarming to Panama's warm Caribbean waters



When it comes to diving in Central America, most bucket lists don't normally start with Panama.

True, when compared with some of the more iconic scuba destinations in the region - including the likes of Costa Rica and Mexico - Panama, at least on paper, isn't in the same weight division.

However, there are whispers in certain circles that suggest the secret is now out. Despite not always being the first county to be circled on the gringo trail map, Panama can spar with the best of them because those who visit are finding untouched tropical reef and a growing number of likeminded divers intent on discovering this tiny country's underwater treasures.

Situated on the north east of Panama's Caribbean Coast, just 32km from the Costa Rican boarder, the Bocas Del Toro archipelago is fast becoming the country's premier dive spot.



Made up of seven densely forested islands, numerous islets and Panama's oldest marine park, Bocas - as it's affectionately abbreviated to - has been the subject of a tourism boom of late. Helping supply demand, several dive operators have sprung up on Isla Colon, the region's commercial center, over the past few years but none more qualified than Bocas Dive



Centre, the only Padi 5 Star IDC rated training facility on the island.

Diving here is varied - from shallow reefs just minutes from shore to sites suitable for technical training - but most of the 22 sites that are easily accessible offer the opportunity to dive in easier-than-most conditions. It'll come as no surprise then that the year round warm waters (3mm shorty wetsuits are optional), minimal current, and shallow profiles make the whole area popular with Open Water students.

Amongst the archipelago's most popular sites are Polo Beach, the unusually christened Mark 19 (named after a buoy line) and deep dive training site Tiger Rock, which offers the opportunity for tech divers to submerge to near the 70m mark.

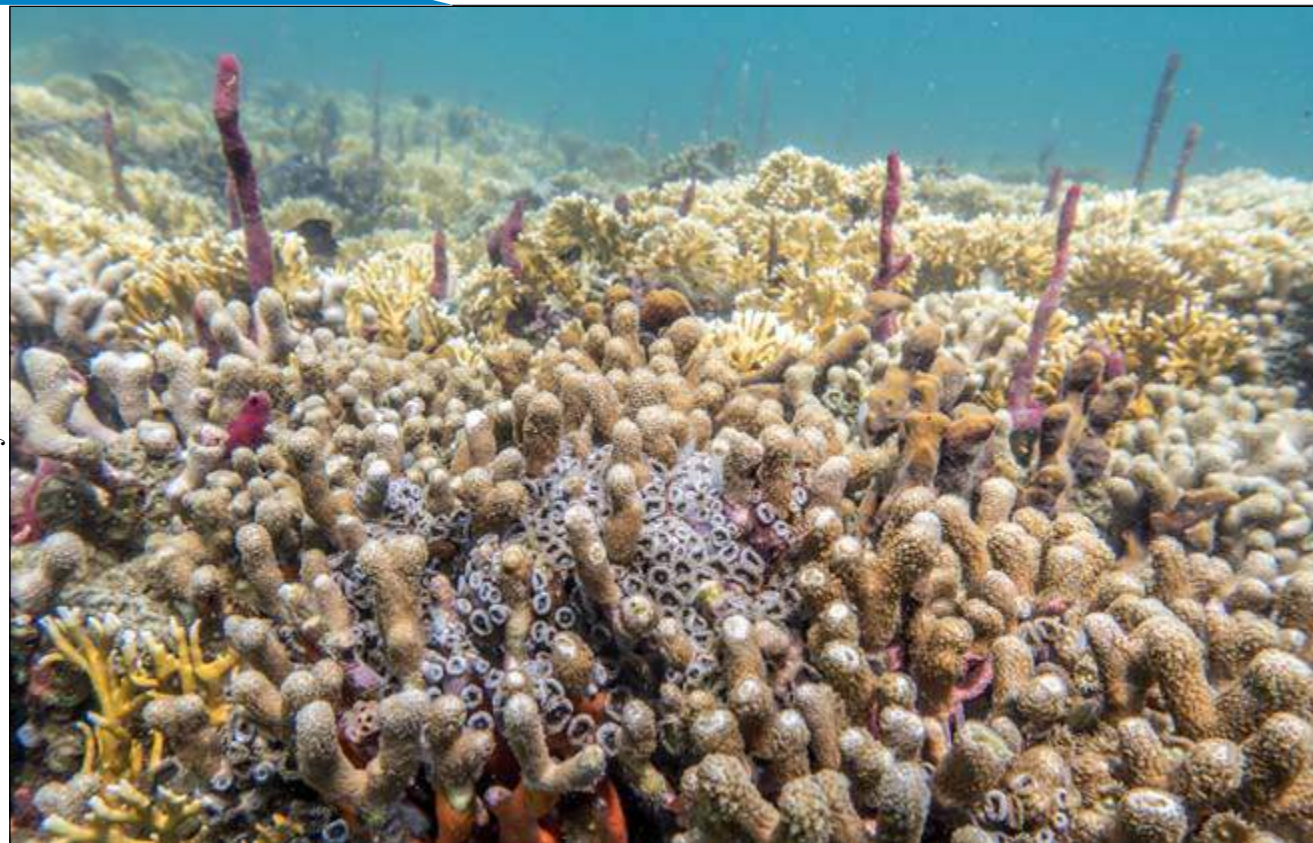
Each site is different, not only in terms of their physical make up but also the marine life. From some of Tiger Rock's most sought-after pelagic



residents - including mantas and hammerheads - to nurse sharks and moray eels common at Polo Beach and vast schools of black snapper found at other sites, there's something for most. Encounters with lobsters, octopus, and various macro life, including nudibranchs, is the norm throughout though.

Add world class coral into the mix, plus the fact





An experience without equal

At Wakatobi, we take great pride in providing the ultimate in exclusive and personalized service. Our dive staff and private guides ensure your in-water experiences are perfectly matched to your abilities and interests. While at the resort, or on board our luxury dive yacht Pelagian, you need only ask and we will gladly provide any service or facility within our power. For all these reasons and more, Wakatobi takes top honors among discerning divers and snorkellers.

"A fantastic and unique location with some of the best dive sites we've ever experienced. The sites are great at 25 metres, 15 metres and 5 metres, so perfect for any kind of preference. The service and support was downright luxurious!"

T. Marshall Manson, October 2015



www.wakatobi.com



By Stef Mallaci Photos: Jake Schubert

that new dive sites are still being discovered all the time (the most recent being in 2014) and you'll start to get a better understanding of why Bocas has recently started to attract a plethora of divers from all corners of the globe. No doubt the year-round average visibility, guaranteed to be around 15-16m, helps too,

It's no wonder then that Bocas Dive Centre is currently in the middle of construction for a 25 room boutique hotel which will be attached to a state of the art Training Academy. Complete with two classrooms and the capacity to cater to some 30-40 students, from OW courses up, BDC is aiming for the new facility to be amongst the biggest anywhere in Central America.

For now though, the Bocas region remains pleasantly untapped so divers looking for a location that's off the beaten track but also offers that perfect cocktail of sun, sea and Caribbean chill factor could do far worse than making the trip to Panama before the secret really gets out.





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WAKATOBI Dive Resort

Wakatobi Dive Resort is widely considered to be one of the world's premier diving destinations, as well as one of Indonesia's most sought-after nature resorts. Built and operated in an ecologically conscious manner, Wakatobi's spectacular natural beach is surrounded by miles of vibrant, unspoiled and protected coral reefs. The resort's beachside location includes 26 exquisite seaside villas and bungalows set among lush landscape to create a tranquil refuge for those seeking a unique combination of "barefoot luxury" and exceptional diving and snorkeling.

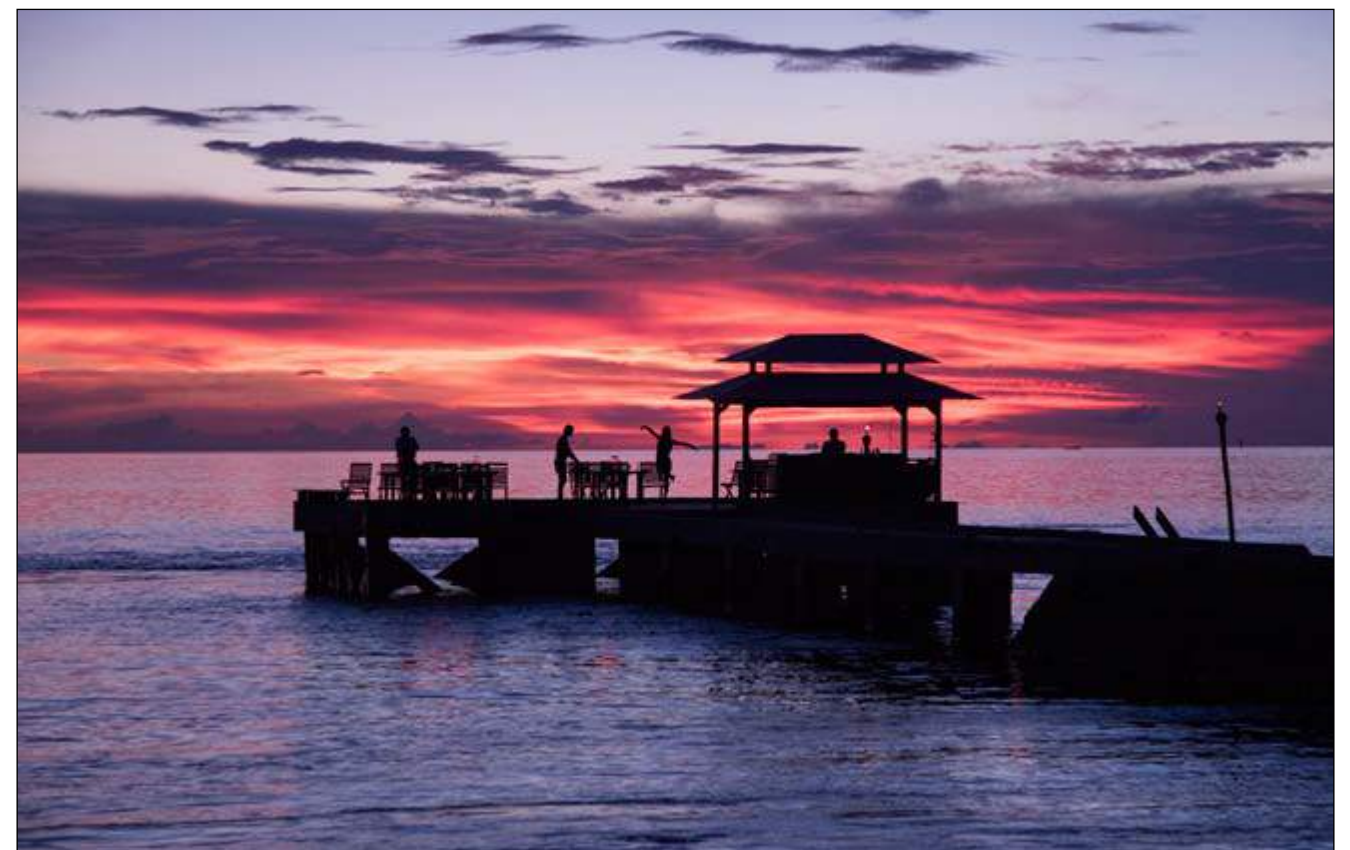
The resort maintains a four-to-one staff-to-guest ratio to ensure the highest level of personal service. Direct charter flights from Bali eliminate the long, complex travel itineraries associated with other destinations in the region. Wakatobi's concierge staff in Bali assists with every detail of travel and transit, and makes all arrangements needed to ensure each guest's personal needs and preferences are met. They can arrange for accommodations in Bali, set up guided tours with private drivers, schedule day tours, dining and spa services, as well as personalized diving itineraries and other activities at Wakatobi.

Wakatobi's highly acclaimed services are exceeded only by its unparalleled diving and snorkeling. The full-service dive center is staffed by a diverse and highly professional

group of instructors and assistants who together speak nine languages, including German, Dutch, Spanish and English, and are qualified to provide everything from basic instruction and refresher courses to advanced and technical training. A full range of rental equipment is available, including nitrox and oxygen to support technical and rebreather diving activities. Photographers are provided with a separate climate-controlled camera room with ample workbench space and numerous recharging stations, along with custom photo-video services and clinics provided by on staff photo pros. The resort now offers an exclusive camera rental program that providing guests with access to the finest DSLR cameras, housings and lighting equipment.

There are 40-plus dive sites in close proximity to the resort, offering a rich diversity of topographies and ecosystems that includes propitious drop offs, seamounts and shallow reefs covered in a myriad of fascinating marine life. Renowned as "one of the world's best shore dives," the resort's four-mile-long house reef explodes with a flurry of color and activity, all just steps from each room, available for exploration day and night.

With an international team of dive professionals on hand to provide guidance and assistance for any skill level from novice to expert, guests are free to dive, snorkel



Dive the Globe

Wakatobi Dive Resort

By Resort Photos: Mark Snyder

and explore pristine coral seascapes and enchanting marine life in the manner best suiting their personal comfort and mission plan. A fleet of six spacious boats takes divers and snorkelers out for three, 70-minute dives per day plus scheduled night dives. Guests also enjoy unlimited shore diving with taxi boats providing ongoing transport to the more distant portions of the expansive House Reef.

Private diving with one of the team's private dive experience managers allows you even freedom and flexibility via an exclusive, customized program for diving and snorkeling. The private dive guides are also included as part of any Villa booking. Another guest favorite is Wakatobi's Fluo-dive experience, which employs special lighting during night dives to reveal the hidden fluorescing colors of the reef.

Wakatobi also offers the luxury dive yacht Pelagian, which departs from the resort for five- to ten-day cruises of the Wakatobi archipelago and souther Buton Island. With a maximum of just ten guests, this expansive 115' / 36-meter vessel is a ideal addition to a Wakatobi stay, as it combines five-star service and amenities with a change to expand diving horizons to include some of the finest muck diving sites in the region, as well as remote reefs and seamounts.

Positioned at the epicenter of the planet's most bio-diverse marine environment, Wakatobi Dive Resort was founded on the principles of sound, sustainable eco-tourism. The founders, in partnership with local leaders, developed the Collaborative Reef Conservation Program, which provides protection for more than 20km of reef, with 17 participating villages taking an active role in protecting their unique marine ecosystem.

Wakatobi Dive Resort has received numerous awards in recognition of its world-leading example as a net positive environmental impact operation, and its significant benefit to the health and welfare of the local communities. A portion of resort income is used to help protect the sanctuary, and to provide a variety of socially and economically beneficial programs to surrounding villages.

Divers from all corners of the world place Wakatobi Dive Resort at the top of their list of dream destinations, but you need not be an avid diver to enjoy the unspoiled beauty, hospitality and relaxed luxury the resort provides.

To learn more about Wakatobi Dive Resort, its initiatives and services, please visit www.wakatobi.com



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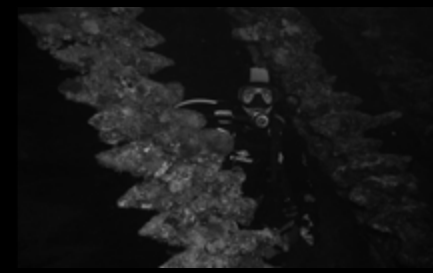


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Wrecks of the Nothern Red Sea - Part 1

As you swim above and through the majestic ships which came to rest at the bottom of the Red Sea, you can only imagine the panic and woes of those onboard the sinking ships which are now encrusted with beautiful, colourful corals and tropical reef fish which complete the picture. Instead of following the 'normal' Red Sea route, why not discover the treasures beneath the azure blue waters of Egypt's Red Sea?



By Johan & Amilda Boshoff

Name: The Carnatic
Type of ship: Iron framed planked passenger steamer
Location: North side of Sha'ab Abu Nuhas Reef, the Straits of Gobal
Date built: 1862
Length: 89,8m
Weight: 11,6m
Date wrecked: 14 September 1869
Date discovered: 15 October 1869
Port of origin: London, England
Destination: Bombay, India

What was the ship carrying? 34 passengers, 176 crew, cargo of cotton bales, copper sheeting, Royal Mail and £40 000 in specie destined for the Indian mint
Average depth: 23m (starboard side)
Maximum depth: 27m (along the mast)
Access: Day or safari boat normally from Hurghada, occasionally from Sharm-El-Sheikh

At 10am on the morning of Sunday, September 12, 1869, the Carnatic sailed for Bombay. She was a sleek vessel with proud lines and, like many of the 'sail and steam' ships of the period, this vessel responded well to either form of power. Captain Jones personally negotiated the long narrow confines of the hazardous Gulf of Suez and remained on the bridge to give his personal attention to every detail of navigating his vessel safely, supplementing his continual lack of sleep with copious amounts of coffee. The night was clear, with a slight following breeze and a little land haze – common in these parts.

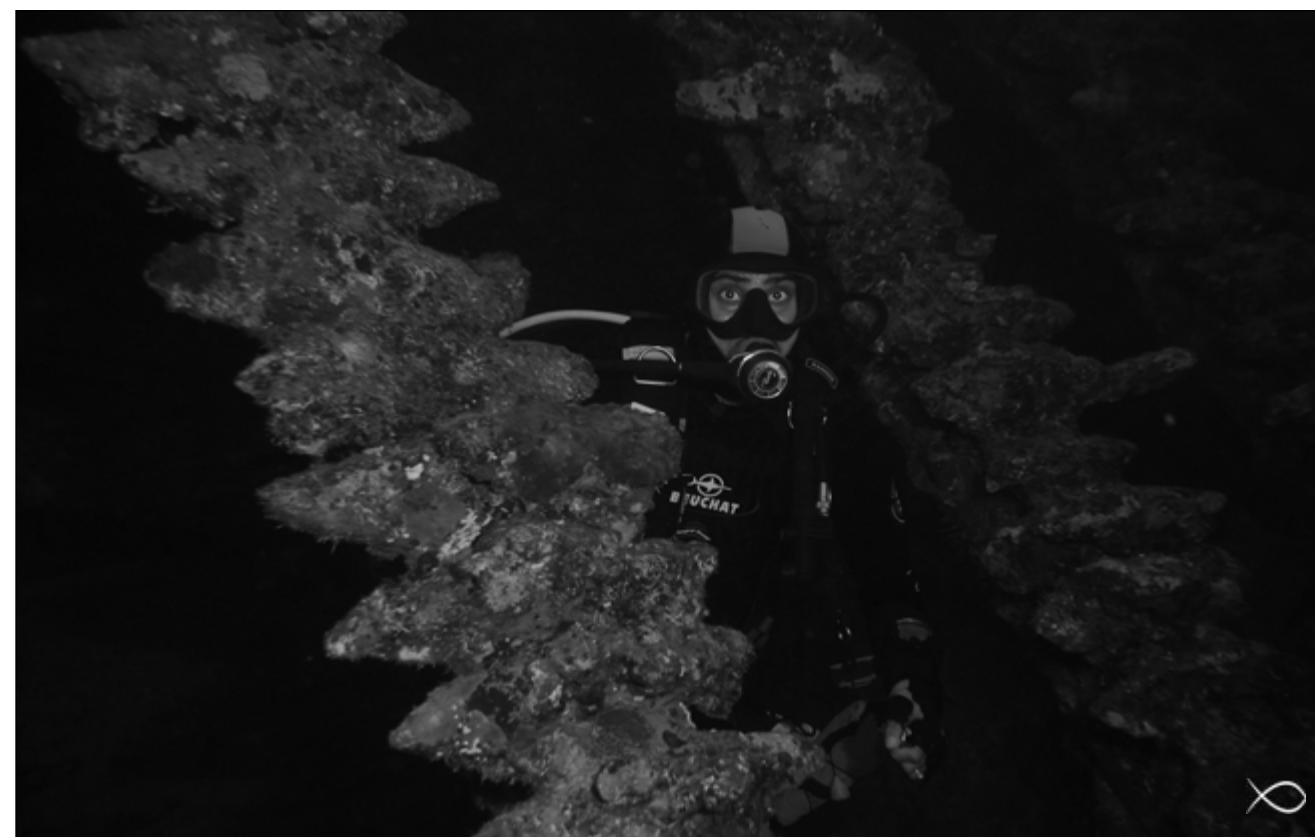
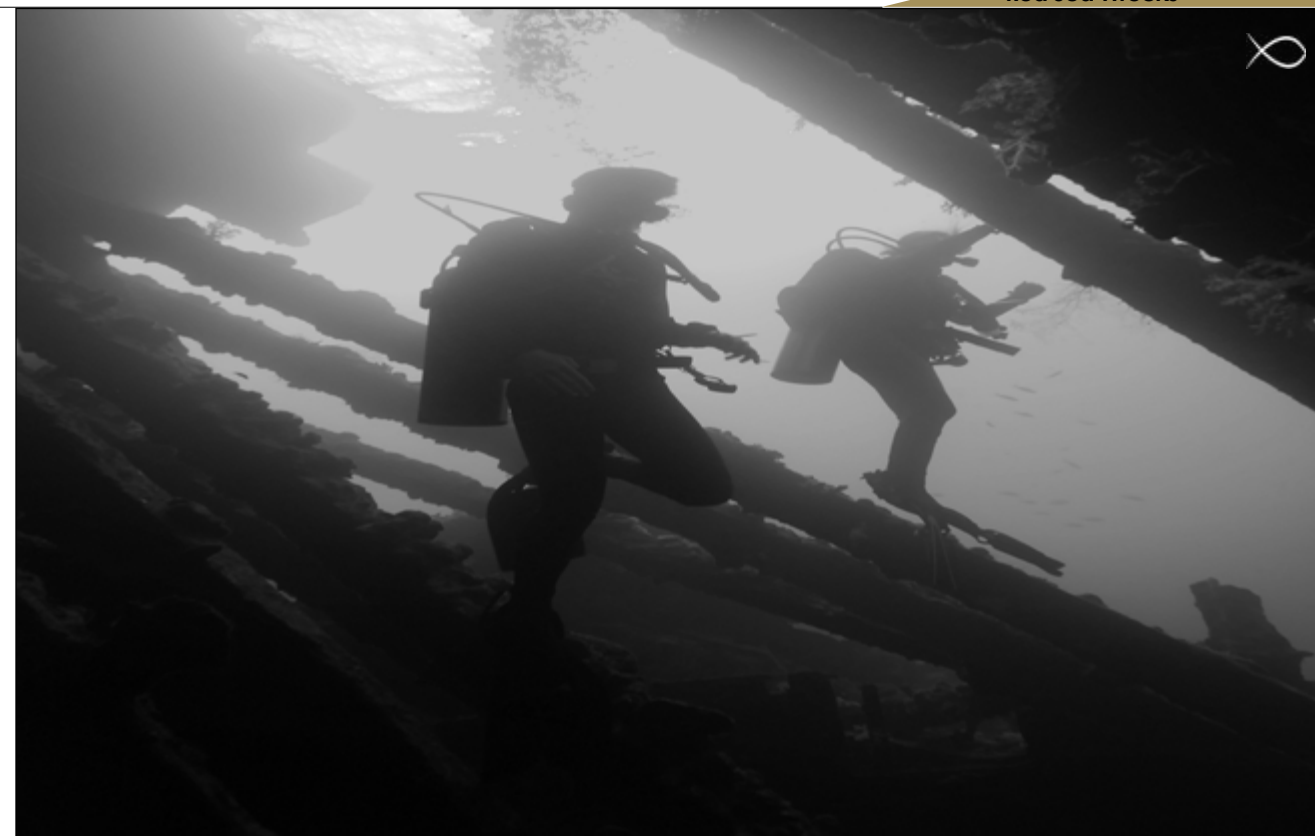
More importantly, the headlands and islands through which the Carnatic plotted her course were all visible. At 1am, Shadwan Island was sighted dead ahead by the Second Officer. The Master altered course but eighteen minutes later, however, breakers were seen on the starboard bow. The helm was instantly put hard-a-starboard and the engines at full speed astern. Too late, the Carnatic struck Sha'ab Abu Nuhas Reef where she became firmly fixed.

Captain Jones, who was a level headed man and not one to overreact, inspected the condition of the ship and was satisfied that the pumps would handle the amount of water that was seeping into the ship and also decided that all passengers and crew should remain on board. On the morning of

the thirteenth, Captain Jones assessed the situation again, and although the ship was still leaking, ordered that a large amount of cotton be dumped overboard to lighten the load hoping that the ship would float off the reef with the tide. Some of the passengers asked to be moved to Shadwan Island, but after taking into account the dangers of moving 210 people around dangerous coral reefs to a remote island, he refused their request. He knew that the P&O Liner, Sumatra, was to pass by at any time on the way to Suez and expected to be rescued later that day.

He kept the passengers and crew aboard as if nothing had happened and so another day passed and the Sumatra did not come. He had not kept in mind how strong the coral reef was and how great the pressure of the water could be, so at 2am on the morning of the fourteenth, the level of water within the ship finally engulfed the boilers and suddenly they were without power and light. Still Captain Jones didn't want the passengers to leave. By daybreak, still hoping the Sumatra would come, he realised that all was lost and ordered the lifeboats to be lowered, and so by 11am the first passengers begin to disembark. Unfortunately by that time it was too late for some, as the ship broke in two taking five passengers and 26 crew with it.

As freed lifeboats floated on the ocean, struggling passengers helped each other to get into the boats and collecting items they might have needed on their way to Shadwan Island some three miles from the far side of Sha'ab Abu Nuhas Reef. To shorten this journey, each of the seven lifeboats was pulled across the top of the reef until they were able to row the remaining distance. It was after sunset when they arrived. Some of the cotton bales that washed onto the island provided warmth for the cold night and some of the cotton was carried to a high point and set alight. One signal rocket was fired and at last the Sumatra came to their rescue. Lloyd's immediately dispatched Captain Henry Grant to take charge of a recovery operation, which arrived on the scene on September 29 and immediately chased away some Arabic boats. Grant was heartened to find the Carnatic in quite shallow water at the bottom of a reef with some of her features still visible above the surface.



Working from the Salvage vessel, Tor, Grant had only one diver at his disposal, a guy named Stephen Saffrey from Whitstable. Adverse weather conditions delayed the first descent until October 15. The search began in the Mail Room where a body was first recovered. Mail bags were sent to the surface and pocket watches removed from the safe. In the meantime, local Bedouin free divers had recovered over 700 sheets of fine-grade copper also destined for India's Mint. The task was completed on November 8 and official reports record that the entire cargo was recovered.

The most implausible part of this entire shipwreck is that although the ship went to the bottom in two separate halves, they fell together on the seabed, just as they might have done had the ship gone down as one piece. Today the Carnatic lies at the base of the reef and parallel to it. She is on her port side with the bows facing east. Most of the structure today is corroded and covered by beautiful, multicoloured soft corals. The dive exploration starts from the stern which is home to a big propeller with three blades. You continue along the deck to reach the bridge and the engine room situated at a depth of 25m. The boiler and propulsion machinery lies on the seabed next to the two masts.

The holds are easily accessible and host dense schools of Glassfish which are best observed in the early morning hours when sunlight filters through the distinctive square portholes. The bow, with its unmistakable elegant and tapered lines, rests on the reef at a depth of 16m. A gigantic umbrella-shaped Acropora is situated in the centre section of the wreck and a huge Malabar grouper often rests under its branches. Groupers, trevallies and lionfish swarm around the wreck whose structure has become home for hard corals, sponges and numerous soft corals. Also be on the look out for Scorpionfish camouflaged on the wreck. It is relative easy diving but be sure to dive only on calm days. Be careful of sharp pieces and preferably dive in the morning with good sunlight. Having dived the wreck of the Carnatic, spare a thought for those who lost their lives there...

The Thistlegorm

Type of ship: Steam freighter

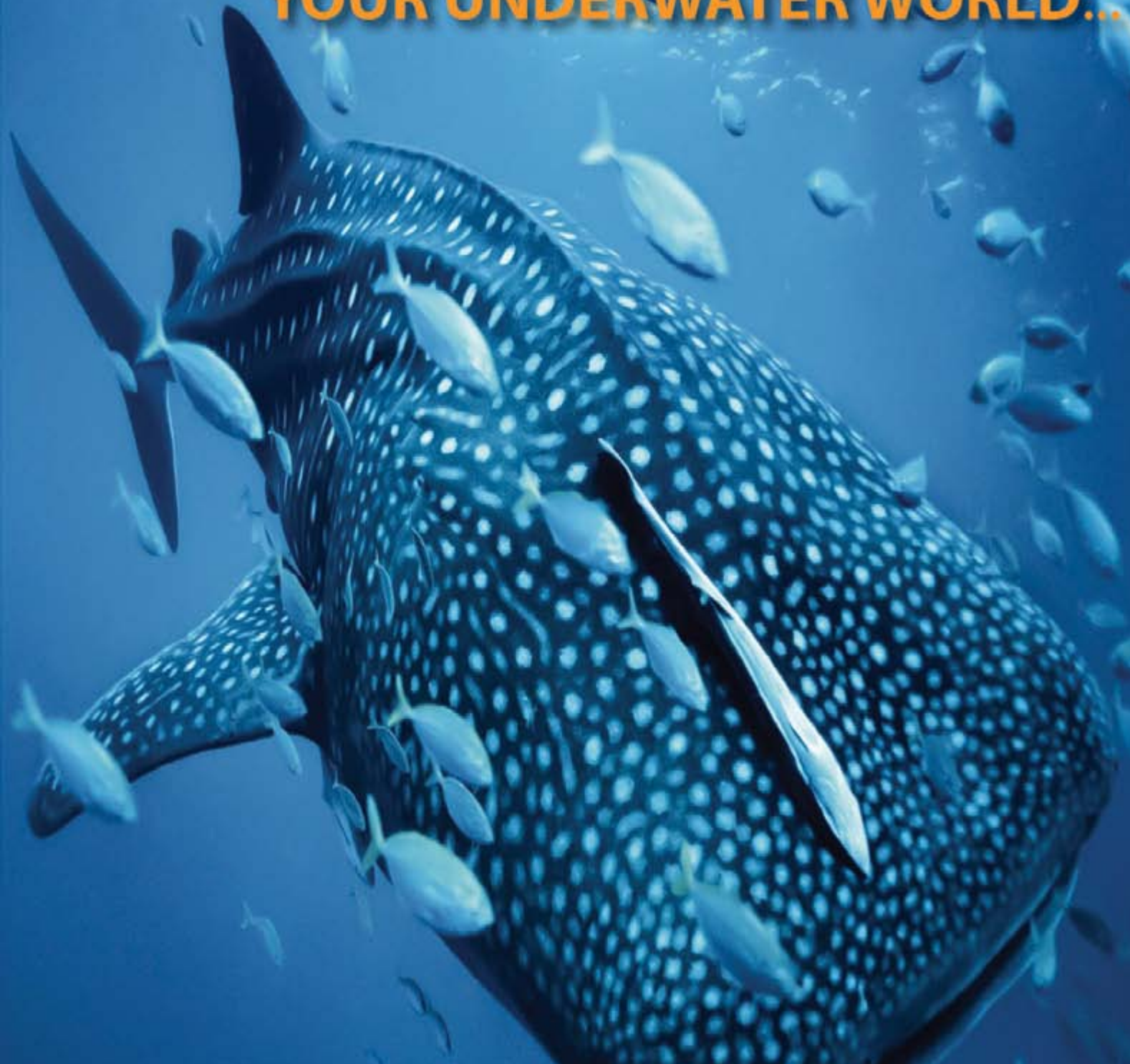
Location: North east of Shag Rock, Sha'ab Ali
Date built: 1940
Length: 126,5m
Weight: 4 898 tons
Date wrecked: 5-6 October 1941
Date discovered: February 1956 by Jacques Cousteau
Port of origin: Glasgow, Scotland
Destination: Tobruk, Libya
What was the ship carrying? Land mines, shells, ammunition, weapons, Bedford trucks, armoured cars, Bren carriers, BSA motorcycles, trailers, vehicle spares, aircraft and aircraft parts, radios, rubber thigh-boots, medicines
Average depth: 15m
Maximum depth: 30m
Access: Day or safari boat from Sharm-El-Sheikh or Hurghada

The Thistlegorm, the Gaelic name meaning 'blue thistle', was a British transport ship belonging to the Albyn Line shipping company. Because of her classification as an 'Armed Freighter', the skipper, Captain William Ellis, had an additional team of nine Royal Navy personnel to man the anti-aircraft guns onboard. With her construction being partly funded by the British government, she was destined for 'war' duties from the moment she was launched. On June 2, 1941 Captain Ellis eased his ship out of Glasgow. The cargo was destined for the British 8th Army stationed in Egypt and Cyrenaica (Libya), but as German forces controlled



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the Mediterranean, circumnavigating Africa, stopping at Cape Town for refueling and passing through the Suez Canal to reach the port of Alexandria was considered the safer route.

On the night of October 5, after being anchored at a safe haven for two weeks waiting to get word to pass through the Suez Canal, two German Heinkel bombers, coming from their base in Crete, sighted and attacked the ship. (They were actually searching for the Queen Mary that was carrying 1 200 British troops). The Thistlegorm was hit by two bombs on hold no. 4 where the ammunitions depot, among other things, was situated. The explosion was very violent and tore the ship in two and the locomotives were catapulted into the air, sinking to the seabed about 30m away. The Thistlegorm sank abruptly in an upright position on a flat, sandy seabed 30m deep at 1:30am on October 6, 1941. The Captain and his crew were saved by the nearby HMS Carlisle vessel, but nine men lost their lives during the attack.


There are numerous ways to explore the Thistlegorm and you will need more than one dive to really capture the essence of this unofficial wartime grave. Exploration of the ship is usually done in two phases: the first dive is a general tour of the wreck resting in its north west-south east position; the second dive includes penetration of the holds. On a third dive time can be spent exploring the locomotives, the anti-aircraft guns and the propeller near the seabed. There are still numerous things to see in the holds of the Thistlegorm, most covered in marine growth but still very recognisable. For instance, on the starboard side of hold no. 2 one can gently swim above the vehicles, where there is plenty of room to explore and inspect the various lorries, trailers, motorcycles and other items as you journey below the bridge and pass through hold no. 3. Here you will find small arms – weapons of various calibers in packs of six or eight concreted together as a single entity.

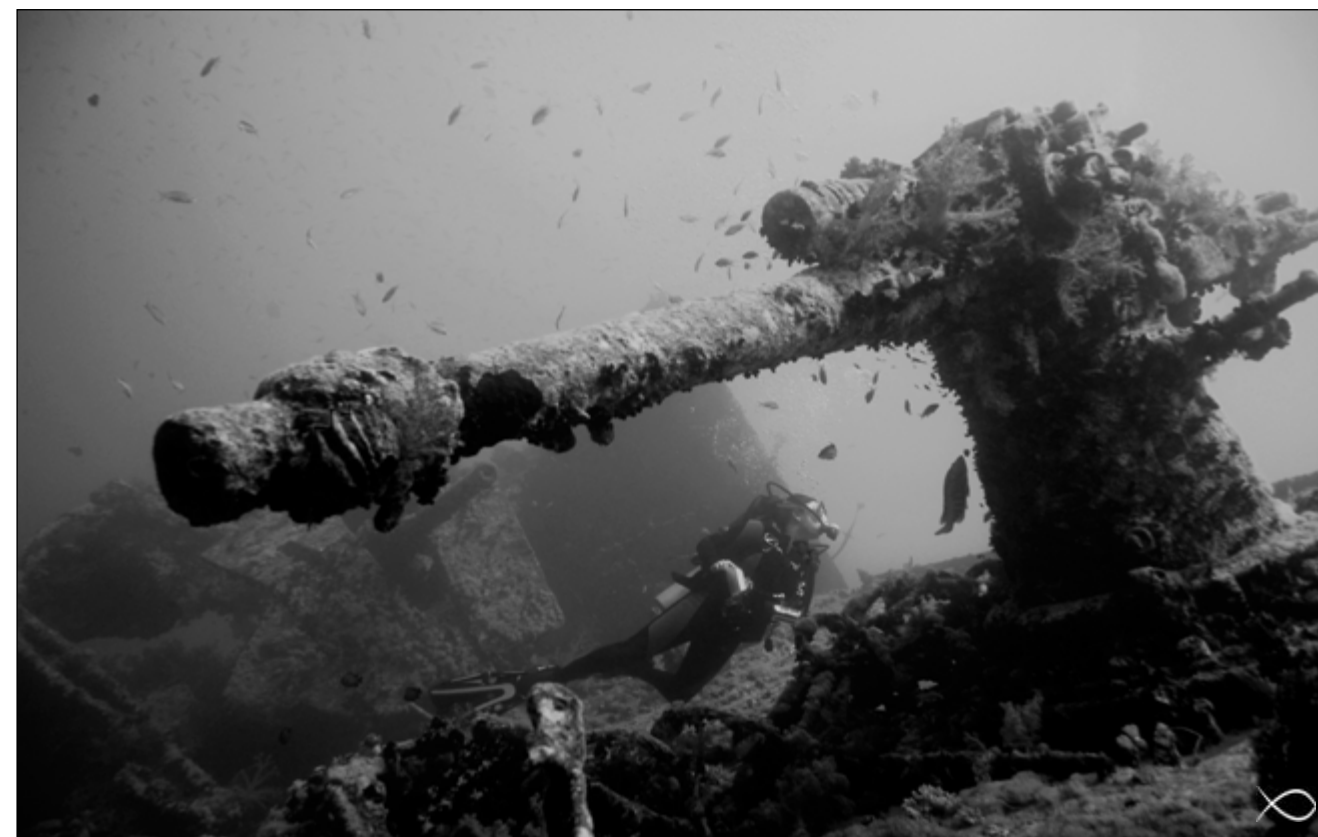
Emerging into the daylight, you are confronted by the devastation that surrounded the sinking. Ammunition boxes form a large pile of fairly uniform debris, on top of which is an upturned tracked Bren Carrier. Pointing towards the stern is the

broken drive shaft and some 20m further on is what remains of the stern. Looking just below you will find a number of very large shells which were once destined for a British Capital Ship. The two deck-mounted guns are still in place and are best viewed from below where they make excellent silhouettes against the distant surface.

I believe that it is the dream of every scuba diver to visit the Thistlegorm once in their life time – it is almost like a journey to Mecca. The Thistlegorm is not only one of the most famous wrecks in the world and one of the major tourist attractions in Egypt – it generates more money than the Pyramids at Giza – it is above all an extraordinary historic relic of WW2.

Diving the Thistlegorm is definitely a dive for the advanced diver, seeing as there is usually a current present that can be very strong. Bottom time is short due to the depth and sometimes visibility can be poor. It is best to dive the Thistlegorm early in the morning, just after sunrise because then, together with the beautiful wreck, one can see Dogtooth tunas on the hunt, Groupers, Black-tip sharks, Jacks, Trevallies and Barracuda. Other reef fish to be seen are Anemone fish, Batfish, Butterflyfish, Surgeonfish, Crocodilefish, Soldierfish and the beautiful Goldbar angelfish. Numerous Goldies also colour the ship with their lively dances.

Please note that ascents and descents must be done using the mooring lines of the diving boat. Start your ascent with 80 bar, carry a torch with you, be careful when visiting the inner structures and do not take anything from the wreck. 



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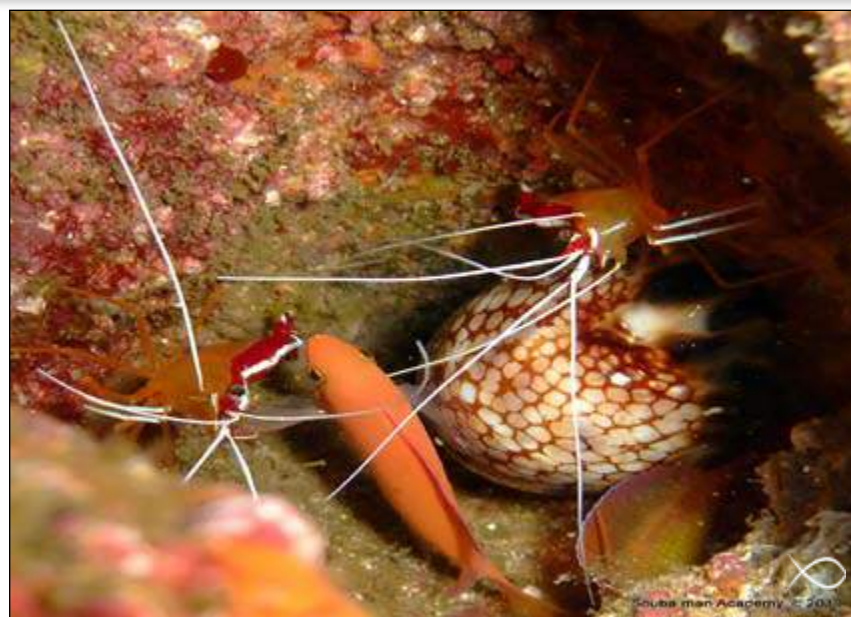


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Photographic Competition



Allie Morris



Aaron Howell



Dawie Bezuidenhout



Charles Wright



Desiree Bean



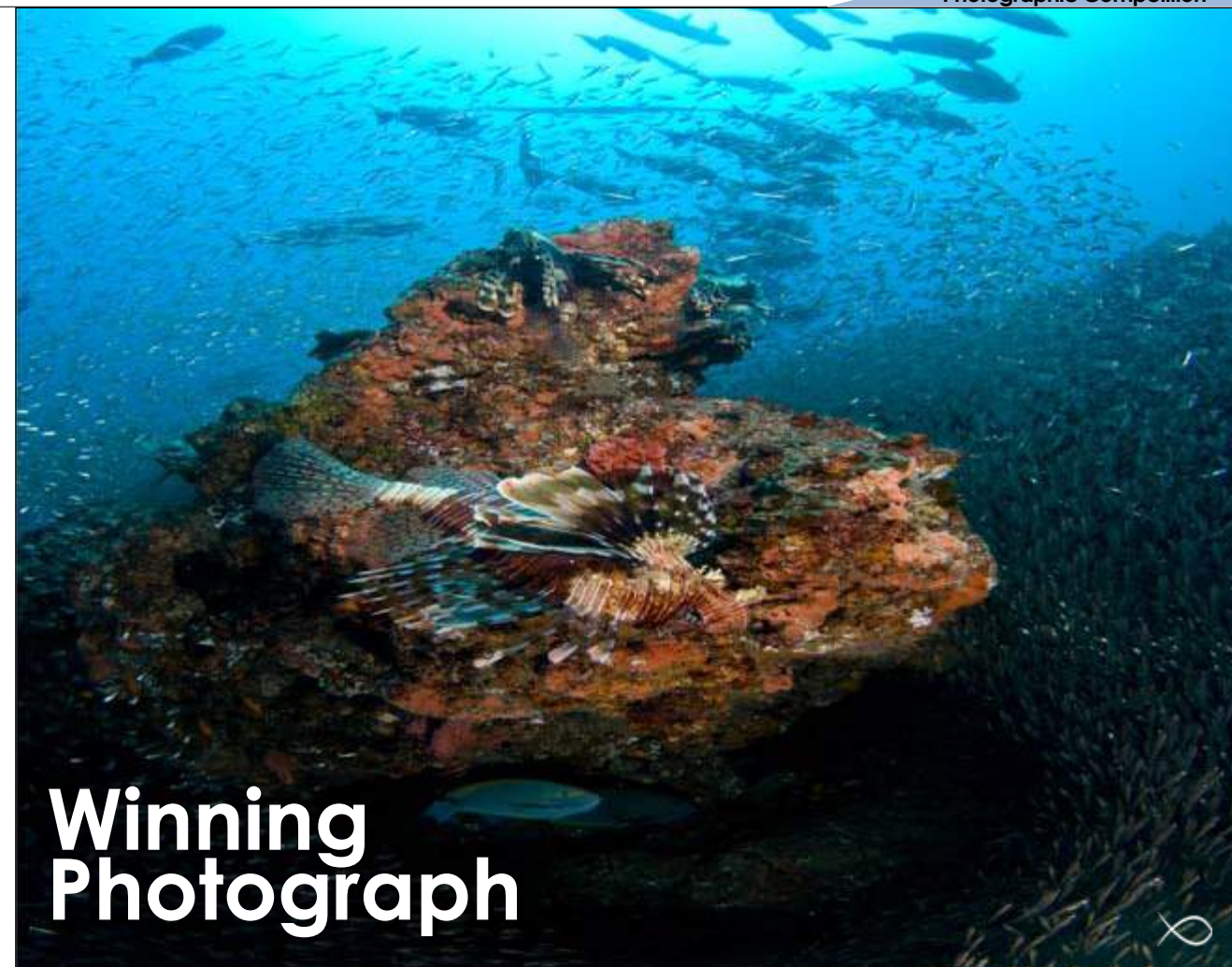
Desiree Bean



Eve Marshall



Chris Lotringer



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Photo School

Changing the Angle (Part II).



Have you ever paged through magazines and wondered how professional photographers can take striking photographs of ordinary subjects? A few simple techniques can easily change your picture from being good to being surprisingly great.

There are a number of simple techniques which photographers can apply to significantly enhance their photography. One of these techniques is changing the angle of the shot or switching between landscape and portrait views. Changing

the angle of your shot is a simple, yet effective technique to take interesting photographs and allow you freedom to control the impact of the subject. There are a number of different angles from which you can take pictures; these angles are those taken from an eye view, elevated heights, lowering your angle, bird's eye view and a slanted view.

Eye-level pictures are most common. It is basically the view of a subject as seen in real life. This is the normal, natural way of taking



pictures. Although great pictures can be taken from this angle, it's basically the view as you would expect. To create an interesting image with a different impact, you can take pictures from elevated heights or by getting lower than the subject. By taking pictures from elevated heights, you can make images appear insignificant or submissive. Getting lower than the subject, especially in underwater photography, is an excellent way of creating majestic images of bigger subjects such as divers, dolphins, sharks, turtles and rays. Some of the most beautiful underwater pictures are taken from angles lower than the subject, typically a picture taken from a deeper point towards the surface.

This angle creates an impression that the subject is more powerful and dominant. It can also create amazing silhouettes by using sunlight penetrating the water from the surface.

A bird's eye view is where the photographer gets on top of the subject and takes the picture from above. This is a view to give you a completely different and unnatural effect. Slanted views are any view that is purposely tilted to change the horizon to a tilted angle. This can also give a dramatic effect. A great advantage of this technique is the fact that it gives you the ability to change the background. Often, great subject disappears or loses impact in a busy background, for example, taking a picture of a subject on a busy coral reef. You can control the background of your picture by taking the picture from different angles.

Landscape and portrait
There are two general orientation options of your camera; vertical

and horizontal. When we shoot vertically, it is referred to as 'portrait' and horizontal images are referred to as 'landscape'. Camera orientation is also another very important technique to keep in mind. There may be a number of things which you would like to do with the photographs after your trip – always bear in mind that magazine covers are mostly in a portrait layout, whereas digital photograph frames, postcards and canvas prints are mostly in a landscape layout. It is always good to take a picture in both the portrait and landscape format to ensure that you get the best angle and composition as well as options for photographic usage after your dive trip. ◀



Photo Editing

When looking at your photographs you may notice some small areas which are overexposed or underexposed. When using tools such as Brightness/Contrast, levels or curves you will find that the whole image is adjusted at once, not just the area which you want to fine-tune. You will find that if you adjust the photograph for a small overexposed area then the rest of the image will be underexposed and vice versa. An easy way to fix small areas in photographs is by using the Dodge (Lighten) and Burn (Darken) function.

The Dodge and Burn Function

The Dodge or Burn tool uses the paintbrush to lighten or darken your image by simply just painting over the image slowly.

There are several adjustments you can use to fine-tune your brush and painting technique to give your image the best result when adjusting the contrast and brightness throughout the photograph.

First you must create a duplicate layer of your image to work on. By doing this you can at any time turn the layer on and off to view the differences between your adjustments and the original image by clicking on the 'eye' icon. Go to the Layers Panel, right click on the layer and select 'Duplicate Layer' then rename the Layer 'Dodge & Burn' to keep things simple and organised.

Selecting the Tool:

- From the Top Menu in Gimp click on Tools, Paint Tools, Dodge / Burn.
- Press 'Shift + d' on the keyboard.
- Click on the Icon on the tools palette.

Opacity

This controls the strength of the brush you are using – the lower the opacity the more 'invisible' your brush strokes.

Brush

Select a soft brush with faded edges. This will avoid distinct streaks and lines when adjusting your image. This will allow you to change the image by slowly blending the changes on the photograph so the results of your touch-up are not visible. When using a mouse you do not need to use the Brush Dynamics settings and there is no need to select 'Fade Out' Apply Jitter' or 'Hard Edge' Range

There are three modes:

Shadows restricts the effect to the darkest pixels (shadows on the image).
Midtones restricts the effect to pixels of average tone (average shade of the photograph).
Highlights restricts the effect to lightest pixels (the bright whites/overexposed pixels).
Exposure

Exposure defines how much the tool effect will be strong, as a more or less exposed photograph.

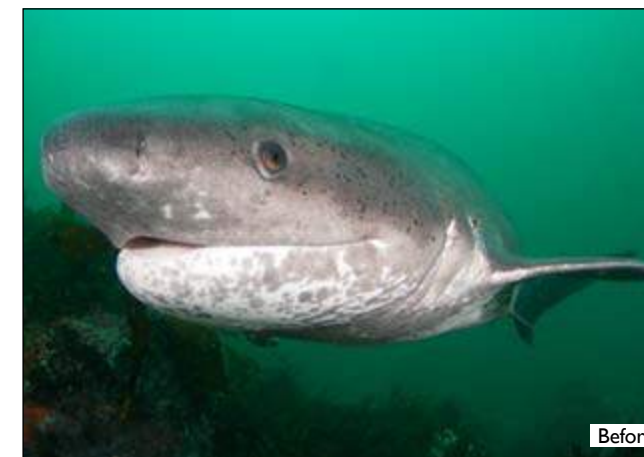
Default slider is 50 but can vary this from 0 to 100. It is very important to adjust the exposure to a low level (eg. 10-15%). This will allow you to gradually change the contrast and brightness of the photograph when painting over the image. The lower the opacity the more subtle your change on each brush stroke will be. This will allow you to slowly and safely modify your image step-by-step.

Resizing the paintbrush

A very useful shortcut to use when using Gimp is the brackets which will resize the brush [= smaller] = larger.

Zooming in when working on your image
When working on your image, press the Ctrl button and zoom in using the scroll on the mouse. This will allow you to quickly zoom in and out of your image when editing.
Method

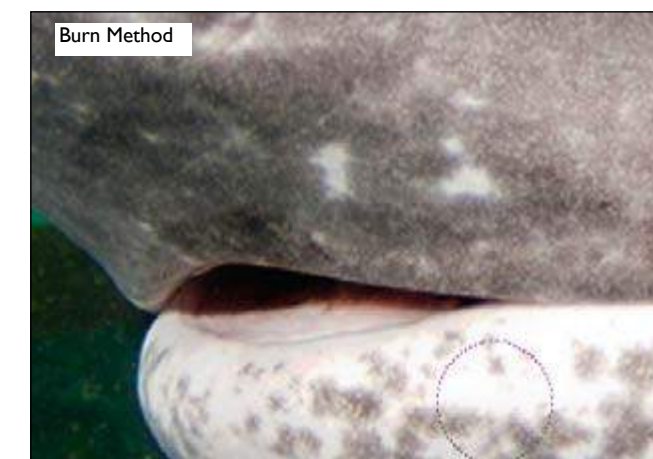
All you need to do then when you have the brush selected is to paint slowly over the desired areas in the picture and you will slowly see them



darken (Burn)/lighten (Dodge) and change. Keep going until you are happy with the result. Remember that if you think that you have painted an area too dark then just either undo your last step or last few steps or alternatively touch up by holding down the ctrl button and it will switch to Dodge mode and you can brush over the same area to lighten it again.

Always check your progress with the original image by clicking on the 'eye' icon next to the layer (in the layers panel) you created to turn it off and on.

You can then check your results as you go along and will have a better idea of how much you want to adjust your image to get the best result.



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The mysteries of the Manta



It took six years of hard graft, toil and some tears, mainly with limited logistical and financial support and little understanding of, and sympathy for, the cause. Yet from the outset, Californian Andrea Marshall, now Dr. Marshall and recognised as the world's leading Manta ray researcher, knew she had made a ground-breaking discovery about one of the oceans' emblematic species – that there was not one specie of Manta ray, but two clearly different species.



As astonishing as it may seem in this day and age, until November 2009 there was officially only *Manta birostris*, the Manta ray, first scientifically described in 1798, swimming in various places around the world. Now there are two species, *Manta birostris*, the Giant manta with a wingspan up to 9m, and *Manta alfredi*, the smaller 5.5m wide Reef manta.

In 2003, with the approval of the University of Queensland, Australia, she sold everything and initially moved to Jangamo to the south of Inhambane to start fieldwork for a PhD, surprisingly the world's first doctoral thesis on Mantas. But it was a tough existence for a 23-year old, and she moved to Tofo when Casa Barry offered to provide an office and a place to live. Within six months of starting research, Dr. Marshall had noticed visual differences beyond size in the rays that she was observing but, sensing the reaction that a discovery of this magnitude could provoke, she didn't talk to anyone else about it for a year in order to compile more supporting arguments.

As well as working on proving to the world that there are two distinct Manta species, she has estimated many of the reproductive parameters for Reef mantas in the wild, information that was previously unknown or unconfirmed.

Considerable time has also been spent examining the population structure and dynamics of the Mozambican population (something that had been done in very few

locations around the world then and now) and how photography can work as a scientific tool to aid with research in a non-intrusive way. Using photographs of the belly markings that are unique to each Manta, Andrea has identified and named over 700 individual rays in the area, with 90% being the more sedentary Reef mantas and 10% the more migratory, open ocean dwelling Giant manta.

The combined 'super population' of both species has been scientifically estimated to be in the order of 1 500 individuals, arguably now the largest in the world, through the unfortunate destruction and demise through fishing practices elsewhere in the ocean. Defining the differences between the two species will be crucial in protecting the remaining Giant and Reef mantas. Having found that the Giant roams the open oceans and the Reef manta prefers a more sedentary lifestyle, different strategies are required to protect them. In order to gain better understanding of their movements and habits, acoustic tags and accompanying listening stations have been set up, and satellite tagging of selected individuals is also in progress.

Installing an acoustic tagging programme can cost anywhere from USD\$2 000 for one basic receiver, installation and a single tag to up to USD\$30 000 and more for an elaborately set up 'meganet' system with multiple receivers and arrays over a significant amount of coastline (or critical habitats), which can have the ability to examine multiple species.



Giant Stride

Mantas

By Christopher Bartlett



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By Christopher Bartlett

Acoustic tags inform Dr. Marshall's and Dr. Pierce's Foundation for the Protection of Marine Megafauna when tagged individuals pass listening stations up and down the coastline, whereas the USD\$5 000 satellite tags record speed, depth and location data for a pre-determined period of time before breaking off, rising to the surface and transmitting the data via satellites. The data gathered is shared with other researchers in Madagascar, Kenya and Tanzania and will be a key element in creating the protection policies that will be put forward.

Spot-the-difference

The results of Andrea's study (published in a scientific paper by Zootaxa) redefining *Manta birostris* as the Giant manta and describing *Manta alfredi* as the Reef manta, are visually remarkable and can be seen by any diver in the know. Here's what to look for:

From the top:

Divers often see Mantas below them as they drop onto cleaning station dive sites. The Giant manta has a clearly visible bold black 'T' on its shoulders, with the vertical and horizontal sections being of a similar width. The Reef manta's shoulder markings are more sloped and could be likened to a large white bottom in a wide-banded black thong.



Front on:

Giant mantas have some charcoal grey to black markings on their mouths, whereas their smaller reef cousins have all-white mouths.

Belly views:

When seen circling overhead, divers should pay attention to the ventral markings. On the Giant manta, there are no black markings between the five pairs of gill slits, but there is a large and often semi-circular spot coming from the rear-most gill slit, and a clearly visible dark marking along the entire pectoral fin margin. The Reef manta has its ventral markings between the gill slits, a much smaller spot near the fifth gill slit, and has a fainter pectoral fin margin marking.

Laterally:

Look closely where the tail joins the body behind the dorsal fin. On the Giant manta there is often an egg-shaped lump on the top where the tail starts (though this could have been knocked or bitten off in some individuals). This is a calcified mass encasing the remains of a spine, showing the probable evolution of the Giant manta from the stingray family. This lump is never present on the reef manta.



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Confusing cousin

Many divers only get a fleeting glimpse of large rays cruising past in the distance, or fleetingly breaching the surface of the ocean with a balletic leap. With an almost identical outline and cephalic pods at the mouth, the Devilray (*Mobula japonica*) is often misidentified as either Manta species. However, fully-grown Devilrays are smaller than fully-grown Reef mantas, attaining a maximum disc width of 3m and are easily identifiable by their all-white underside.

Get involved

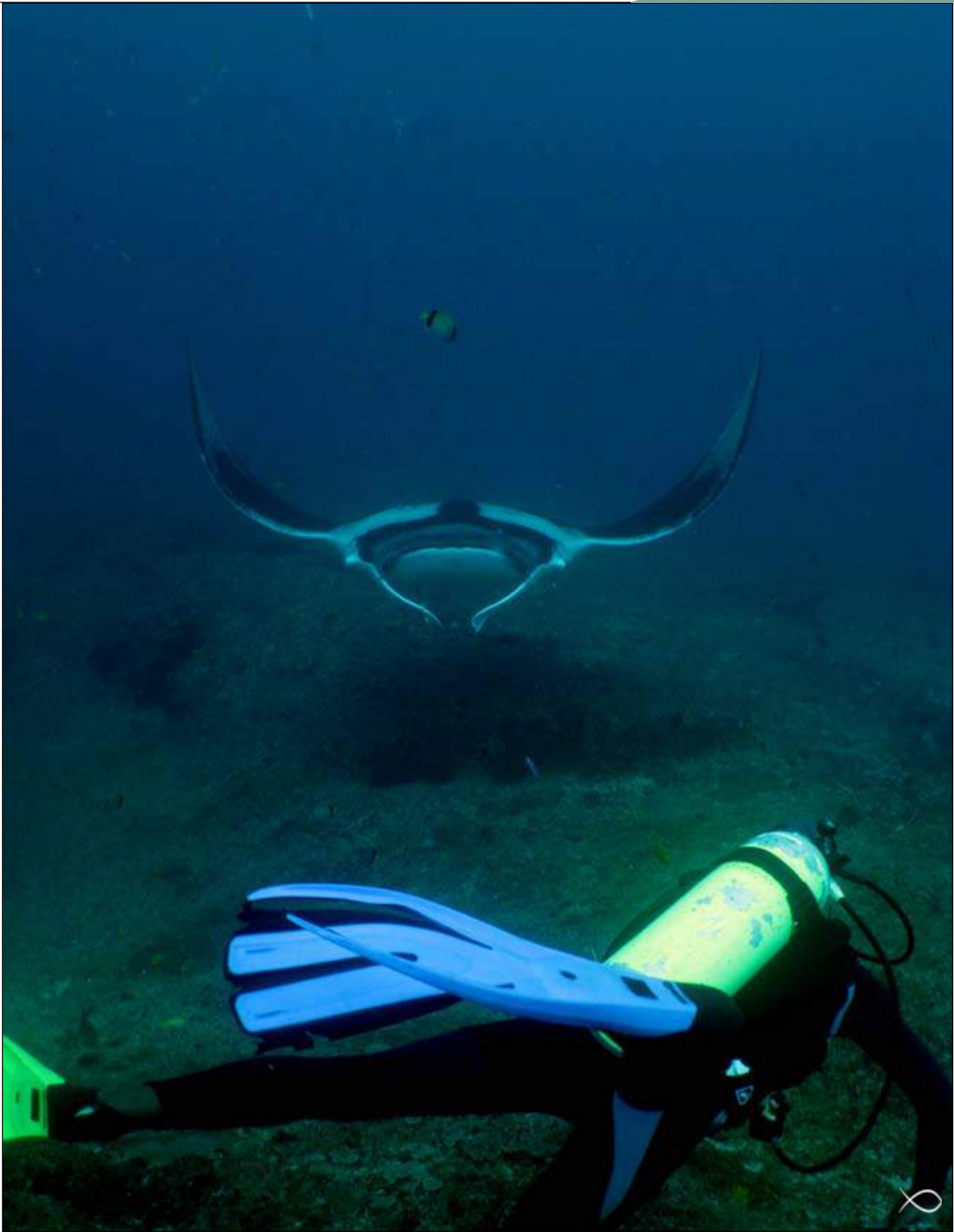
It is uncommon for both species to be seen together and most tropical and sub-tropical regions of the world are thought to have either one or the other specie. Yet research is scant in many places and your photographs can help by becoming pieces in a giant jigsaw puzzle. Not only will they help build a more accurate picture of global distribution, but as each Manta's belly markings are unique, they could enable individuals to be tracked. Prior to April 2009 there had been no confirmed sightings of Giant mantas off the Tanzanian coast until a photograph of one off the

northeast coast of the island of Pemba was sent in.

Belly shots showing the gill slits and the area between them are the best, but failing that, an image of the top of the Manta is also useful. Images can be sent to andrea@giantfish.org

If you're looking to give a novel and useful gift for friends or for yourself (you deserve it!) for €65 (around R650) you can adopt a Manta through the Foundation for the Protection of Marine Megafauna. As well as contributing to keeping the research team out on the water, you'll receive a top-quality picture of 'your' Manta, and an update when it is re-sighted. One adoption provides two days worth of fuel and maintenance for their dedicated research boat.

The Foundation guarantees that your shark or ray will not pester you for cash, will not leave the house with its room untidy, will not dye its hair and will not annoy you by communicating solely in grunts. Nobody's offering that deal for teenagers. For more information, visit <http://marinemegafauna.org/support-us/>





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Some divers say, "Why waste your energy with free-diving when you can skip to the next level and do scuba? It doesn't require as much fitness, energy expenditure or lung capacity and you can stay down for so much longer!"

What many divers fail to realise is that they should not be permitted to scuba dive in the first place if they don't have the basic free-diving or snorkelling skills required for an Open-Water course. And as far as fitness, energy expenditure and lung capacity are concerned, even though most scuba diving may be calm and relaxing, it too has inherent dangers in the form of both medical trauma and physical challenges which a fit, healthy diver is less susceptible to. By increasing your fitness and lung capacity you can increase your bottom time as well as the overall safety and enjoyment of the dive.

Gear and mobility also have a huge role

to play. Let's face it, you're not exactly agile under water in full scuba gear when compared to the increased mobility that the minimal gear required for free-diving offers.

There's nothing like floating on the surface until you are relaxed and ready, drawing in a deep, life-giving breath and then gliding down weightlessly and silently through the water to have a closer look at what's on the bottom or to just chill out in the peaceful seclusion found in the depths.

Free-diving comes in many forms – it just depends on the person experiencing it. It might be excited tiny tots messing around in waist deep water, the average Joe who enjoys the relaxation that floating weightless in water offers muscles and joints, or the serious apnoea freak looking for that Zen-like quality that deep-breath-hold diving has to offer.

There is also a long commercial history to free-diving that dates back hundreds of years, with the likes of pearl or coral diving



Giant Stride

Free Diving

By Daniel Rogers



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From a competitive sporting perspective, free-diving has branched off into a number of different events which range from seeing who can hold their breath the longest and dive the deepest, to who can swim the furthest and shoot the most or biggest fish in an allotted time frame. These forms of free-diving are often reserved for the more elite free-diver, as they require great skill, extended knowledge, extraordinary mental focus and a well-above average fitness. Then there is always the recreational side of free-diving to explore. It offers its own physical challenges, is a great low-impact way to get into shape and encourages a healthy, balanced lifestyle.

As it is an activity where there is always room for improvement, you won't get bored easily. This side of free-diving is affordable to all, as at the most all you need is some basic gear (mask, snorkel, and fins), a dive buddy and some basic underwater education.

Just like with all other sports, free-diving has certain rules that need to be adhered to as it poses its own set of dangers. Some, like dangerous marine animals and net entanglement are quite obvious, while others such as currents and shallow water blackouts are invisible and unknown to the majority of newbie free divers. It's vitally important for free-divers to be taught about these hazards – no matter how small or insignificant they may seem, they still have the potential to cause great harm and injury, if not death itself.

So before you go splashing off into the big blue for some free-diving action, find some experienced local divers or visit an established dive centre in the area, and get some professional advice and education before gearing up and going under.

Don't forget that continuing your water education and the effective application of what you learn is one of the keys to a lifetime of safe and fun-filled diving! Snorkel on, free-diving fans! 🐠





Planning of a Tech Dive

Tech diving is, simply put, high-tech diving when it comes to dive planning.

In recreational diving, as we all know, we have depth and time limits. For most dives all you need to know is that you need to strap your cylinder onto your BC, put it on and do a back-roll off the boat. If you don't exceed the limits and start surfacing when you reach 50 bars, you will shortly be enjoying a drink in the dive camp.

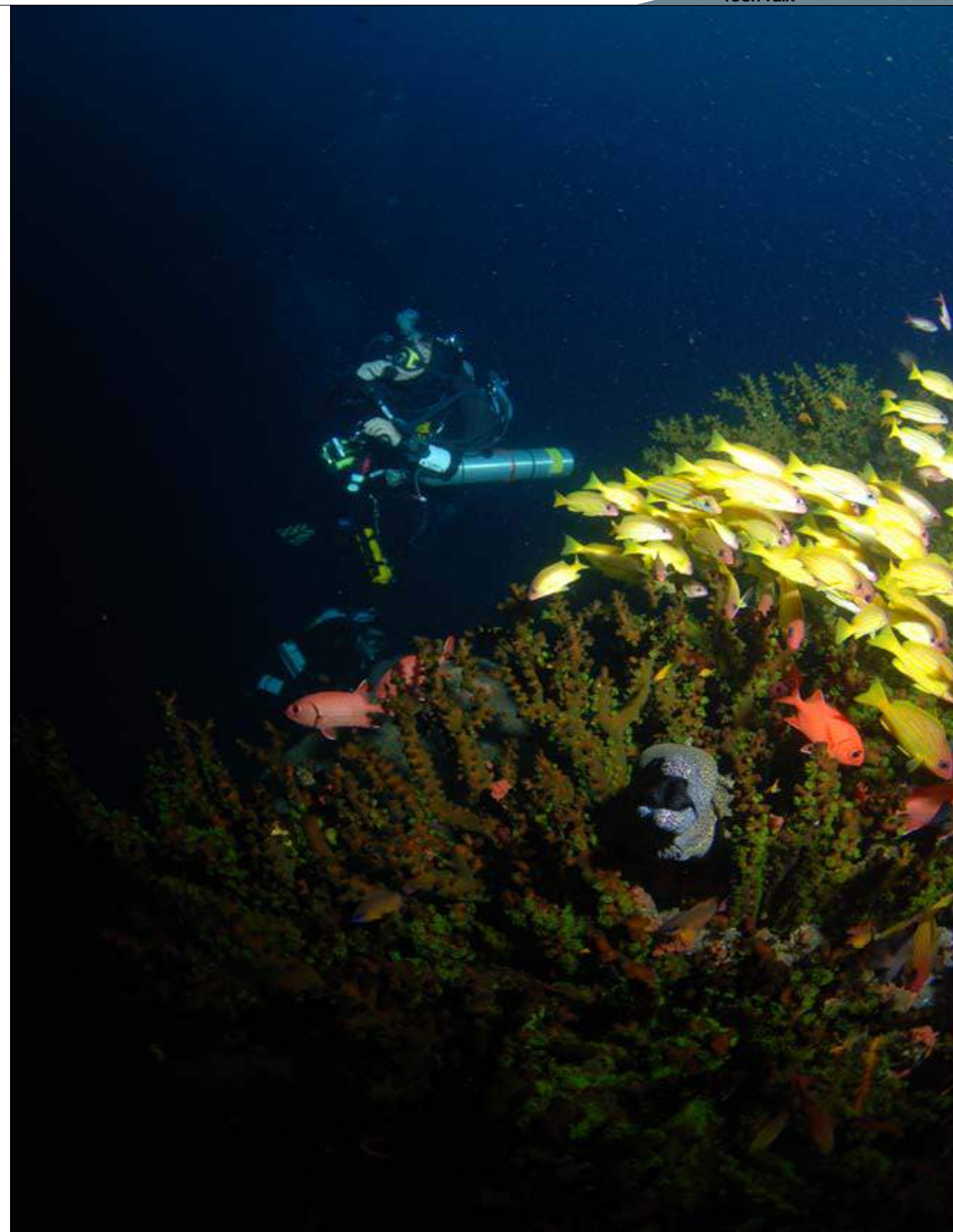
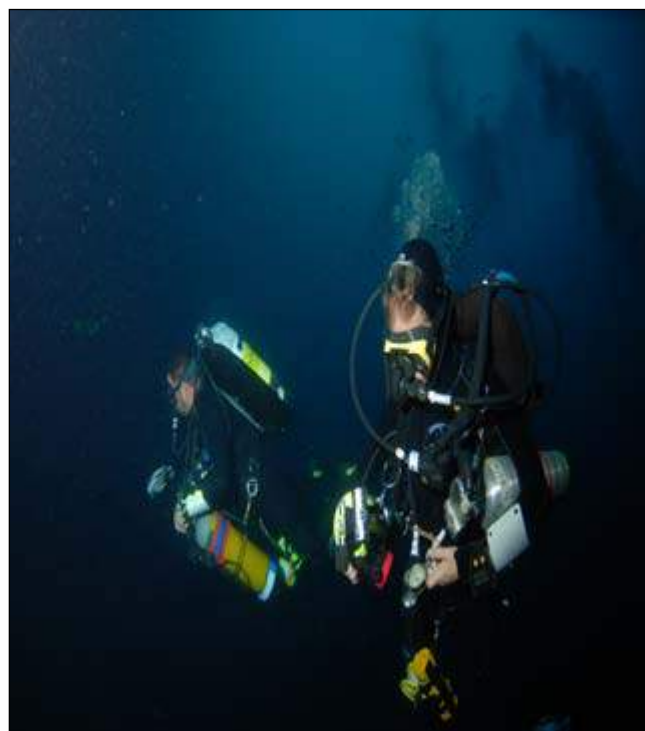
But what if you want to go deeper or stay longer at a specific depth? This can be achieved in technical diving. But as you are going to overstay one of the recreational limits, dive planning (hence the name technical diving) becomes very important as you just can't surface whenever you feel like it.

The basic steps included in dive planning; firstly determine the depth you want to dive to and how long you want to stay at depth. This will determine your decompression obligations. And in turn this will allow you to determine your oxygen exposure for the dive. Now and at the end of every step you also need to ask the question – "is this within my personal and training limits".

Secondly, determine your gas requirements to successfully complete the dive. Always use a higher breathing rate at depth. The reverse

should be applied for the in-cylinder volume. You can now also select the gear for the dive taking into account the dive location and expected conditions.

The final step is to plan for contingencies




including staying at depth longer than planned, going deeper than planned or any gas loss (gas management). Also include any and all hazards and problems and how to deal with them. This should be a team discussion and everyone in the team should be consulted and everyone's contribution discussed. The more time spent on contingencies and how to deal with them the better.

The steps above seem simple, but when you need to calculate gas consumptions for each cylinder and it's mixed gas fractions (for three gasses per cylinder), you will quickly realise it can take a couple of hours for a simple dive and a couple of weeks to complete on paper for complex or deeper dives. There is also a very real possibility of a calculation error... But with the advent of computer generated-software tables it has become a lot easier to plan for staged decompression dives. The software package will automatically calculate stop depths, stop times and gas swap levels or you can manually adjust these settings. It will also highlight possible flaws in your dive plan. And calculating your gas management is as easy as

clicking a button.

But the greatest advantage is that you can do all your planning within minutes, and that is very useful when you need to mix gasses between dives. This allows for more time to discuss contingencies on the dive. All these calculations and algorithms are now available in what I would call 'true-technical' dive computers.

A final note on decompression dives: the software tables are very effective for double checking all paper calculated dives. That said, make sure your dive team double checks the plan and all the variables within the programme. A simple mistake could have very undesirable consequences.

Training for decompression dives includes lots of practice and in-water time. And the same should be applied to using and calculating decompression dives; read up on all software programmes and understand the impact of changes made to the variables. But most important of all, use the best computer of all on your dives – your brain. 



What are your thoughts on e-learning for both sport and technical diving?

Q & A

Nuno Gomes



lectures.

I am not opposed to the use of e-learning for teaching the theoretical part of diving, yet one must remember that there is no substitute for an actual diving instructor giving the lectures – it is a live person and doubts can quickly be clarified.

The use of e-learning for teaching sport and technical diving is already in practice, in varied degrees, by a number of diving organisations, especially when it comes to the theoretical

It is always useful to have the theoretical material available online as a means of revision, if needed.

Many people prefer a hardcopy as a means of revision – it can be carried around and there is no need for a laptop. It is also something that one can have on the book shelf, as it looks great.

As far as the practical side of any diving course is concerned, an actual diving instructor is a must above e-learning. One needs to have an actual instructor right there to correct any dangerous situations when learning is taking place. There is no harm in downloading a video clip from the net showing the required skills, it is a great aid.

E-learning can speed up the practical learning process before any actual in-water skills are attempted.

Any learning aid that speeds up the learning process should be used, thus e-learning is great. It must, however, be used with caution.

Barry Coleman



In the time given today for dive courses without e-learning, the student and instructor will be unable to safely cover the necessary material and practical skills needed for skills such as diving.

E-learning builds a stronger foundation of general information and provides the student with time to understand the academic material, which in turn allows the instructor to concentrate on teaching the specific details and practical skills that the student needs to learn.

This facilitates better advancement where academic knowledge is adsorbed when the student wants to learn and more time may be given to the practical skills with the instructor.

Pieter Smith



E-learning is in my mind something that must always be present in that a diver should broaden his/her knowledge on a regular basis, whether on course or not. E-learning as a training facility during a course has limited value to sport and

so much more to technical diving.

The important part of training is to ensure, through practise, that the student can and has mastered the drills and practical aspects of diving. This is only achieved by a competent instructor insisting and really teaching a drill or technique to a satisfactory level.

It is these drills and techniques that become so important underwater in becoming a competent diver.

This cannot be achieved if the focus is solely on e-learning.

Pieter Venter

Good, graphically well designed and interactive teaching software, which is web-based, can certainly go a long way to teaching physics, physiology, dive tables or dive computer use, gas mixing, dive planning and the like.

This can also be done by means of interesting simulations. It can also be set up to test the students against one single standard worldwide for a specific diving organisation. Furthermore, it can also be set up to be visited for knowledge refreshments and updates and developments. I am certainly for it. Obviously, a handbook is still essential and e-Learning is no substitute for practical and hands-on training until a student is comfortable in the water. I would regularly browse such a website or software – bring it on.

GO DEEP ***with RAID***

RAID Deep 40

RAID is proud to announce the release of the RAID Deep 40 program. We believe this is the most advanced recreational Deep Diver program in the dive industry. Innovative ideas and real practical training make this a very desirable course. The program seeks to bridge the gap between traditional recreational deep courses and technical diving. The aim is to have a deep diving program with seamless integration into higher levels of training. This means there are no conflicting ideas or procedures, just a system that encourages consistency between the programs. A unique feature of this program is that it allows the use of Trimix in recreational deep diving.

At RAID we are proud to have created a “REAL” deep diver program that has cutting edge ideas, sensible practical training and seamless integration to our other programs. This is a unique program designed with quality, consistency and competency for divers conducting deep recreational dives. A great addition to the RAID list of courses.

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Instructor Diaries


You would have to have been living under a rock for quite some time if the global push towards a cleaner and greener world has passed you by. Today more than ever it is becoming increasingly important to conserve and protect our wildlife and oceans. If you look at the much published rhino statistics for 2011, 443 rhinos have been poached for their horns; a massive 33% increase from 2010. the big blue ocean.

Personally I am blown away that people have no regard for our planet or wildlife, and those that do more often than not do nothing about it. The time is now to stand up and be counted... It will take nothing from you as a person to pick up a piece of plastic or be outspoken about the wrongdoings against nature - and by nature I mean all of it. As a diver it is even more important to be vigilant and pro-active in ensuring that the underwater environment and ecosystems are protected.

Bringing the conservation effort back to diving though, when travelling to popular dive spots, obey the local rules, respect your accommodation and leave it the way you would want to find it. How many beaches in South Africa are in a horrible state? And what about ocean itself with waste and garbage? Do not pin the effort to keep it all clean on someone else - if everybody made a conscious effort there will be a noticeable difference. Furthermore, pay more attention on how you interact with the ocean. When descending to the reef check your buoyancy and make sure that you do not land on it. If you have just started scuba diving, stay higher above the reef rather than bumping into it on a regular basis. Coral takes years to form and once destroyed a whole ecosystem is under threat.

A good example is manta ray cleaning stations and the reef life around these areas which must be protected at all cost. Dive charters, along

with dive masters, must ensure the protection of these environments when escorting divers around the reef area. Think back to when you spotted your first manta ray or shark - the absolute excitement and thrill - now imagine not being able to ever share that with anybody else because none of these creatures are left. This is a daunting thought which could unfortunately become a reality. Just tune into National Geographic or the Discovery Channel to see what is happening to our ocean and fish species. Not too long ago a scuba diving team went searching for large groups of hammerhead sharks - they did not find any for quite some time, and to make matters worse, they were diving in an area well-known for its hammerhead shark population. Only after a number of days did they manage to find a medium sized group of hammerheads. These are signs of decay and neglect of a human race taking and not caring. I would like to get into a discussion about people keeping aquariums at home, but that will have to wait for a next time, but just think of the destruction caused on the reefs to get that 'Nemo' into your tank.

Being a green diver is about caring for and protecting the environment. The idea is not to sustain what we have but to create the opportunity for these environments to flourish again and become what they can and should be, for our children's sake. Please take part in green actions and keep our oceans and dams clean. Be green! 



Fins - Not Flippers!

To really appreciate how fins help during dives, one should try diving or even just swimming in full SCUBA gear without them. You'll be dead tired and will literally be going nowhere fast. Fins do most of the physical work on a dive, since they are connected to the legs that do the kicking. For this reason, it's vitally important to select the set that meets your diving needs the best.

Choosing the correct type of fins to buy is not easy and you'll need to do a lot of research to get it right on the first time. If a particular pair of fins catch your eye while on a dive, ask the owner's opinion and even ask to try them out if possible – this is an option you won't have when at the dive shop.

Basic fin classification:

SCUBA fins come in two configurations: the open-heel and the closed-heel fin. The open-heel is designed to be used in conjunction with a boot that is slipped into the foot-well and securely strapped together by an adjustable heel strap. Advantages of this type of fin include retention of body heat in cold conditions and it's easier to walk on rough terrain to and from a dive, especially at inland dive sites. The closed-heel fin is designed to be used without a boot. The bare foot is slipped into the foot-well and the rubber

back of the fin is pulled over the heel – similar to pulling on a pair of slippers. Advantages of this fin include comfort during diving, ease to put on and being able to walk barefoot on the beach as soon as your dive is over.

Selecting a pair of fins

Getting the correct size is important – it's often difficult to put them on or take off when in or out of the water. A fin that's too tight will make your feet go numb and spoil your dive – then you'll have to go out and buy another pair anyway. The moral of this story? Size does count!

While checking the size, also try to become accustomed to the buckling system so that you can decide whether or not you'll be comfortable putting them on and taking them off. When buying fins at a dive shop, you can't test them in water – by being logical and using common sense,



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NEVER
LOSE A
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AGAIN!



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IMAGINATION
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BUSINESS

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EMAIL: GRAFFITISCUBA@GMAIL.COM WEBSITE: WWW.GRAFFITISCUBA.COM

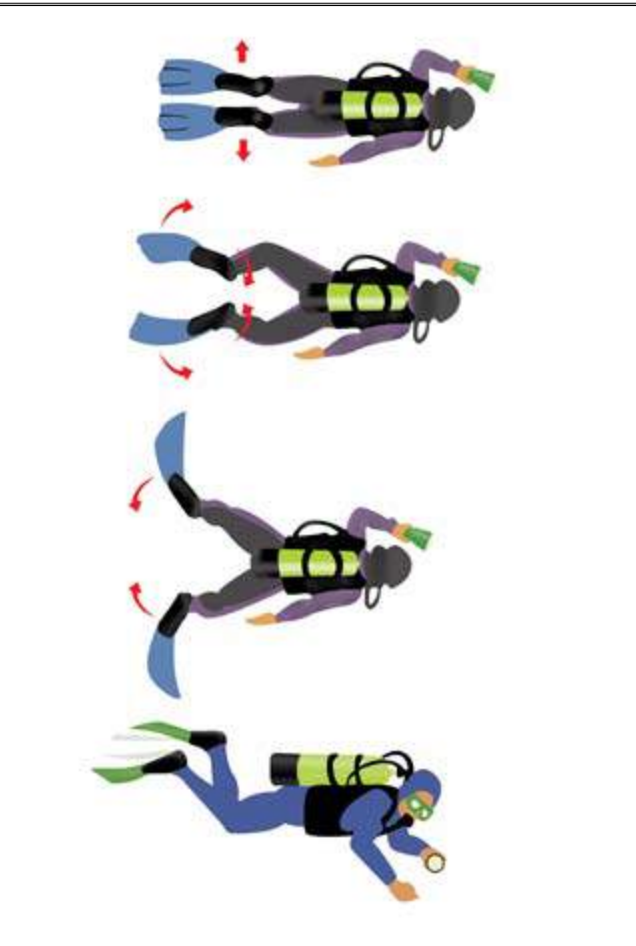
By Michael Meller

you should be able to work out which will suit you best. While in a sitting position, put the fins on and move your legs in a kicking motion to check for comfort. You won't feel resistance as you would in the water, but you'll get a good idea of the fit, especially in the ankle area where you might feel rubbing or discomfort if the fins are the wrong size. If you're buying for the first time, you'll have to rely on the advice given by your instructor or the dive shop salesperson. Make sure you use common sense and don't fall into the trap of buying the wrong pair.

There are various types of fins that are available – the most common are the traditional “paddle” fins. These have a straight blade that extends from foot-well and are nothing fancy. Many argue that the simplest is the best. Most of the fin manufacturers also offer specially engineered fins that provide more propulsion through pivoting blades that change to the most efficient angle with each kick. There are also fins with splits and cut-outs in the blades, all of which are aimed at enhancing the kicking force and efficiency of the diver. When buying your fins from a reputable dealer, range is not going to be a problem so selection could be rather tricky.

Finning techniques

Selecting the most suitable fin does not mean this is where the story ends. Correct finning techniques are extremely important and will vary depending on the type of dive you're doing, the type of fins and equipment you're using and the fitness level of the diver. Fins made from stiff rubber will be best suited for a technical diver who is carrying a lot of equipment, as this requires hard kicking and quite a bit of physical fitness. A sport diver with normal gear will be fine with a softer fin that is lighter and easier to kick with. These fins will also provide more thrust as there is less equipment being carried. Spear fins can also be used - they are long bladed fins designed to give maximum thrust. Although they're meant for spear fishing divers, they



can also be used for regular diving.

You need to find a technique that you're comfortable with. The frog kick is pretty good when ascending, or you can use the traditional kick – just make sure to use strong strokes and complete the full leg motion. Other popular techniques include the dolphin kick, which is done by moving your body in an upward and downward wave movement, and the flutter kick, which uses the normal finning kick along with bent knees and a moderate cadence. If you're doing something wrong or have a fin that isn't suited to your style, it will almost certainly end with cramping at the bottom of your foot or calf muscle. This can be corrected by performing the “cramp stretch” - grabbing the top of the fin and straightening the leg that is cramped up.

Once the right fins have been selected

and you're comfortable with them, it's important to get to know exactly how they work. Understand the buckle mechanism and become accustomed to putting them on and removing them while in the water. Do this while wearing gear and without looking down. Should a fin be lost during a dive, you'll be able to recover from the situation without hassle. Always carry a spare strap or two, as they do tend to perish and break with age - rubber and neoprene are the most popular types of straps that are available. Certain fins even have a spring-like strap that is self-adjustable. A handy tip to remember is that the tunnel-shaped pieces of plastic that come with the fins should be kept and placed in the foot-wells after use. This will ensure the fins retain their natural shape and don't distort during storage. Lastly, like with all equipment, rinse them properly after using them and store in a cool place.





SCUBA DIVERS

TRAINED HERE

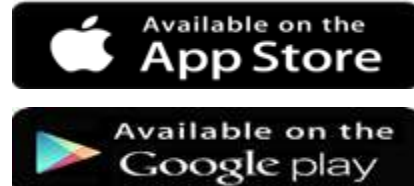


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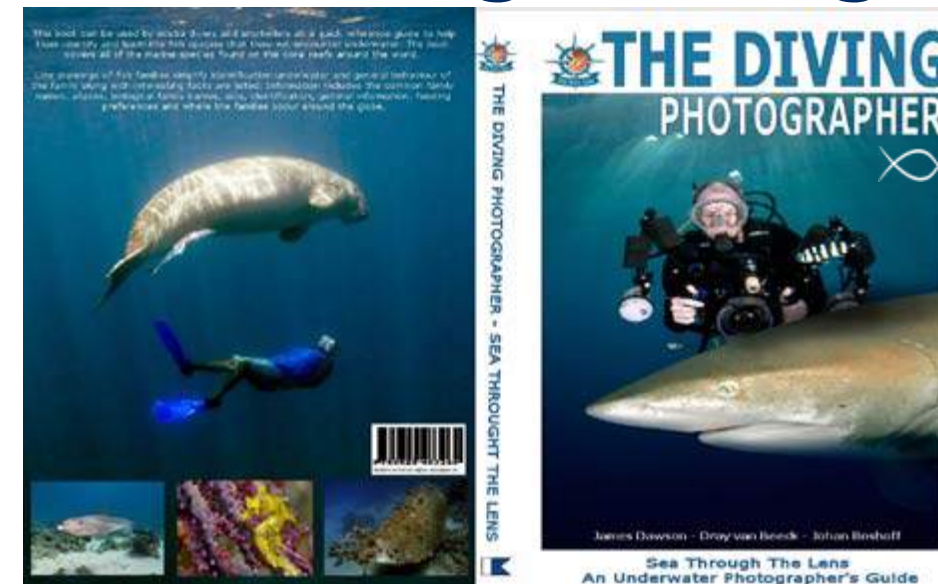
The Dive Spots of Western Australia

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

For more information visit www.thedivespot.com.au



The Diving Photographer –



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

This easy-to-use guide book for the diving photographer can be used by all levels of photographers. It helps you with choosing the right type of camera for your ability – although with all the information presented you will learn

so quickly that you will have to buy a better camera after working through the book! Preparing and setting up your equipment becomes a breeze with easy pointers on how to check and replace o-rings, quick tips on keeping your housing dry and other small things we usually forget to check.

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

I must say that this book has proved to be a great help in improving my photographing and editing techniques. Photographer is available in all good scuba diving and book shops or online at www.thedivespot.com.au. Cost: \$20



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OZDIVER

Marine Life app



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



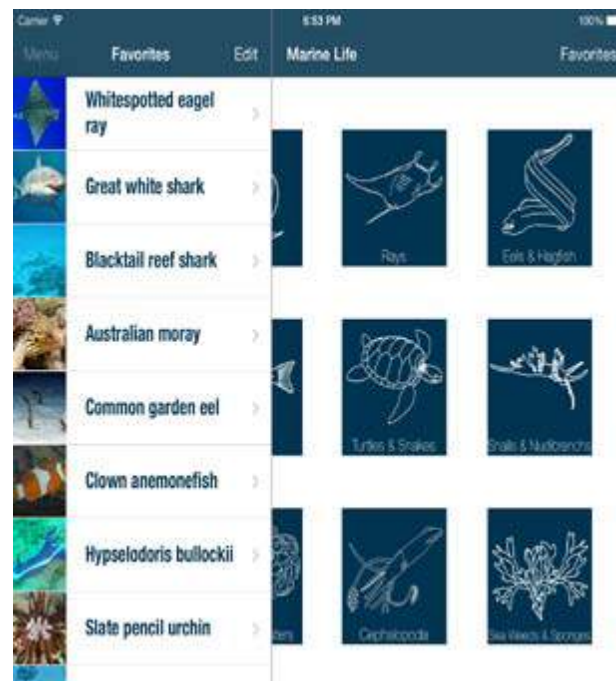
Biological Name
Caretta caretta

Identification

Five plates on either side of the central row on the carapace, unhooked bill and large eyes.

Information

Loggerhead turtles the second largest turtle on the South African coast and can be found on coral reefs. The huge head and neck that is much bigger than the Hawkehill and the Green turtles identifu



Ezyflag Dive System

I first thought of the idea of the Ezyflag back in 2013 when I became frustrated with the current flag on the market, finding it cumbersome and difficult to use, particularly when it came to retrieving it after a dive. So, I began my search for a better, easier to use flag.

I looked in Australia with no success, and then overseas, but with the same result. There was nothing out there that I felt fit what I was looking for and so began my journey to develop one myself.



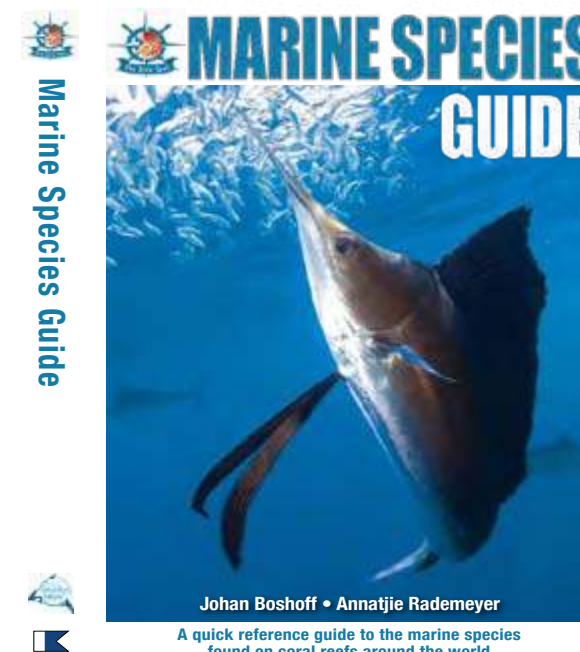
Designing the flag itself was a challenge, taking over one and a half years alone, but producing the flag was equally challenging, and all the jigs and components have had to be specifically designed and engineered for the purpose, by myself. After a further year of design, engineering, testing and several prototypes, the final product is made of marine grade stainless steel, has a 600 x 500mm UV resistant flag which has a cross-support to strengthen it and keep it visible even in no wind conditions. It is also able to hold a flashing light for night divers and an anchor weight, both of which can be supplied as optional extras.

The real difference is the flag's ease of use. With the current flag on the market, the line has to be wound manually around the float, which can be difficult and time consuming. The Ezyflag however has a reel mechanism allowing the line and weight to be wound up very easily. The design also means that the reel and release sit below the float, allowing the flag to stay more upright in the water, even in rough conditions.

The Ezyflag dive system looks very simple, but it has been two and a half years in the making. Now on the market, the flag is already proving a hit with local dive clubs and instructors alike.

Further details can be found at our Facebook page www.facebook.com/ezyflag, or by contacting Kevin Morcomb on ezyflag@gmail.com / 0407 589 315.

Marine Species Guide -



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

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

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

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

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



Navigation:

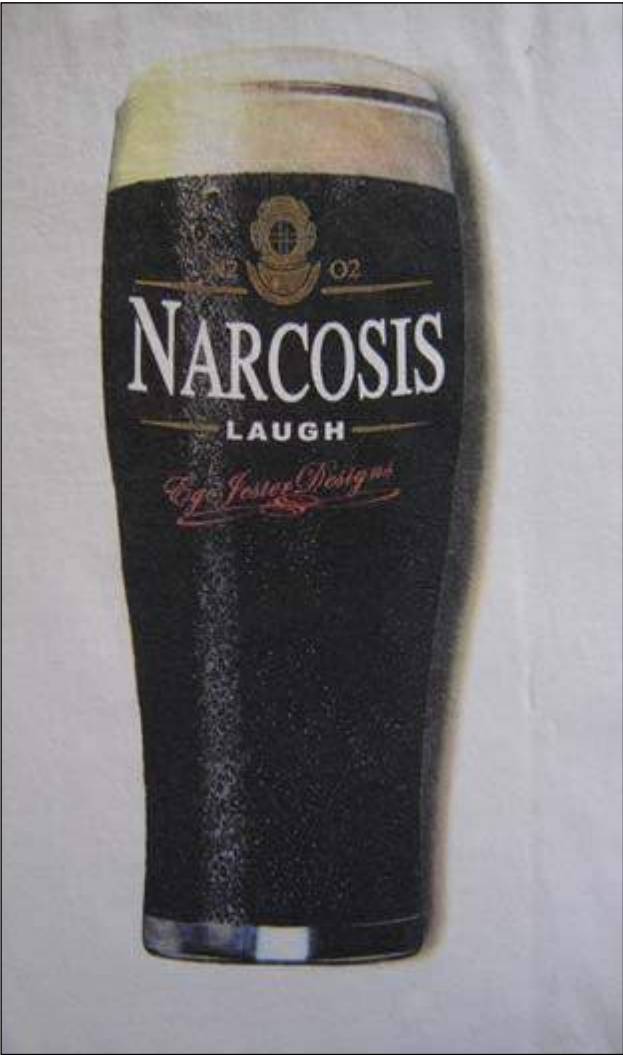
We were getting briefed on our navigation dive and while sitting next to my buddy, I see him raise his hand. The instructor calls on him and with all honesty he asks, "Its really rainy outside, do we need to cover our SPG until we get in the water?"

The top 10 things you won't hear from a dive operator when booking a trip

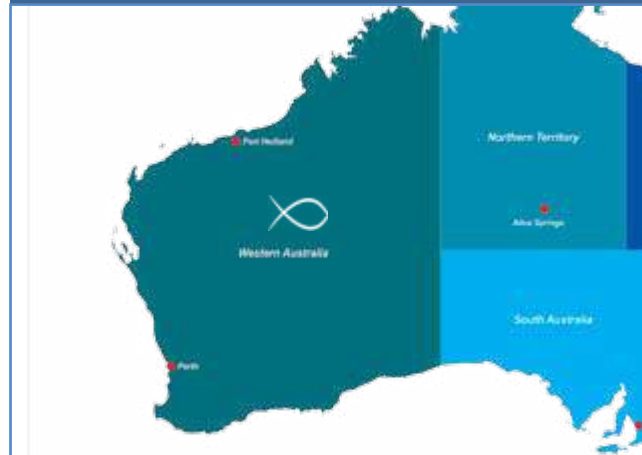
10. "Hey, you're the first guest since 'the accident'."
9. "Sorry, we can't take reservations until last week's group is found."
8. "Our boats are Reef Diver I and Reef Diver III. Reef Diver II is our first dive for the day, located in 130 feet, five miles out."
7. "We can make you a really good deal if you know something about boat engines."
6. "Don't worry about the currents, if we don't find you I'm sure Search & Rescue will."
5. "That Whale shark pictured in our brochure is the only one we've seen in 20 years of diving here."
4. "No, we don't have a shark dive, but we do feature a Portuguese man o' war encounter."
3. "Can we borrow your boat?"
2. "We have a spit technician for all your anti-fogging needs."
1. "Now, we do ask that you bring your own tropical fish."



Send your funnies to
johan@ozdiver.com.au



Western Australia



Perth Region

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Scubanautics Diving Academy- Rockingham



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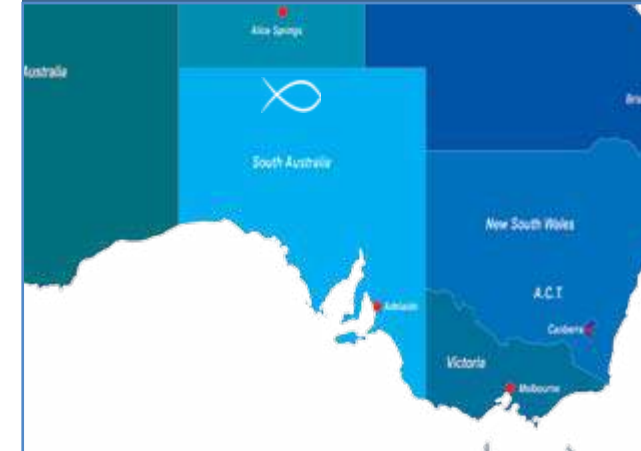
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South Australia



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Web: www.divingadelaide.com.au

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Mail: secretary@uecofsa.org.au

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Web: www.ausdivinginstruction.com.au

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Rye

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Mail: info@plungediving.com.au
Web: www.plungediving.com.au

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

Underwater Research Group of NSW



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

Killarney Vale

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Web: www.southwestrocksdive.com.au

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Web: www.sunreef.com.au

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OZ DIVER

An underwater photograph showing a large, rusted metal structure, possibly a shipwreck, with several vertical pillars. The pillars are covered in coral and other marine life. A large school of yellow and orange fish is swimming in the center, and several black and white striped fish are visible. The water is clear and blue.

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