

April / June 2021

# OZDIVER

AUSTRALIA'S PREMIER DIVE MAGAZINE

**GREAT  
BARRIER  
REEF**

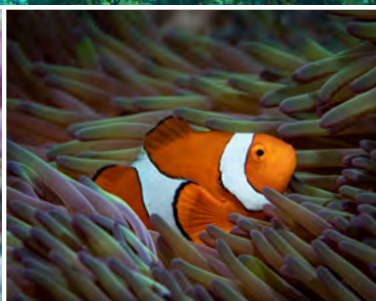
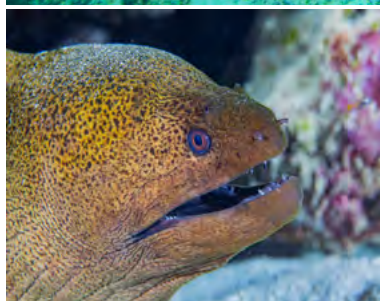
**OCEAN  
VISIBILITY**

**ROAD  
TRIP  
TO  
EDEN**

**SOUTHERN  
RIGHT  
WHALES**

**THE  
JOURNEY**

# VISAYAS



**FREE Digital Diving Magazine - [www.ozdiver.com.au](http://www.ozdiver.com.au)**





Dray van Beeck

**April / June 2021 Edition**



# Editor's Deco Stop



Oh Boy, how I miss travelling and diving all around the world. Getting on an aeroplane to travel to another country to go and explore a new underwater world. Believe it or not, I even miss the onboard food and little sneaky midflight snacks.

Some people may say that diving and traveling is not addictive but trust me, I have been travelling and diving the globe as an Editor and Publisher of dive magazines for almost 20 years and can argue the contrary.

Meeting interesting people from diverse cultures, tasting exciting foreign food variations adding to those capturing photos of the treasures on land as well as underwater is highly addictive to me.

After a year of being trapped in one country, diving the same old spots over and over again is really getting to me. I have the need to get on a plane and start travelling soon, before I go insane.

I know exactly where I will be going as soon

as our borders open... Raja Ampat will be the perfect place to start with balmy waters, great visibility and amazing marine life on the backdrop of a tropical island atmosphere.

I still get frequent articles from people all over the world that are still diving great places. I don't know if that helps my addiction, but anyway, I am delighted that there are still divers out there exploring their side of the world.

I found this photo in my archives from when traveling was good and I was still young and very adventurous.

I hope you enjoy this magazine and I hope that we can start explore destinations ourselves once again and not just view them in a magazine.

Editor in Chief & Publisher

**Johan Boshoff**

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

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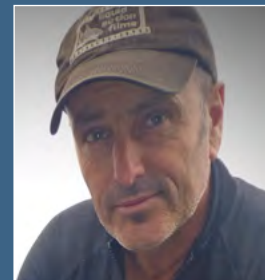
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Johan van Zyl



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**COVER PHOTO**

Courtesy of PADI



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# ARE YOU DOING YOUR BIT TO CONSERVE THE UNDERWATER REALM

By Debbie Smith

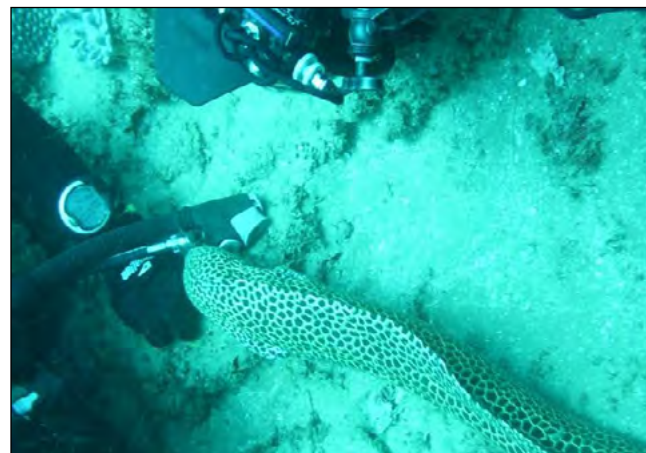
One of the most popular sayings in the dive industry is "to lead by example". Why is it then that some do not lead by any example at all but rather prefer to open themselves up to all kinds of questions and criticism by others as to what really goes on underwater??

This being said, At a dive spot, a photographer attempting to capture "the perfect shot" was in turn, captured on camera by other divers of being anything but environmentally aware on all counts, from coral reef damage to harassment of our underwater life.

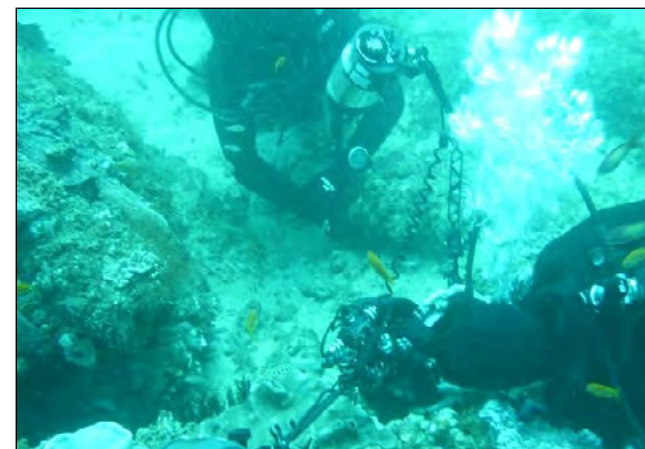
Underwater photography is an art and talent and it enables non divers to see what the ocean hides beneath the surface. It also teaches divers what to look out for, how to spot all the small stuff and to fully appreciate all that nature has to offer in the ocean realm.

All photographers and divers carry a

responsibility to ensure that nothing is left behind but the bubbles that we breathe out. We are visitors to a world that we are not naturally designed to be in. We all have a duty to protect, nurture, conserve and educate. The message that this "lead by example" behaviour brings relates to none of the above.




It confirms that some do as they please, that they have no regard for what is left behind once the dive is over, it raises the question as to what really goes on to capture "that perfect shot".



Do you think any underwater animal likes being pulled out of its home for "the perfect shot"?


Do you think that coral, which is actually under huge threat worldwide at present, likes being used as an arm rest to ensure the "perfect shot" is controlled and straight? What about the coral behind the fins used as an anchor to keep the diver in one place for "the perfect shot".

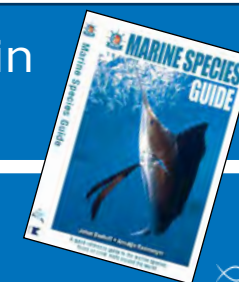
If this picture taken is of you over the long weekend, please, if you win the photographic competition for your efforts and "talent" and talent as a diver, spare a thought for how far you went to get "this perfect shot" and whether you were an example of the "lead by example" line. 



## WIN

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

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





# OZ NEWS

## New dates for OZTek / OZDive Expo '22

Unsurprisingly, OZTek Advanced Diving Conference and OZDive Expo have been postponed.

2020 was a tough year for everyone and sadly, it looks like we'll still be globally sorting ourselves out in 2021.

In order to provide the absolute BEST possible event, it was decided postponement was the most realistic option. As of today, Australian international borders remain closed and even within Australia, it is difficult to travel. COVID has placed us all in a constant cycle of border closures and lockdowns. In this environment, it makes it impossible to hold our usual beloved OZTek & OZDive.

It took a while to find a new date (weirdly, we're not the only ones postponing!!) but have settled on Oct 1-2, 2022.

Note: Please be aware this is a long weekend for QLD, ACT, NSW and SA (not VIC, TAS, NT or WA). So, if you are planning to travel to Melbourne for the event, you may have an extra day up your sleeve.

Be sure to mark it in your 2022 diary.



### Not Everything Has Changed!

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

Expectation is building; we're all keen for a bit more normality. "Divers tell me they want a real live, ridgy-didge, face-to-face event where everyone can meet, talk, swap ideas and socialise," says Sue Crowe. "We will also include the OZTek-TV and virtual hybrid component."

"MCEC has rolled out the welcome mat and continues to be very supportive in light of these trying times. It has been a tough time for them too. It's tough for everyone."

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

Block the new 2022 dates (OCT 1-2, 2022)

& bookmark the website as we work towards making this a truly jaw-dropping event.

<https://oztek.com.au> /<https://OZDive.net.au>

Contact Sue Crowe on [Sue.Crowe@diveOZTek.com.au](mailto:Sue.Crowe@diveOZTek.com.au) or +61 498 964 963

## Underwater Tour Awards 2021- Entries Now Open!

AUD 30,000 Prize Pool  
Calling all Photographers, Creative Artists and Eco-Citizens

Entries are now open for the Underwater Tour Awards 2021. We have added two new awards this year to include not just photographers, but also creatives and eco-citizens everywhere.

### Guru Awards

These awards feature five Categories, a publicly-voted People's Choice prize, plus the ultimate prize for the top-scoring photographer across all the categories, the Grand Guru prize!

The Grand Guru Prize is the Winner's choice of gleaming SEACAM 'silver' valued at AUD 5,000 and a Canon EOS R6 from our new partner, CameraPro! Total Grand Guru prize value: AUD 10,000.

The winners of each of the five (5) photo category prizes judged by our international judging panel receive AUD 500 cash plus partner prizes from Scubapro, Memento Pro and Living Image.

The People's Choice prize for the most voted favourite image online is a prize bundle including goodies by Scubapro, Finslap, Darren Jew Photography and Living Image.

### From the Heart to the Ocean - The Max Benjamin Award

NEW! One (1) award open to all creative artists working in any medium. Inspire us with your work! The prize is amazing! Commemorating PNG diving pioneer Max Benjamin, the winner will receive a seven night stay at Walindi Plantation Resort in Papua New Guinea including diving, meals and local airport transfers.

### Local Eco-Hero Award

NEW! One (1) award recognising environmental stewardship. Do you know someone who works tirelessly to improve their local environment? Nominate them for the new Local Eco-Hero Award. The winner will receive a prize they truly deserve - a two-night stay on Lady Elliot Island, a coral cay sanctuary for over 1,200 species of marine life. This amazing prize includes return flights to and from the island from Bundaberg or Hervey Bay.

A natural extension of the annual Underwater Tour speaker series and in collaboration with valued Partners, this prestigious international competition, The Underwater Tour Awards is now in its second year and guarantees to take us on a remarkable experience of our underwater world.

Led by Canon Master Darren Jew, entries will be judged by an esteemed international panel of award-winning photographers and Underwater Tour speakers including Jürgen Freund (Australia), Rachael Talibart (UK), Y Zin Kim (South Korea) and Alex Kydd, (Australia).

Winning images will be announced during a special segment of the Underwater Tour Show 2021 on 23 May 2021.

Entries are open now. Competition closes: Wednesday 31 March 2021 at 23:59hrs AEST (Australian Eastern Standard Time) GMT +10:00

For more information head over to [underwatertourawards.com.au](http://underwatertourawards.com.au)





# World's Largest Dive Community Joins Forces to Protect the Great Barrier Reef

24 February 2021 – PADI®, the world's leading scuba diver organization, is teaming up with Citizens of the Great Barrier Reef on a first-of-its-kind citizen science project to help protect the earth's largest reef system. The Great Reef Census provides opportunity for divers everywhere to impact the long-term health of one of the most iconic dive destinations on the planet through online image analysis.

"As the impacts of climate change and other threats accelerate around the world, there is an urgent need to scale-up conservation efforts globally, which requires everyone to take part," says Andy Ridley, CEO of Citizens of the Great Barrier Reef. "The global dive community is in a unique position to support these efforts with the skills, passion and knowledge needed to support marine conservation efforts."

From October to December 2020, divers, dive boats, marine tourism operators and others in the reef community were mobilized to create a makeshift research flotilla. Their mission: to capture large-scale reconnaissance data and images from across Australia's Great Barrier Reef. Dive crew, scientists, tourists and conservation groups volunteered hundreds of hours and surveyed more than 160 reefs from the tip of Cape York to the remote southern Swains. Over 13,000 images were captured and uploaded to the Great Reef Census platform to be analyzed.

"As PADI scuba divers and professionals, we are all ambassadors for our oceans," said Michelle Barry, a PADI Master Scuba Diver™ Trainer based on the Great Barrier Reef. "The Great Reef Census is a ground-breaking idea for ocean conservation that is inclusive of anyone with access to the internet. This allows people all around the world to visit the Reef virtually and to be part of an important project to protect it."

PADI and Citizens of the Great Barrier Reef are calling upon divers worldwide, and all who care about the future of the ocean, to help turn these images into meaningful data, helping scientists and managers better understand the health of the reef system. Each image can be analyzed by anyone, anywhere, with internet access and a few minutes to spare.

"This is the future of conservation on the Great Barrier Reef. This is where anyone can show that they care," says Russell Hosp, PADI Master Scuba Diver Trainer, Environmental Manager and Master Reef Guide at Passions of Paradise, a PADI dive operator in Cairns, Australia. "If people are really serious about saving the Great Barrier Reef, this is their chance to go to [greatreefcensus.org](https://greatreefcensus.org), stick their hand up and say, 'Yes, I want to be part of the solution.'"

The Great Reef Census is the first to test the effectiveness of mass-scale engagement in a significant underwater research project. If proven successful, the model can be rolled out across the world, providing real-time status updates for the planet's treasured reefs. And, ultimately, serving as an influential tool to establish greater legal protections for coral reefs worldwide.

"Divers have long understood the value of citizen science and their unique ability to witness and report changes to underwater environments," says Kristin Valette-Wirth, Chief Brand and Membership Officer for PADI Worldwide. Programs like Project AWARE's Dive Against Debris® continue to effectively provide data to influence policy changes for increased ocean protections.

"Many of us may not be able to travel to or dive the reef right now but, regardless of

circumstance, we can contribute to its future – and ultimately the future of other reef systems around the world," continues Valette-Wirth.

From climate change to marine pollution and deforestation, the pressures on global ecosystems are accelerating rapidly. The Great Barrier Reef has experienced three mass coral bleaching events in the last five years, meaning traditional management and monitoring resources are becoming increasingly stretched.

"One of the greatest challenges to the Great Barrier Reef is that much of the world believes it's already gone. But the Reef is massive, the same size as Germany, so the reality is it's a patchwork system of incredibly healthy, degraded and recovering reefs," said Ridley.


Only five to 10 percent of the Great Barrier Reef is regularly surveyed, the Great Reef Census is designed to help fill critical gaps in our knowledge of how individual reefs are coping with stresses and has already returned valuable data.

All are encouraged to get involved in the survey at [greatreefcensus.org](https://greatreefcensus.org). To learn more about issues impacting ocean health and ways to be part of the solution, join the community of PADI Torchbearers™ uniting to save the ocean at [padi.com/conservation](https://padi.com/conservation).

## About PADI

PADI® (Professional Association of Diving Instructors®) is the world's largest diver organization with a global network of 6,600 dive centers and resorts and more than 128,000 professional members worldwide. Having issued more than 28 million certifications to date, PADI enables people around the world to seek adventure and save the ocean through underwater education, life-changing experiences and travel. For over 50 years, PADI is undeniably The Way the World Learns to Dive®, maintaining its high standards for dive training, safety and customer service, monitored for worldwide consistency and quality. With a longstanding commitment to environmental conservation, PADI is leading the way for millions of people to actively explore, steward and protect the ocean through its course offerings and partnerships with like-minded, mission-driven organizations. PADI embodies a global commitment to ocean health with its mission to create a billion torchbearers to explore and protect the ocean. Seek Adventure. Save the Ocean.SM [www.padi.com](https://www.padi.com)

## About Citizens of the Great Barrier Reef

Citizens of the Great Barrier Reef is a cooperative network of individuals, organizations and businesses working to protect and conserve the Great Barrier Reef. Our collaborative team brings a diverse range of expertise, from the founder of global climate movement Earth Hour, to award-winning developers, world-leading coral reef scientists, dive instructors, Emmy Award-winning cinematographers, shark experts, Traditional Owners and salty sea dogs who have dived the Reef for decades. We're a broad church driven by our collective passion to protect the place we love for future generations. Headquartered in Cairns, Australia - the gateway to the Great Barrier Reef - we use the beauty of the Reef as a point of inspiration to drive collaborative conservation projects on the ground and engage citizens around the world in the Reef's future generations. [citizensgbr.org](https://citizensgbr.org) 

## Dive Schools / Operators / Organisers / Instructors

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

Here's what we need:

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

Please send to [info@ozdiver.com.au](mailto:info@ozdiver.com.au) 



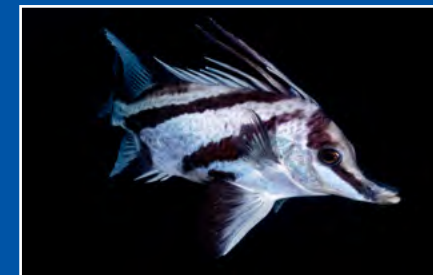
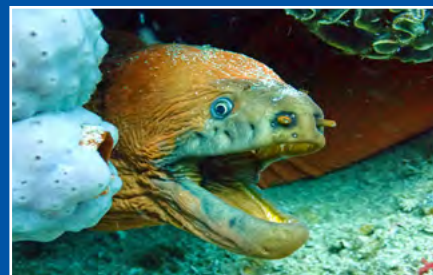
# Solomon Is. Diving



# Destination Eden!

## Part II

New South Wales - Road Trip ... destination Eden!





We thought we would do Tathra Wharf first so that we could check out the conditions before heading onto Merimbula.

We took the coastal road through Bermagui down to Tathra and it really is a beautiful part of the world. None of us had been down that coast road before and the stretch from just North of Bermagui to around Barragga Bay must be one of the best drives on the South Coast.

It took about an hour and a half to get down to the wharf and we were synching up with the High tide at Tathra at 11:15 so planning to be in the water at 10:45.

We drove down and parking was at a bit of a premium but we did get a spot. If you have not seen Tathra wharf you are probably in for a surprise...it sits some 5m out of the water and could be more... it is very high.

The Wharf is listed as a National Engineering Landmark and was restored in the 1980s after falling into ruin in the 1960's and 1970' after the last freight ship to use the wharf departed in 1954. A concerted effort by the local community ensured the wharf was restored, rather than demolished (which was the proposal).

What you have instead of a pile of rubble is an iconic wharf with a great on-site café and gallery...well worth dropping into.

The entrance to the site is a bit sketchy, given the steep approach, if you are not going down the ladders into the water...but do'able. On leaping in we were met, almost immediately, by a large Smooth Ray

that was cruising around looking to Hoover up scraps from the anglers above. When I say large, I am looking at 2m across...it seemed larger.

The viz was sitting at around 4-5m and we could feel the sea temperature had dropped a couple more degrees down to 18C. Poking around under the wharf for a few minutes found us Moray Eels, Eastern Smooth Boxfish, a range of Nudibranchs and plenty of Pygmy Leatherjackets.

We headed out from the wharf to the East for some different bottom topography and found several Seahorses seemingly snoozing amongst the soft corals and sponges. Turning around we headed back under the wharf, scrambled back out and headed for Merimbula Wharf...another lofty wharf.

Merimbula wharf was another 30 minutes' drive South and, although not quite as grand as Tathra, is a substantial structure with a Restaurant and Aquarium in close proximity.

I should say that neither wharf is particularly large in terms of surface area...so 20-25 minutes or so underneath them is long enough before you head out. There was an easier path down to this wharf and a deep-water entry next to the end of the wharf off the rock platform.

Little did I know when I made that entry that I had in fact timed my leap to perfection. When in the water I was looking around and noticed there was not one large Smooth Ray but three of them cruising around... and their preferred turn around point





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was exactly where I had entered the water.

I saved my dive buddies from taking a ride on the Ray's backs and helped them time their entry. This wharf had many more shoaling fish such as Yellowtail and Long Finned Pikes underneath it than Tathra...and, as I mentioned, three large Smooth Rays cruising around.

Tathra had more in the way of small life such as Nudis and its corals and sponges were a little more prolific. Having mingled with the Rays for a while we moved out South East towards the small rocky point and followed a couple of rock ledges around. We did not see a whole lot of fish out there but did find some Octopus and Morays tucked into the ledges. We turned round and headed back

towards the wharf and found that getting out on the dropping tide was a touch harder than it had been to jump in...but we got there!

So back to Narooma (Dalmeney ...just North of there actually) in readiness for our Montague Island Dive with Francois from Underwater Safaris the following day...luckily it was a cracking day. Seas were flat, so we got out to Montague pretty quickly.

Montague island is about a 20-25 minute trip out from the mainland and is quite a large island. Famous for its seal colony, for being a Grey Nurse aggregation site and for having over 12,000 pairs of resident Little, or Fairy, Penguins.

We did not see any of the Grey Nurse or the Little Penguins...but the seals were happy to show off. The first dive





# Dive the Continent

Dive OZ

was a bit of a nonevent really as we tracked around from Pebble Beach to the Pinnacles and back onto the boat. A few Fiddler or Banjo Rays, a couple of Eastern Blue Groper and, as my dive log reminds me, a lot of grey rocks...but better was to come. The boat moved South a little way and tucked into a small protected cove just around the corner.

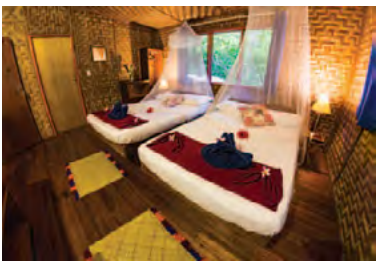
We were getting rid of a bit of Nitrogen but jumped in to snorkel with the Seals in the meantime. They were very playful, and, unlike the Drum and Drumsticks dive, there were several pups around.

The cove has a good cover of seaweed and there is no doubt that the seals like sneaking through the weeds and suddenly appearing in front of you...extending out their fins to flick away from you at the last minute...bubbles streaming and big eyes looking at you on the way past.

There might have been other interesting species hanging around ...but I only had eyes for the seals so saw nothing else! All too soon it was back in boat and back to the mainland. Note to self...do that dive a few more times...it is worth the trip from Sydney or, when this border thing is all over, Melbourne or Brisbane.

A quick gear wash, tank fill and a bite to eat and then down to Eden ... our final push South. We avoided the coast road on the way to Eden to speed things up a touch and 1.5 hours later we were settling into our accommodation in Eden.

Eden is pretty much the last stop in NSW so this was as far South as we were heading and I had never been down to this part of the world, even though my wife's ancestors were pretty much all from the Eden-Monaro area. What can I say? Great



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spot and it is really worth a visit. Twofold Bay is quite spectacular and is one of the deepest natural harbours in the Southern Hemisphere.

In terms of local attractions do make sure you drop into the Killer Whale Museum where you can find out about the history of Old Tom, the Orca 'gang' leader of Twofold Bay.

We were diving with Jacob and Jayde at Dive Eden and off we set to the Henry Bolte wreck. The Henry Bolte was a firefighting tug that spent most of its life in Victoria before coming up to Eden and finally being mothballed in 1987. She was sunk in 1988 along with the Tasman Hauler after being purchased, according to Michael McFadyen on his web site, for the princely sum of \$1. Anyway, there are

two top dive wrecks to explore and we were off to the Henry Bolte, the slightly shallower of the two wrecks at an approachable 26m.

We kitted up and stepped in...and boy was it cold! I mean teeth chatteringly cold...these people must be tough down there because no one was in a dry suit and it was a balmy 12C...I wished I had my dry suit.

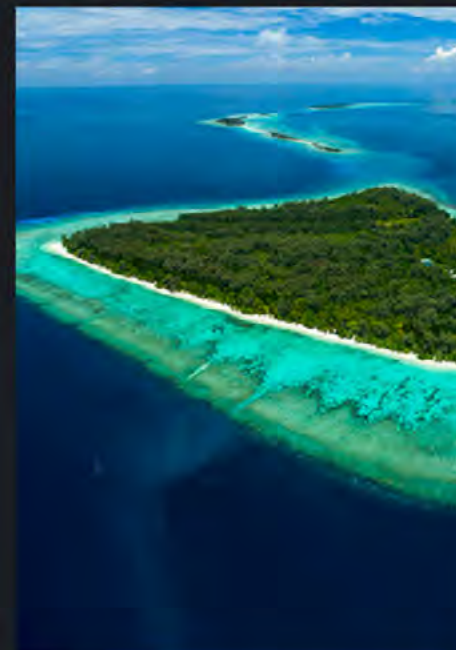
Anyway, that aside down we went, and it was well worth the chill factor. The viz was around the 10m mark, so not that good for the site we were told, but more than enough to be able to enjoy the wreck.

The wreck is pretty broken up now but in large pieces...the most imposing part being the large propeller which is standing proud



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on the upturned stern of the ship. That and Long-nosed or Longsnout Boarfish were the two things that stood out to me on the wreck.

Overall, the fish life was pretty good, even if not teeming with fish. Up we went after 40 minutes or so and were really looking forward to something warm between dives...never has 'Cup a Soup' tasted so good....I mean really good.

Our next dive was back around the corner into the harbour underneath the Chip Mill Pier and, given it was in the harbour rather than the open sea, bound to be warmer.

Yea right! Having got over a bit of sookiness about doing another dive, Mathew and I took the plunge for dive two ...whilst Barb sensibly supported us from the warmth of the boat. OK so now it is only 10C...this was not the plan...but on we go.

Viz was ok at around 7m but I can imagine on a clear day this is a great looking dive. The pilings form a great backdrop for photography and the Old Wives and Yellow Fin Pikes shoal under the cover of the pier. We were looking for Weedy Sea Dragons but could not find any but did trip across an a reasonably large Beardie hiding in a pipe and there were also plenty of Red Morwongs around. ...38 minutes was quite long enough thank you...so it was back to the boat.

Back to the shop to rinse gear etc. before heading North back up to Jervis Bay. A three-hour drive made it a relatively long day, but we had time to sort ourselves out for the last two dives of our trip the following day. The seas had picked up a bit over the past few days and we could not get

out of the heads for our dives. Bowen Island provided the two dive spots for the day at The Nursery and then at North Bowen. They are about a 20-25 minute boat trip out from Husky and were sheltered from the seas in the lee of the island.

Both dives were reasonably similar, as was the viz at 8-10m and at 19C a water temperature; remarkably similar to the air temperature... thank goodness. The sites coughed up more Eastern Blue Devils and plenty of Wobbegongs as well as some Weedy Sea Dragons at North Bowen. The Eastern Blue Devils are such iridescent fish they are always a joy to see...much like the Weedy Sea Dragons.

I have not met anyone who is not excited by seeing Weedys. I seem to remember both the Devils and the Weedys being much less common 30 years ago...maybe I was not looking in the right places.

So that was the last dive on our little road trip, and it was time to head back to Sydney. We clocked 1,263 Kms, knocked off 14 dives (well two of us did) and saw some beautiful parts of the country that we had not visited before.

As I mentioned part of our trip was aimed at putting some money into the local communities hit so hard by the bush fires...and that we did. What we did not know at the time was that those communities were in for another tough six or so months as the country was shut down.

It is just about time to get back down there again now that travel restrictions have eased...but this time I am taking my dry suit to Eden! 🏊



Mathew Kempton



Mathew Kempton





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# Harlequin Shrimp

These beautiful shrimps (*Hymenocera picta*) have a very specific diet: starfish. Upon finding their prey, they will overturn it to dine on the starfish's delicate tube feet.

## Statistics:

These are small shrimps, typically 2-5cm (1-2inches) in length.

## Distribution:

They are Indo-Pacific.

## Habitat:

They live on coral reefs.

## Diet:

Harlequin shrimps eat starfish. They feed on the tube feet and will occasionally take whole starfish many times larger than themselves. They also sometimes feed on sea urchins.

## Behaviour:

Harlequin shrimps detect their prey using scent. They locate a starfish and prise its arms from the rock.

The male and female shrimp overturn the starfish together to disable it –this allows them to feed on its delicate tube feet starting at the tips and working inwards.

Sometimes they will take the starfish into a dark recess where they can continue to feed for several days. Some even feed the starfish prey, keeping it alive so that they can dine on it later.

Their extraordinary colouration may serve as a warning to possible predators. It is thought that the shrimps incorporate toxins from their prey, making them bad tasting or potentially dangerous to eat.

## Reproduction:

Harlequin shrimps are fairly rare. When they encounter a mate, they stay together for life forming monogamous, often territorial pairs. They mate shortly after the female's moult.

The female produces between 100 and 5 000 eggs per season which she tends and cleans until they hatch.

## Conservation status:

These shrimp are rare and suffer as a result of coral reef damage. 🐟





# Ocean Visibility

**Why is it that on some dives the vis is great, while on others it is so bad that it's hard to keep track of your buddy, never mind the scenery? NEIL SWART demystifies the blue**

Underwater visibility varies not only with location along the coast, but also on a day-to-day basis at any one location, particularly on the west coast.

Understanding this sometimes dramatic variability requires some basic knowledge of the underwater light field, which is not only central to determining the visibility, but also to explaining the colour of seawater and the strange and wonderful adaptations of certain marine organisms.

The principal source of light in the ocean is the sun (there is also bioluminescence and reflection from the moon), and this varies not only between day and night, but also with latitude, season and cloud cover. These factors determine the amount of light reaching the sea's surface, at which point some light is reflected and the rest enters the ocean.

The light that enters the ocean is refracted (bent), which is why if you look towards the surface during a dive the whole sky

appears in a compressed circle above your head (known as Snell's window). Once in the ocean, some of the light is transmitted, some is absorbed and the rest is scattered. Light as we see it, termed 'visible light', can be divided into different components or colours – as happens in a rainbow.

These colours are not absorbed equally by the ocean, but red (long-wavelength) light is absorbed preferentially, while blue (short-wavelength) light is absorbed the least. This means that blue light penetrates the deepest into the ocean, and since it is also scattered preferentially it results in the ocean appearing blue.

This 'differential' absorption and scattering of light is also responsible for red and orange colours 'disappearing' on a dive and in underwater photos taken without using artificial lighting.

Absorption and scattering are caused not only by the water molecules themselves, but by differing amounts of both living and non-living particulate matter. It is

these differing amounts of matter and the consequent different amounts of absorption and scattering that cause differences in visibility and colour in the ocean.

Microscopic algae, called phytoplankton, form a significant part of this particulate matter. Phytoplankton, known as the 'grass of the ocean', are particularly good absorbers of red and blue light, and reflect green light, just like plants on land. Therefore, in regions of high phytoplankton concentrations, the ocean appears greenish and underwater visibility is restricted because much of the available light is being absorbed by the phytoplankton.

In contrast, regions of low plankton concentrations have much improved vis and appear as a rich blue colour since the blue light is being preferentially scattered by the 'clear' water. Where there is sufficient food (nutrients), there will be good plankton growth, whereas regions of low nutrient concentrations have correspondingly low production.

However, the 'pulsing' of upwelling on the west coast, and resulting 'pulses' in nutrient levels lead to 'blooms' of phytoplankton following the arrival of

cold upwelled water. These phytoplankton blooms are then responsible for the greenish colour of the water and the poor visibility that tends to occur following an upwelling event.

On a global scale, low productivity, good visibility and clear blue water occur near the equator, while higher productivity with greenish waters and poorer vis are found at the mid-latitudes.

It is important to note that other particles also affect ocean colour and visibility – dead plant matter tends to be very reflective of yellow, and therefore coastal waters sometimes appear a 'yellow-greenish' blue.

When blooms occur of certain phytoplankton that reflect red light particularly well, the resulting colour of the ocean is termed a 'red tide'.

While in regions where there are large inputs from rivers (such as along much of the east coast), the mud and silt contained in the water reflects (scatters) light, giving the water its murky appearance and severely restricting visibility (particularly after storms, which increase river runoff).





# LEAD DIVING

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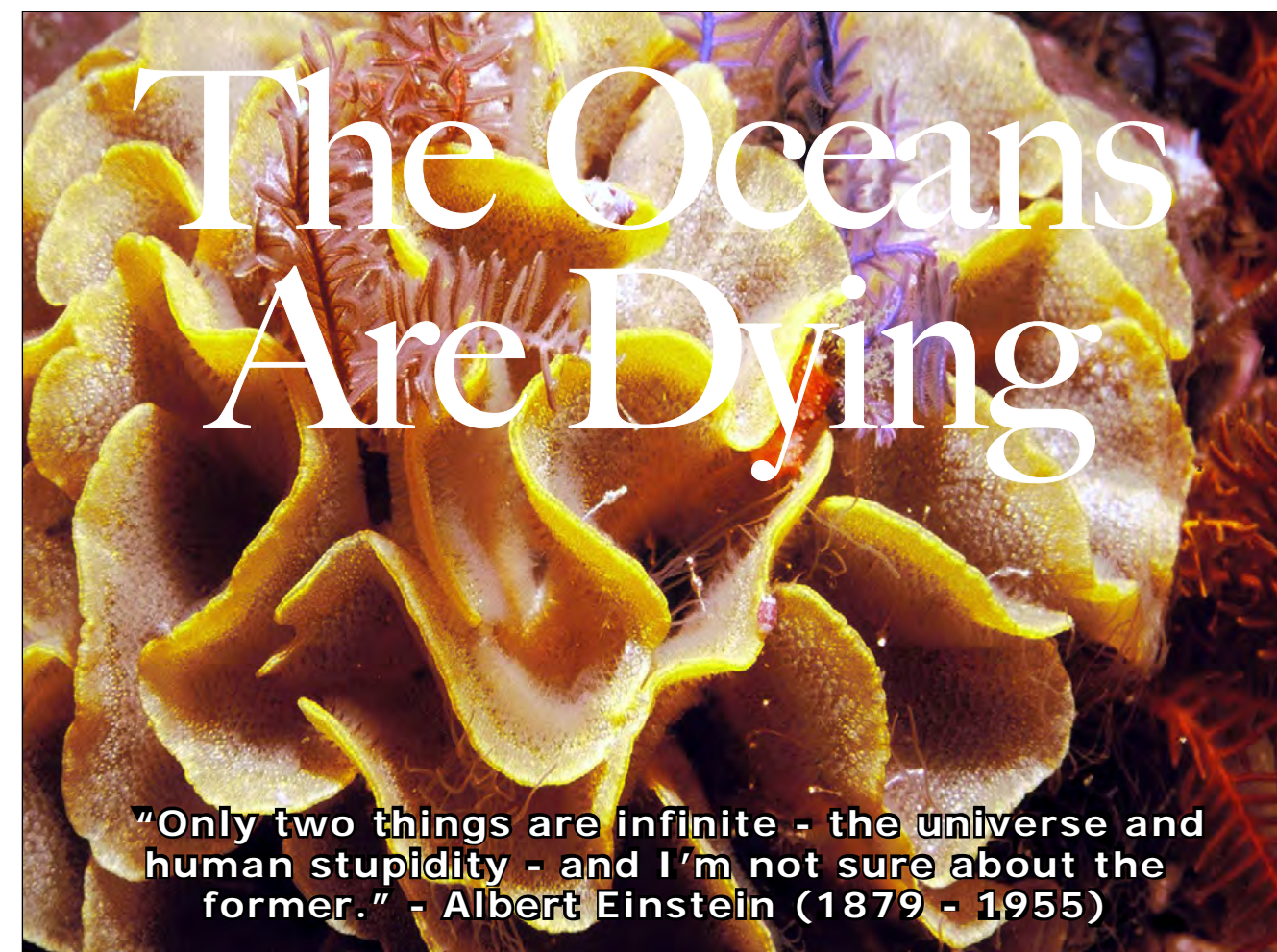


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**"Only two things are infinite - the universe and human stupidity - and I'm not sure about the former." - Albert Einstein (1879 - 1955)**

I don't believe in Earth Day. I think it's silly to devote a single day of the year to being concerned about the environment, but then again, I suppose one day is better than none at all.

The issue now is global warming. When we were trying to warn people about global warming and climate change twenty years ago, no one was interested.

Now it's become the "in" issue and the big organizations are tapping the public for donations to address the problem, although no one has come up with anything that makes much sense so far.

Global warming has become a money-maker for the big bureaucratic organizations whose primary concern is simply corporate self-preservation. Greenpeace is telling people they can slow down global warming by singing in

the shower – I kid you not! All you have to do is run the water, get wet, shut the water off and sing in the shower as you lather up, before opening up the faucet and rinsing off. So all along it was just that simple to save the world!

One of the major problems is that the big organizations are too politically correct to address the ecologically correct solutions. Instead, they are baffling everyone with abstract concepts like carbon trading and carbon storage or trying to sell us a new hybrid Japanese car.

But let's look at the number one cause of global greenhouse gas emissions – human overpopulation. It's the very same issue that was the priority concern at the 1972 United Nations Conference on the Environment in Stockholm. Today it world's population stands at 6.5 billion. That's a lot of people!

In 1950, the world population was 3 billion – that figure has now more than doubled. Six-and-a-half billion people produce one hell of a lot of waste and use an unbelievable amount of resources and energy.

And this number is rising minute by minute, day by day, year by year. Most of the people having children these days have no idea why they're even having children other than "it's what you do". Many of these people don't love their children, and those who say they do, aren't actively trying to ensure their children have a world to live in one day.

Unless over-population is addressed, there is absolutely no way of slowing down global greenhouse gas emissions. But how do you do that within the context of an economic system that requires larger and larger numbers to perform the essential task of consuming products? Corporations need workers and buyers. Governments need tax-payers, bureaucrats and soldiers. More people mean more money.

There are three laws or principles of ecology that can be looked at. First is the Law of Diversity - the strength of an eco-system lies in the diversity of the species within it. If you weaken the diversity, the entire system will be weakened and will ultimately collapse.

Second is the Law of Interdependence - all of the species within an eco-system are interdependent. We need each other to survive. Thirdly is the Law of Finite Resources - there is a limit to growth because there is a limit to the carrying capacity.

The human population is exceeding the ecological carrying capacity. This is leading to the diminishing of both resources and the diversity of species. This in turn, is causing serious problems with interdependence.

Albert Einstein once wrote: "If the bee disappeared off the surface of the globe, then man would have only four years of life left. No more bees, no more pollination, no more plants, no more animals, no more man." It's that simple. Humans are holding onto our place on earth by our fingertips. For example,

should something happen and there was no more grass, we would be screwed. That would mean the earthworms would disappear and then so would the bees. According to Einstein (who was somewhat smarter than most of us), we would then only four years left. That's just enough time to get a university degree and discover that everything you've just learnt has become totally useless because you are sitting on the doorstep of total global ecological annihilation.

We are cutting down forests and plundering the oceans of their creatures. We are polluting the soil, the air and the water and we are rapidly running out of fresh water to drink. The oceans have been abused to the point that 90% of the fish have been removed from their eco-systems and at this very moment there are over 65000km of long lines in the Pacific Ocean alone. Tens of thousands of fishing vessels are scouring the seas in a rapacious quest to scoop up everything that swims or crawls. This is ecological insanity.

Strange as it may sound, the largest marine predator on the planet right now is the cow. More than half the fish taken from the sea is turned into fish meal and fed to domestic livestock. Puffins are starving in the North Sea so that sand eels can be fed to chickens in Denmark.

Sheep and pigs have replaced the shark and the sea lion as the dominant predators in the ocean and domestic house cats are eating more fish than all the world's seals combined.

We are extracting up to sixty fish from the sea to raise a single farm salmon! The demand for shark fins is rising in China. Ignorant people still want to wear fur coats and in America, we order fries, a cheeseburger and a "diet" coke. All I see is a bunch of arrogant primates who are out of control.

Consider the humble honey bee and remember that this little black and yellow insect that's busy flying from flower to flower is all that stands between us and our demise as a species on this planet. We had better see to it that they don't disappear. ■



# Diver Recovers Despite Delayed Treatment

**The diver is a 60-year-old female with more than 40 years of diving experience, including many years working as a dive professional. She is reportedly in good medical and physical health and takes no regular medications.**

## THE DIVES

The diver made a total of 10 dives over a five-day period. On the fourth day of diving she participated in a single planned-decompression dive; all other dives were within her computer's no-decompression limits.

The decompression dive was to 33m for 25 minutes, the breathing gas was air, and she met all decompression obligations. There were no reported problems or incidents on that dive.

Within seven hours after the decompression dive, she developed numbness and deep pain in her right arm and leg that radiated into her foot. The sensation was unlike any pain she

had previously experienced. The next morning she participated in two more dives: the first to 14m for 50 minutes and the second to 9m for 30 minutes. The diver did not recall any changes to her symptoms during or after the dives. The symptoms worsened during a flight 48 hours after the final two dives.

After the diver arrived home, the pain increased enough to wake her from sleep. An anti-inflammatory medication provided some relief, but by morning the pain was radiating into her right shoulder.

The grip strength in her right arm seemed to be decreased, and the numbness and pain in her right leg and

foot were hampering her ability to walk normally, so she contacted DAN.

## THE EVALUATION

After gathering all pertinent information, the DAN medic on call strongly recommended that the diver go to the closest emergency department for evaluation.

Believing that her primary care physician could evaluate her sooner, the caller scheduled an appointment with her doctor for the early afternoon.

The DAN medic contacted the hyperbaric chamber that would likely treat the patient if she were to be diagnosed with decompression sickness (DCS).

The attending hyperbaric physician contacted the diver and asked that she call him while seeing her doctor. The hyperbaric physician and the patient's primary care physician worked together to arrive at a likely diagnosis. After performing a full neurological and physical evaluation, the physician diagnosed the diver with neurological (Type 2) DCS. For treatment, she was transferred to the hyperbaric chamber facility, which was two hours away. On arrival she was re-evaluated and treated in the chamber with a U.S.

Navy Treatment Table 6, which provided some improvement. Prior to the treatment her arm and leg strength were measured at 3.5 out of 5, but post-treatment her strength was 4.5.

The next day she received treatment using a U.S. Navy Treatment Table 5. The only residual symptom after the second treatment was subjective soreness in her right leg. The treating doctor explained that this was common and would resolve with time.

## DISCUSSION

This case highlights several things. The first involves symptom recognition. Please remember that pain is your

body's way of telling you that something is wrong — whether you have been diving or not. Not all pain after diving indicates DCS, but any pain should prompt an evaluation. If you have any symptoms that are new to you, seek medical evaluation or contact DAN to discuss your situation.

This diver fortunately experienced a complete recovery despite the five-day delay in treatment after symptom onset. Divers can still receive treatment, if there is a possibility for positive results. How long a delay is too long to provide treatment is still a matter of discussion among hyperbaric experts.

The patient ideally needs to be evaluated and treated as soon as it is practical to do so — certainly within the first 24 hours of symptom onset.

With time, the gas bubbles that cause DCS gradually resolve, but it is not known how long it takes them to completely disappear.

It's clear, however, that once they cause an injury, symptoms may persist longer than the bubbles themselves.

If hyperbaric oxygen (HBO) therapy begins within the first 24 hours after symptoms, pressure diminishes the bubbles, and the high partial pressure of oxygen speeds up their elimination. When HBO is delayed for days, it may still be beneficial even though bubbles may not be present; the treatment addresses the remaining tissue injury.

If you experience symptoms, please do not hesitate to seek a medical evaluation.

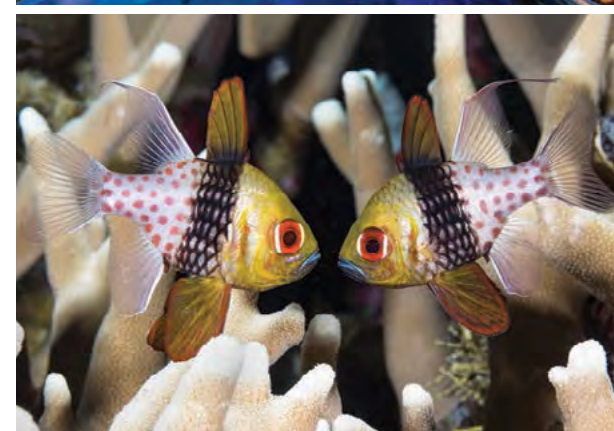
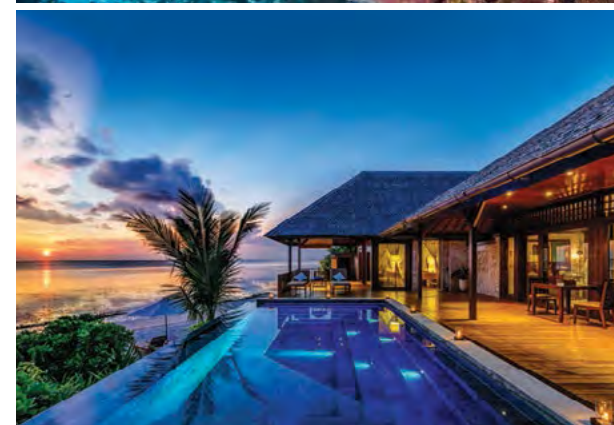
For emergencies, first activate emergency medical services, and then contact the DAN Emergency Hotline at 1800 088 200, 24-hours a day, seven days a week.

Your safety is our priority.  
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*"Simply put you can't have a better experience! Everything is about service and maximizing your diving and snorkeling. The dives were amazing, and all the staff are first class. At Wakatobi they will accommodate any request, but you hardly need to make any since they have thought of essentially everything." ~ Dr. James and Laurie Benjamin*



## An experience without equal

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



[www.wakatobi.com](http://www.wakatobi.com)



# GLOBAL NEWS

## Wakatobi Rises to the Challenges of COVID

The coronavirus pandemic created challenges for dive travelers as well as the destinations and resorts they love to visit. This was certainly the case for Wakatobi Dive Resort, which was unable to welcome guests through the majority of 2020 due to travel restrictions and lockdowns. But rather than simply shutter operation, the resort's owners and management team created a proactive plan to weather this global crisis.

With no firm date for reopening in sight, and no guest revenue to offset operating expenses, Wakatobi's management team knew that keeping the lights on would require both strategic planning and economic sacrifice. As the last guests departed in March of 2020, these plans were put in place.

One of the top priorities during the coronavirus shutdown remained the welfare of the local people and communities that depend on Wakatobi for much-needed revenue. Rather than furloughing local staff and guides, the owners and managers chose to provide rotating part-time employment for some 160 local workers, made payments to those for whom there was no work, and continued to pay health insurance costs and contribute to the pension fund for all.

Equally important as providing support for local communities was a commitment to conservation. Wakatobi has continued to fund reef patrols, social programs and their signature lease payments to local villages in exchange for honoring no-take marine zones. These actions saved 20 jobs, provided much-needed funds to villagers and ensured that the surrounding reefs remain protected and pristine. Compliance in the marine sanctuaries remains high despite the absence of tourism, and the locals are able to help to monitor the reefs and respect all no-take areas. A small team stayed on at the resort, including resort founder Lorenz Mäder, and they continue to monitor and patrol the reefs, maintain old moorings and install new ones. They also devoted time to beach cleanup and collecting debris found while snorkeling and diving.

Lorenz reports that "the reefs are in prime condition. Waters were about 2 degrees cooler than in the previous El Nino years, providing favorable conditions that have allowed the corals to thrive." This revitalization was especially apparent in areas that had suffered damage prior to the establishment of the marine reserve. Consequently, the team have spotted an increase in larger marine life at



Marco Fierli

deeper depths and report there are at least five new dive sites to add to the itinerary once the resort reopens.

Wakatobi's 'sprucing up' efforts also extended to many aspects of the resort and dive operation. All the dive boats have been updated; the property has seen a number of significant repairs and improvements; the jetty has been widened and smoothed, and the airstrip received an upgrade under the supervision of a certified runway engineer.

Thanks to the ongoing efforts of staff and management, Wakatobi is ready to open the doors as soon as international travel has normalized and borders are open again, and guests are already anticipating and planning their return.

Inquire about booking a future here (<https://www.wakatobi.com/prices-booking/booking-trip-enquiry/>)

Contact: Linda Cash at [linda@wakatobi.com](mailto:linda@wakatobi.com) or visit [www.wakatobi.com](http://www.wakatobi.com) 

## Kickstart 2021: Become a PADI Certified Diver

Are you looking to embark on a new adventure in 2021? Becoming a PADI certified diver is the perfect way to jump start the new year. In addition to learning an impressive new skill, you'll have the opportunity to experience the magic of the underwater world (which covers more than 70% of the planet)! While 2020 certainly presented many challenges, taking time to focus on yourself and your connection with nature, while completing an epic certification course is something we can all see value in as we begin the new year.

### PADI – The Way the World Learns to Dive

As we begin the New Year, PADI is committed to providing opportunities for people around the world to seek adventure and save the ocean.

PADI (the Professional Association of Diving Instructors) is the most recognized dive training organization in the world, with 28 million certifications and counting.

Becoming a certified scuba diver starts with the PADI Open Water Diver course – the most recognized scuba certification in the world. PADI Instructors around the world undergo rigorous training to ensure that each and every course is both fun and safe.

A PADI Open Water Diver certification allows you to seek adventure anywhere there's water, like a passport to the underwater world!

### Adventure Doesn't Have to Wait – You Can Start Your Diving Journey Now

PADI eLearning allows you to first complete the online portion of the Open Water Diver course at your own pace through our easy-to-use interactive program.

Then, you can connect at any time with a PADI





Dive Center or Resort to complete your in-water training. eLearning not only offers added flexibility, it also reduces the amount of time you'll need to spend at the dive centre. This is online scuba training at its finest!

#### Completing the PADI Open Water Diver Course


The PADI Open Water Diver course includes three main parts: Knowledge Development, Confined Water Dives, and Open Water Dives. Knowledge Development (which you can complete via eLearning) covers the principles, concepts, and terms you need to know for dive safety and enjoyment.

In order to complete your Confined Water Dives and Open Water Dives, you can use the PADI Dive Shop Locator or the PADI Adventures App to connect with a dive shop. Use our COVID-19 Scuba Diving Status Map for the most up-to-date status on diving in your local area.

In the pool, you'll learn and practice scuba skills with your PADI Instructor during your Confined Water Dives – putting your knowledge to the test and breathing underwater for the first time! Then, you'll move on to an open water dive site (ocean or lake) to complete four Open Water Dives.

As a PADI Open Water Diver, you'll be trained to a maximum depth of 60 feet (18 meters), and will be qualified to dive in conditions as good as, or better than, those in which you trained. It's just the beginning of a lifetime filled with dive adventures.

#### The Perfect Path for 2021– Dive In!

Whether it's scuba diving or freediving that interests you, becoming a PADI certified diver is the perfect way to kick-start 2021. Earning a PADI Open Water Diver certification will certainly provide you with infinite possibilities for adventure, near and far. We look forward to seeking adventure and saving the ocean with you in 2021 and beyond! 



# Thalassa Dive Resorts Indonesia

Thalassa Dive Resorts Indonesia offers spectacular diving in the Bunaken National Park and the Lembeh Strait in North Sulawesi, but then COVID-19 came to quickly and brutally put an end to that.

At the start of 2020 we thought it would simply be a matter of biting the bullet for a few months, and after that everything would resume to normal again. Oh how wrong we were!

So, this sudden lack of international travelers forced us to look elsewhere to earn something of an income: we tried to sell dives and courses to a handful local guests, and we converted our kitchen into an improvised pizza delivery service in order to serve an already fragile local market. Unfortunately, it's not enough to cover the cost of our two beautiful resorts.

At the same time, all of our full-time staff was sent home, only to be on call, just in case we had a few divers or dinner guests. Then, we pay them as much as we can afford for their hard work.

After surviving like this for a full year, our reserves are drying up, and we are becoming desperate. Seeing our empty resorts patiently waiting for guests breaks my heart, and I don't want to see my life's work slowly disappear.

This is why I'm appealing to you, dear reader. I'm appealing to your dive club, shop or dive school. I'm appealing to your acquaintances, friends & family and the Facebook groups you might be a member of.

I want to be very clear about one thing: we absolutely hate to do this, but we see no other option at this time.

Even if you can't or don't wish to donate, simply sharing our campaign page would go a long way to ensure our continued existence here in beautiful North Sulawesi.

No matter how small your contribution, I want to thank you from the bottom of my heart.

Simone Gerritsen,  
Managing Owner Thalassa  
Dive Resorts Indonesia 

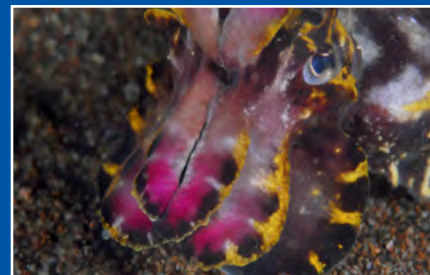




# Siren Song

## The Philippines

Home to some of the richest marine ecosystems on earth, the 7 107 islands of the Philippines are a diver's dream destination. With so many islands to choose from, it can be daunting to know where to begin. ∞





Positioned midway between the islands of Luzon and Mindanao, the Visayas offer some of the country's most dazzling dive opportunities. To see the most in the shortest possible time, cruise in style aboard the S/Y Philippine Siren.

The 40m traditional Pinisi-style sailboat is the newest and biggest addition to the Worldwide Dive and Sail fleet. Ranging from 5-10 days in duration, Southern Visayas trips travel between Negros and Cebu or vice versa depending on the dates. For my 5-day trip, the departure point was the Pura Vida Resort at Dauin in southern Negros. I opted to arrive a day early, enabling me the opportunity to further explore some of Dauin's sites.

On hand to greet everyone was dive director Susie Erbe. By 5pm, everyone was aboard and we embarked for our first anchorage at nearby Apo Island. On the way, everyone assembled on the rear deck for a briefing by Susie and her husband Thomas. First off, all watches were set to 'Siren Time', which was an hour ahead of Philippine time. The reason was definitely physiological,

making the early wake-up calls a tad less painful. After introductions to the crew and dive guide Kim, Susie gave everyone personal tours of the boat.

The espresso machine instantly won me over, but that was just the beginning! The expansive lounge was fully equipped with a cocktail bar, 42-inch flat screen TV and a pair of inviting soft leather couches. Beside the bar, a raised area of floor had been set aside for cameras.

Embellished by tones of warm teak, my spacious cabin came complete with full beds, air-con and ensuite bathroom. However, the big surprise was the computer and HD flat screen monitor. Fully integrated with the ship's network server, guests can download their images and view them on the TV in the lounge. In this age of incessant battery charging, multiple sets of plugs were an especially welcome feature!

One of Visayan's diving crown jewels, rugged Apo Island is one of the country's most successful marine reserves. In 1995, the entire island and its



surrounding waters were granted full protection status, with the islanders themselves now managing the reserve. Although several dive resorts are located on the island, most diver traffic comes via day trips from nearby Dauin.

After a leisurely 30-minute cruise, we arrived at Apo around 5:30pm. The day's congregation of dive boats had long departed, with the late afternoon light bathing the island in a golden glow.

After an early wake-up call and breakfast number one, everyone was raring to go. Bereft of Apo's daytime traffic, we literally had the place to ourselves for the morning's first dive.

I was geared for macro and Chapel Point delivered the goods! Peering from its protective lair, a snowflake moray played a game of hide and seek with my camera, while a telltale spiral of delicate yellow eggs heralded the presence of nudibranchs – a lot of nudibranchs! My shutter clicked relentlessly for the entire dive; a whale shark could have passed by and I would have missed it entirely!



Arriving back on the boat, our hostess Lola was dutifully waiting with a tray brimming with tea and hot chocolate, the perfect antidote for the cool water.

Nearby in the dining area, a mountainous buffet breakfast was ready and waiting (a serious diet would be in order upon my return home). The day's remaining three dives were going to be necessary to work it all off!

After breakfast, a short zodiac ride brought us to Cogon. Plunging in, we were instantly enveloped by seemingly endless clouds of red-toothed triggerfish. While following a hawksbill turtle, the current picked up considerably and within scant minutes, became downright adrenaline pumping! Utterly blasé to the conditions was Apo's eminent school of big-eye trevalley, hovering effortlessly in the raging current as I struggled to fire off a few photos.

Rock Point East's gentler conditions provided a welcome respite from Cogon's fury. Along the wall, gorgonians and soft coral jostled for space along with



elephant ear sponges and cauliflower soft corals. One barrel sponge yielded an unexpected surprise; in addition to a sinuous tangle of sea cucumbers, the protective fronds of a featherstar concealed a delicate juvenile lionfish. A return visit to Chapel Point for the night dive concluded an exceptional day. As always, Lola was patiently waiting by the ladder. This time, her tray was laden with ice-cold cans of beer!

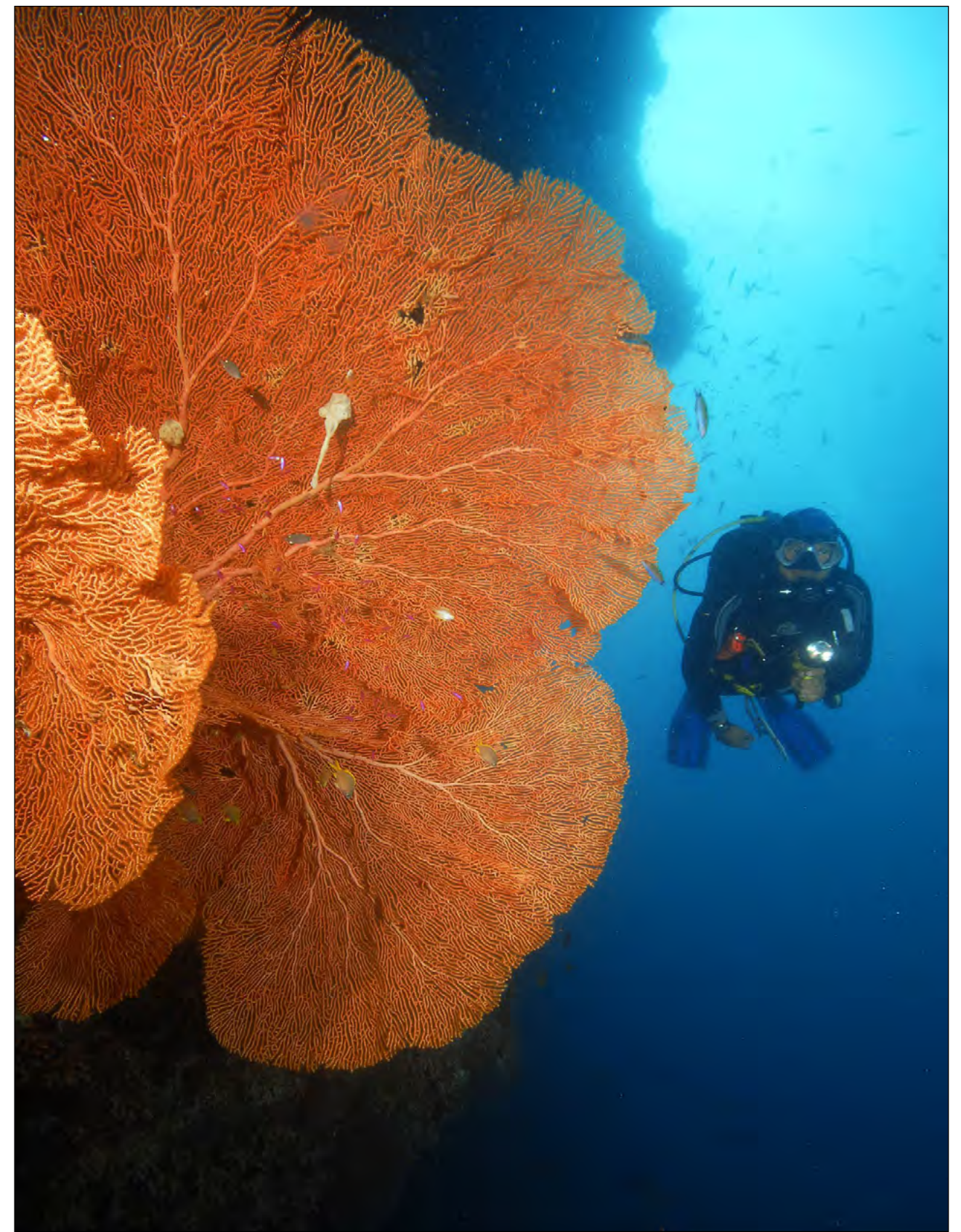
The following day, a pre-dawn departure returned us to Negros for a pair of morning dives. Dauin's brown volcanic sand is widely renowned as a Mecca for muck and the Car Wrecks is a perennial favourite. From the shallows at 5m, a sandy slope descends to the cars at 28m.

Enroute, the undulating tentacles of a lone anemone concealed an assembly of porcelain crabs and commensal shrimps. Standing guard, a mob of pugnacious blacksaddle anemonefish ensured everyone maintained their distance. Arriving at the cars, I discovered the once recognisable vehicles had

eroded into a thicket of distorted metal populated with banded pipefish, lionfish and nudibranchs. Nearby, the deceptively barren slope was rampant with skeleton shrimp, flamboyant cuttlefish, dwarf scorpionfish and devil scorpionfish.

What I initially took to be a small white pebble turned out to be an absolutely minute juvenile painted frogfish smaller than my smallest fingernail. With my tank nearly empty, Kim gestured excitedly towards a seemingly barren patch where I was barely able to discern the protruding eyes of a wonderpus before it vanished in the sand.

Our next stop was San Miguel (the dive site, not the beer). Part of the Atlantis sanctuary, a wide sandy slope descends to an artificial reef at 20m. The labyrinth of car tires proved irresistible to thorny seahorses, mantis shrimp, ornate and robust ghost pipefish and a wealth of nudibranchs. Inching across a sandy was an unfamiliar orange specimen. Back home, I sent the image to nudibranch guru Neville Coleman, who informed me





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Anda, Bohol

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that it was a species of *gymnodoris* he'd never seen before and was most likely an undescribed species.

A two-hour cruise southeast of Negros, Siquior was originally christened Isla Del Fuegos by the Spanish due its profusion of fireflies.

These days, it is legendary throughout the Philippines as the abode of the mangkukulam, healers and sorcerers who treat ailments and cast malevolent spells. The real magic, however, lay under the waves.

At the island's western tip, a descent along the gentle sloping wall at Lighthouse revealed an extravagance of both hard and soft corals. Sea snakes undulated through the clear blue waters, while a careful eye revealed a wealth of smaller inhabitants. Adorned with flowing red tresses on its body and legs, an orangutan crab gazed unmoving atop the furrowed spheres of a bubble coral. Mushroom corals revealed rotund red *periclimenes kororensis* commensal

shrimps sporting transparent chelipeds and a white head.

A sunset dive at Coco Grove revealed a different cast of characters. Critters were out in force and camouflage was the name of the game. Capped with tiny quivering anemones, hermit crabs blithely scuttled the reef along with scores of decorator crabs and squat shrimps. The guise of one football-sized sponge crab wasn't quite so successful. Sporting a rippling crimson sponge attached to its rear carapace, it couldn't have been more conspicuous!

Mealtime on the Siren proved to be a delicious (and frequent) affair. Served buffet-style, the surfeit of food included two breakfasts, lunch, afternoon snacks and dinner. Dishes were a mixture of Western and Asian food with an emphasis on Indonesian. Chef Tata would conclude his dish-by-dish description with a gleeful exclamation of, "Attack!"

In contrast to the gentler terrain of the previous day, Paliton Wall featured sheer





walls rife with towering barrel sponges. Fortunately, I was set for macro and the residents obliged admirably. Cautiously peering out of its burrow, a blue ribbon eel gaped spasmodically. Perched on a nearby ledge was a pair of Minor's Notodoris nudibranchs, whose bright yellow colouration earns them the nickname "banana slug".

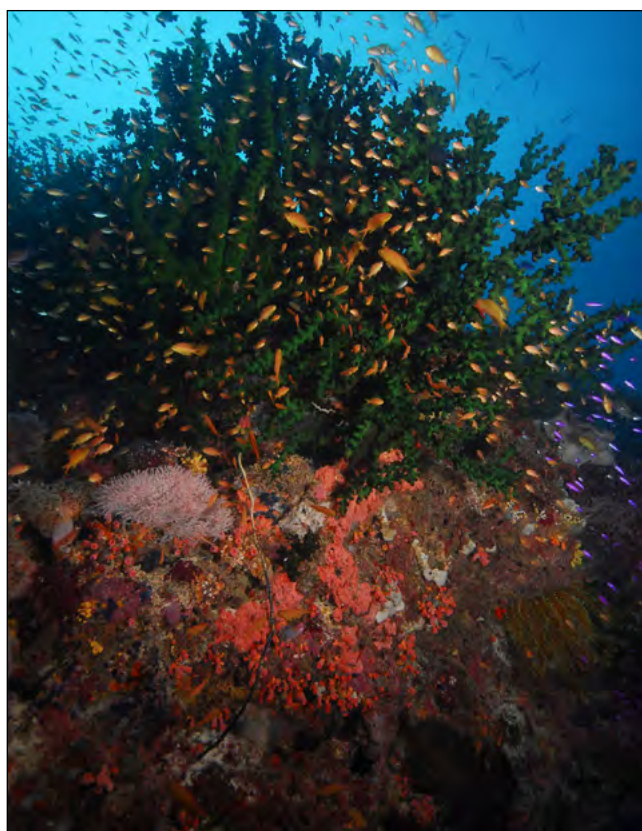
Lying 8km to the southwest of Alona Beach, the marine sanctuary of Balicasag is Bohol's most celebrated diving location. Ringed by a gleaming white beach, the island is completely surrounded by pristine reefs of both hard and soft corals. Sanctuary was especially impressive, with coral-encrusted walls plummeting to the depths.

Below 20m were some massive gorgonians well over 2m across. At one point, Kim gestured excitedly above me. Dramatically silhouetted by the mid-day sun, a shimmering cyclone of big-eye trevalley swirled scant metres away. With amazing visibility and virtually no current, my camera's flash card was bursting by the dive's end.

Riddled with fissures and overhangs, Cathedral's vertiginous drop-offs provided sanctuary for morays, soldierfish, lionfish and copper sweepers. Harlequin sweetlips added to the spectacle along with longfin bannerfish, pyramid butterflyfish and some large (but happily non-aggressive) titan triggerfish. Out in the blue, tuna and mackerel patrolled the drop-off along with Napoleon wrasse, rainbow runners and blue-fin trevalley.

A highlight of the trip proved to be the entertaining pre-dive briefings. With everyone assembled on the rear deck, Thomas would aloft a large white placard bearing diagrams of the site's various features. Susie kept everyone in stitches with her hilariously energetic hand signals illustrating the array of creatures we would encounter. On board cabaret!

After our second dive, we weighed anchor and headed for Cabilao Island, the day's final destination. With a cruise time of several hours ahead, I made a





beeline for one of the lounge's leather sofas (but not before indulging in some freshly made chocolate doughnuts).

Positioned off Bohol's west coast facing Cebu, Cabilao's somewhat innocuous appearance belies its wealth of undersea attractions. Upon our late afternoon arrival, everyone else was done for the day, but Kim and I were game for more. Gearing up, we jumped into the zodiac and headed for a sunset dive at CrabCity.

The name was certainly apt, as there were crustaceans galore. The undisputed highlight was Kim's discovery of a tiny ruby-red octopus concealed in a cluster of hard coral. Before we knew it, our initially planned dive of 50 minutes had turned into 80!

Blessed with superlative reefs and abundant critters, Cabilao presents the dive photographer's proverbial dilemma: wide angle or macro? Fortunately, two morning dives would ensure the

opportunity for both. Shooting macro for the pre-breakfast dive at Paradise Wall, the visibility was crystal clear. Descending to 25m, banded pipefish, coral shrimpfish, nudibranchs and anemones teeming with false clownfish kept my shutter clicking happily.

For the second dive at Lighthouse, I swapped macro for wide angle. Along the reef top, acropora, lettuce, brain and table corals grew with reckless abandon, while deeper down, tubastrea corals played host to billowing schools of anthias. Leather corals were caked with dense aggregations of white sea cucumbers, giving the appearance that someone had run amuck with a gigantic tube of toothpaste.

Three hours after departing Cabilao, the towers of Mactan's resorts came into view. Tambuli, the last dive of the trip, took me completely by surprise. With the unremitting jet skis and banana boats whizzing past, I was somewhat dubious



# TECH DIVING

## A tight squeeze






of what we would encounter. Happily, Tambuli proved to be macro heaven.

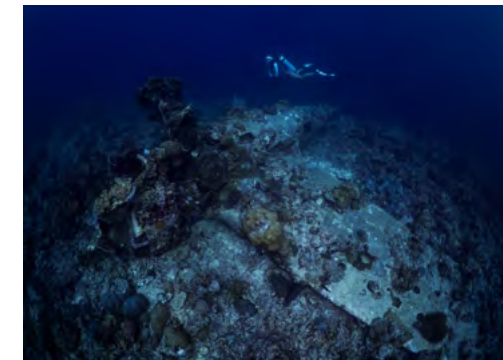
During the ensuing hour, I spotted white-eyed morays, pipefish, sea cucumbers, a banded snake eel, flatworms and no less than six species of nudibranchs.

While photographing a striking pair of geometric chromodoris, Kim rocketed in my direction, his slate bearing the message: "Over here is a really BIG one." Finning over for a look, I quickly discovered that he wasn't kidding; however, the multi-appendaged monstrosity gliding across the sand was no nudibranch, but a gargantuan black-tailed sea hare. As I was having one final look around, I spied a photogenic pair of lizardfish posed atop a coral outcrop. One bore a red-smeared toothy grin that resembled a fishy version of the Joker!

Before I knew it, five superlative days had come to an all-too-expeditious close. What really made the trip special were the small, personal touches. The crew was extraordinarily attentive, with service of a very high standard. The Philippines' undersea environs never ceased to surprise and enthrall – be it reefs or critters, there's something in the Visayas for just about everyone. 







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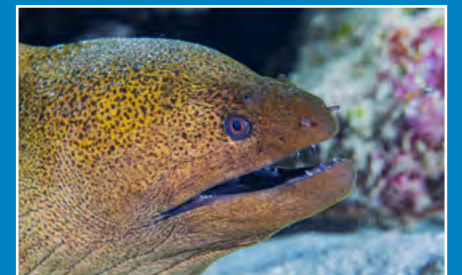


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# Great Barrier Reef Escape

Not been able to get out much recently? Are you missing those warmer tropical waters? Have you forgotten what a tropical reef scene looks like? I think I might just have an answer for you that will satisfy your cravings and will not break the bank.





## Dive the World

Great Barrier Reef

Me and my dive buddies (John Banks, Barb Smith, and Mathew Kempton) were screaming yes to all three of the above questions...so we found a solution on Pro-Dive's Scubapro boat out of Cairns.

They run a three-day, two-night trip, where you slot in 11 dives over that time and can come away contented that you have had a bit of warm water, tropical reef hit.

Now I know that the Queensland Government have to keep their borders open and I also know the other states must forsake quarantine restrictions on returning travellers but, as the vaccine rolls out and our locally acquired COVID cases continue to run at zero across the country, you can probably afford to think about cross-border trips. Anyway, Far North Queensland is really another country, in case you did not know! We flew up from Sydney to Cairns (there was even a choice of flights) and

that all went well. We did have to show our drivers licences to Queensland's finest to get into Brisbane...and then again in Cairns...because clearly the FNQ police do not trust their Brisbane cousins to get it quite right, but that was painless.

The whole transport thing worked out well and the trip into the heart of Cairns, from the airport, is only a short 10-minute drive.

The whole tourist trade is hurting at the moment, not just in Cairns of course, so for the moment you can take your pick of hotels at competitive rates. The restaurants can also do with the trade so splash out and eat somewhere different.

A shout out to the Rendezvous Marche Vietnamese restaurant on Aplin Street and the Bay Leaf Balinese on Lake Street...both excellent. Muddy's Café right on the beach made a great place



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to start the day as well...and that is all I have to say about the food. You can find the Pro-Dive shop on the corner of Shields and Grafton Street and you will need to pay your Government Environmental Management Charge of \$60, complete your paperwork and show your certification, before heading to the boat.

The team will pick you up from many of the hotels in the centre...as well as drop you back there when you have completed your trip. It is a useful service which stops you having to use a taxi for what will no doubt be a short trip to and from the shop. If you have left some of your kit behind the shop is well stocked and will be able to help you out.

Then it is off to the boat for a 7am departure and a three-hour trip to the Reef.

Pop a couple of Kwells (or similar) before you leave the jetty if you think you might need them...better safe than sorry I say.

On the way out you can organise your gear and catch up on the safety briefings (sent by email beforehand if you had the chance to look at it) and the first of the 11 dive briefings.

We headed out to Milln Reef and tied up on a mooring at a dive site called Pools. A briefing and we were in the water at 11am...and it was warm...a balmy 28C; how good is that?

And that is how it went for the next 10 dives. The boat moved a couple of times during the day across to Flynn Reef and back to a different spot on Milln Reef. The briefings were informative and up to scratch and the safety protocols on the boat spot on.

Everyone was assigned a safety number that was checked twice, by two

different crew members, before and after every move. You were counted into the water and were counted out of the water with maximum depth and time recorded.

The dives are not guided...which is great if you are experienced...and great learning if you are less experienced.

You could opt for a guided Night Dive if you had not previously dived at night and you could also opt for a guided first dive if you had not been in the water for a while...a good thing to take up if you fell into either category. This being Queensland you must dive with a snorkel and you must have an SMB with you.

The crew were happy to provide both if you did not have them. At night you were also provided with a torch and a strobe. We had all our own dive kit but if you did not, the gear on the boat looked up to scratch and I did not hear





anyone complaining about it...stinger suits were also a must if you did not have a full wetsuit.

You can dive on Nitrox, if certified, or take a course out there if not certified. The mix was consistently spot on around that 32% blend (tested and logged every dive) and we never dived deeper than 24 metres so there is no reason not to be using the added benefits of diving on Nitrox.

The diving was what you might expect inside the Great Barrier Reef. Warm water, decent visibility at 15m +/- but a touch milky.

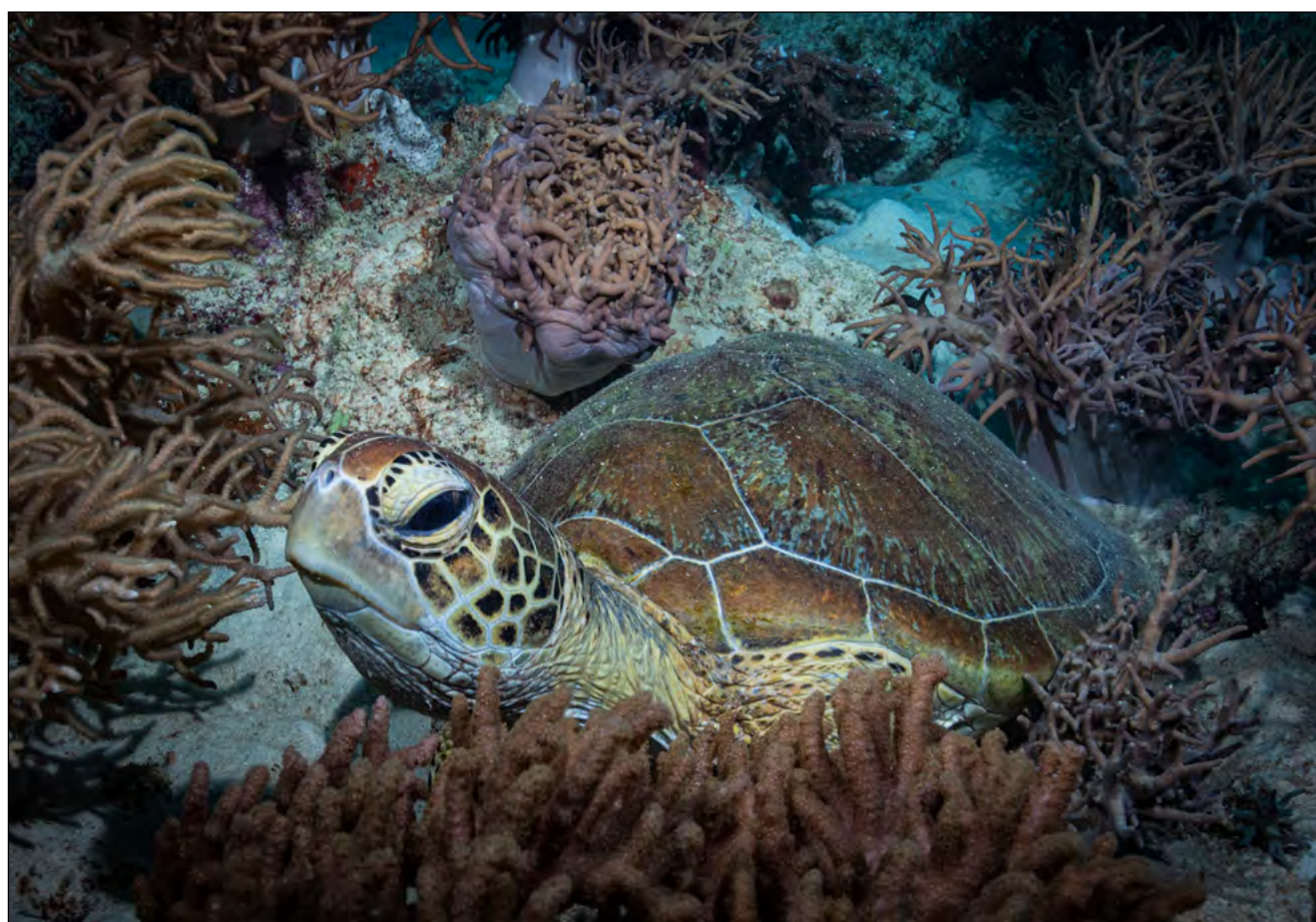
It would be unfair to expect the corals of Raja Ampat or the Coral Sea to be present in the lee of the Great Barrier Reef, but I was pleasantly surprised, given a lot of media coverage, what

good condition the corals were in. There was little evidence of coral bleaching but there was some evidence of storm damage in parts...not enough to detract from the experience but it was there.

I am not in the camp that sees no issue regarding the impact that sea temperature warming, an increased number of severe weather events and acidification are having on the GBR BUT, based on firsthand observation, I am saying that it is not universal.

The corals on the two reefs we visited (Milln and Flynn) were in good condition and, in speaking to a skipper who was delivering divers to these same reefs 15 years ago, have not deteriorated. Go and see for yourself!

In terms of the fish life, it is what you expect from a healthy shallow



## KEEPING DIVERS SAFE AROUND THE WORLD



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water reef system. Anemone Fish shuffling around their hosts, Glass Fish shimmering around table corals, Clams littered across the sandy bottoms, Bumphead Parrotfish chewing away on the coral, Giant Trevallies taking cover under the boat and charging around like lunatics on the night dives, Trumpet Fish nuzzling up to Coral Trout, Whitetip Reef Sharks parked on the bottom, Birdnose Wrasses pecking at the corals and Moray Eels hiding under ledges.

The Whip Corals yielded up their Gobies and Shrimps and the only thing missing were the Nudibranches...where had they had gone goodness only knows. We also looked hard for Frog Fish...with exactly the same success as our hunt for Nudibranches.



Apart from the processes in place around the running of the boat it is worth a shout out to the kitchen crew (only Lisa on this occasion doing the work) who turned out good plentiful food with lots of fresh salads to accompany the main dishes. Breakfast was always hearty and home baked cakes and pastries appeared around teatime.

Apart from that fresh fruit was always available and if you needed a soft drink or chocolate hit you could dive into the fridges for that as well. I do lament the lack of better coffee (but am a self-confessed coffee snob)...but there was coffee and tea available whenever the boat was not moving.

The rooms are utilitarian but do the job and the air-conditioning kept up well. You know it is doing its job when some people are too cold, and others are too hot!

Apart from the bunks there is not much else in the room bar a double power point (important for the photographers) and a couple of hooks on which to hang towels.

There is no extra space for photographers by the way so you will be charging your various units in your room. There is some space in a drawer under the bottom bunk but given it houses a couple of lifejackets do not count on getting too much in there.

Shower/toilets are shared but there seemed enough on board to keep most people happy, apart from for a few minutes at peak times. Given there is no desalination unit on board you are asked to keep your showers to three minutes and your rinse offs to 30 seconds...both more than enough.

Linen and blankets are provided...but no towels, which is a touch strange but that's the way it is. I suggest you bring a microfibre towel to have the best





chance of it getting you towel dry.

The boat, crew, food, and whole operation was professional and, to be honest, better than I thought it would be.

I did wonder whether the whole boat would be filled with new divers flailing around underwater whilst completing their open water certification accompanied by a covert expectation that some of them might tag along with you.

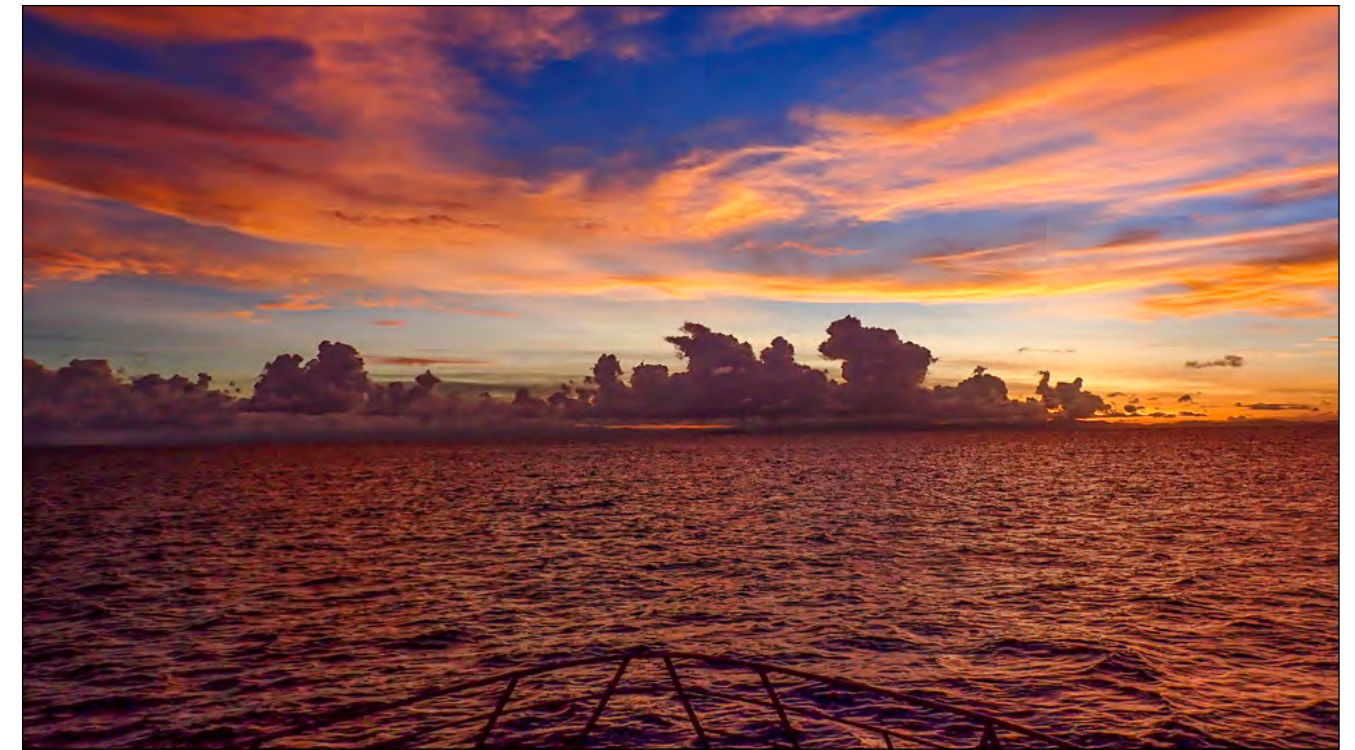
That was not the case and you very much got to do your own thing. Kudos to the instructors, and those who were completing their Open Water, because for new divers their buoyancy was pretty good. I saw nobody smashing

into the reef or doing any fish bothering.

With healthy corals, plenty of fish life and pricing that sits under \$900 (check for any deals running when you go) for two nights, three days and 11 dives I was not quite sure what to expect.

I know several places that charge over a \$100 for one boat dive...that is one dive with no frills at all...nix. Here for under \$90 per dive I got a whole liveaboard experience with food and accommodation included.

In summary the trip was worth every dollar and I would not hesitate, next time I need a quick GBR...warm water hit, to head out on the Pro-Dive Boat again. 🇯🇵



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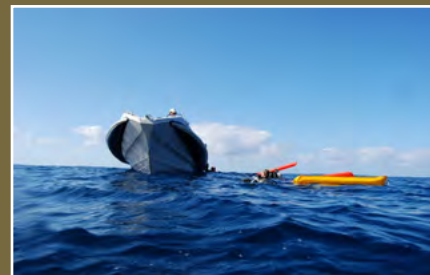
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# The Journey to 100m

Very few divers decide on diving deeper than the allowed recreational depth of 40m. Of those who do dive deeper than the 40m limit, only a small number continue to achieve the 100m mark. That is exactly what I did... this is the journey to 100m ∞





## Exploration

The Journey

Where do you start? You need to be 18 years old, have a number of dives behind your name and must have completed your advanced scuba diver course along with your recreational Nitrox qualification.

Stepping into technical diving, your first course will be advanced Nitrox, teaching you to plan dives with enriched air up to 100% oxygen where recreational only allow divers up to 40% O<sub>2</sub>.

After your advanced Nitrox course you are looking at decompression techniques, getting your virtual decompression stops in place. This course will help you plan dives going into decompression and using high O<sub>2</sub> at virtual ceilings to decompress, getting

you comfortable with deco time.

Now we can decompress, but air can only take us to 66m before oxygen toxicity kicks in, so we need another gas and that will be helium.

Introducing helium is done through a Helitrox course. Now don't think you can go deeper with this blend... nope, this course introduces the concept and base understanding of helium as a breathing gas. Helitrox is a combination of O<sub>2</sub> and helium, only eliminating nitrogen from your gas.

The goal, however, is a 100m dive and this is where Trimix becomes important as it is a mixture of three gasses: O<sub>2</sub>, helium and nitrogen. During Trimix



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## Exploration

The Journey

training students are taught the basics about Trimix diving and limiting depth to 55m. Trimix II teaches the diver gas swaps, gas blending and, most importantly, getting comfortable with and at depth. This qualification is required for deep diving.

To complete these courses you are looking at quite a bit of time away from your family and friends. The training, especially around Trimix I and II, is intense and the whole dive planning concept really kicks in big time along with redundant strategy. Starting from scratch to dipping in at 100m will take you around six months if everything goes well and you are willing to do the dives weekend after weekend.

This can put strain on your family and it is very important to take them on

this journey with you, not physically but mentally. They themselves need to prepare for what you are about to do. The support aspect is critical – focus on these dives is key not only for your own safety but also for the team involved. Unnecessary stress and distractions should not be tolerated – this is serious diving.

Forget about your sport kit in your garage which you use to chase Big eyes around the reef. You need proper tested, trusted, quality equipment for this type of diving.

Your instructor will guide you in deciding what to get, but when you reach this level you will know what is trusted, as after all, deep down you want the best. You will probably need a harness, two wings, a knife, a few cylinders – yeah



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Tropical bungalows in rainforest gardens with waterfront and garden views.

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Image © Darek Sepiolo

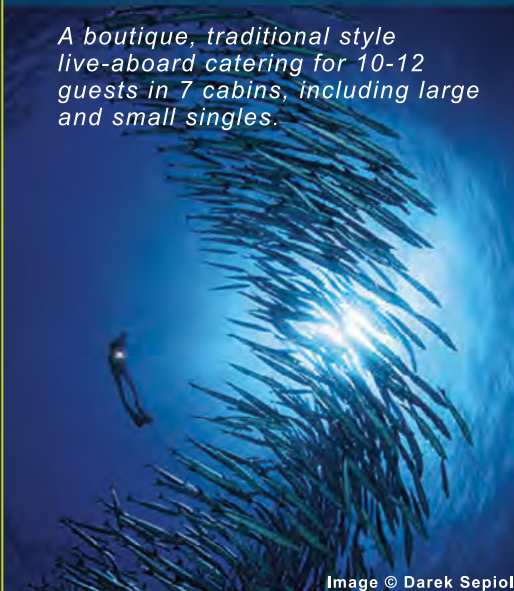
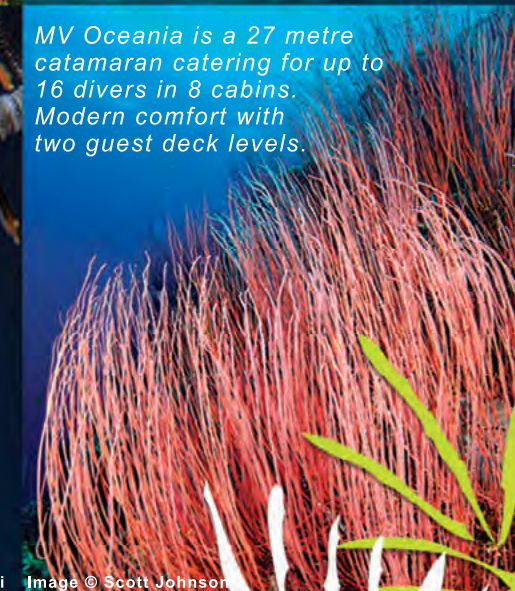


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Image © Scott Johnson





that will be five of them, but don't forget your isolation manifold and five sets of regulators to name but a few pieces. Most of the equipment can be rented, but just make sure that the equipment is in perfect condition.

The gear cost if buying is around \$10 000 depending on what you buy and if you add a dive computer to the equation or not.

Technical diving is slate dive territory and therefore some divers only prefer time pieces or computers and use these to watch their run times written on a dive slate. Personally, I use both a slate and a Trimix computer.

Okay, so now that you are all kitted up, you will need some petrol in your tanks to get running, and in this case we are talking helium.

Helium is incredibly expensive and you are looking at around \$0,20 a litre. Does not sound like much? How about

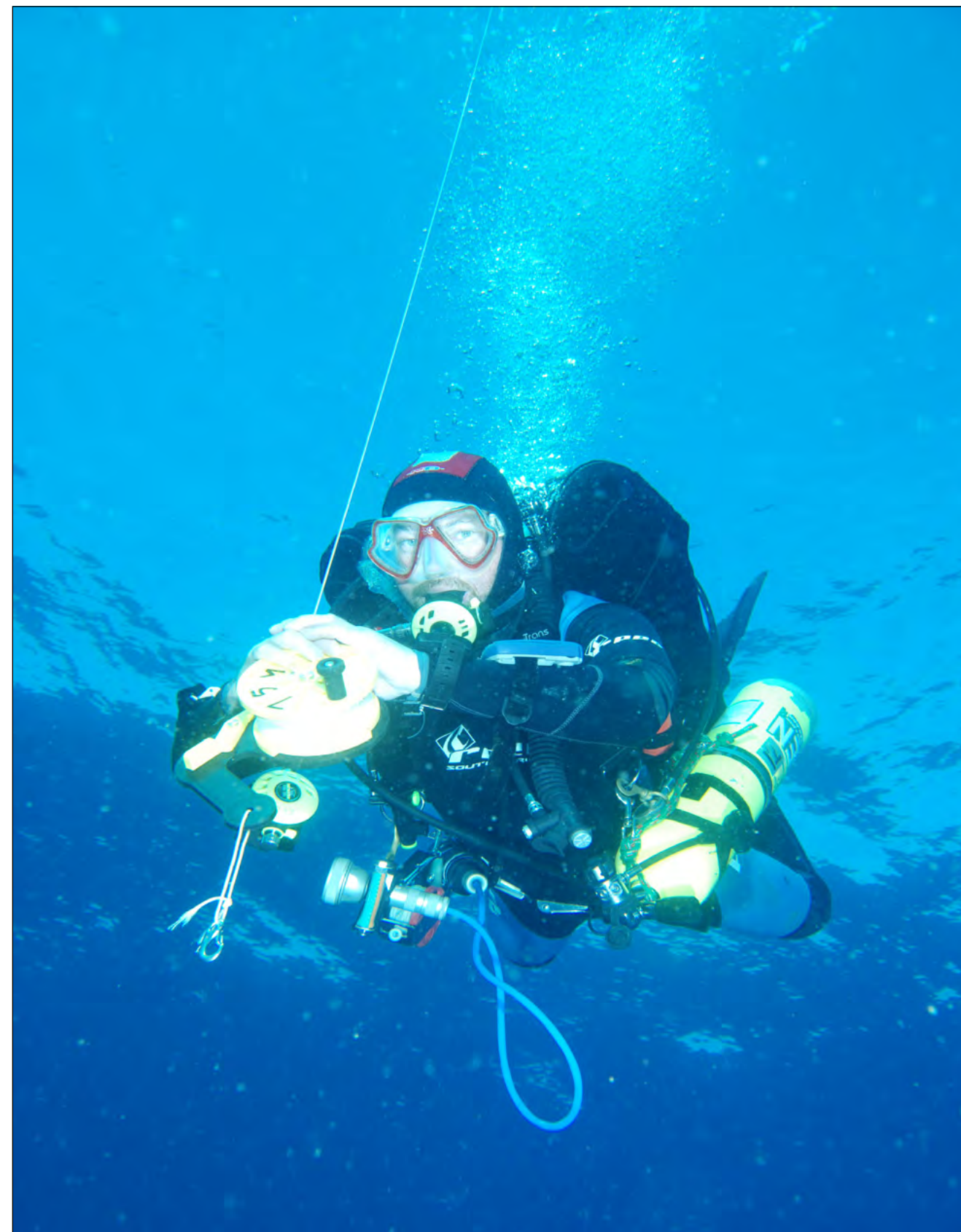
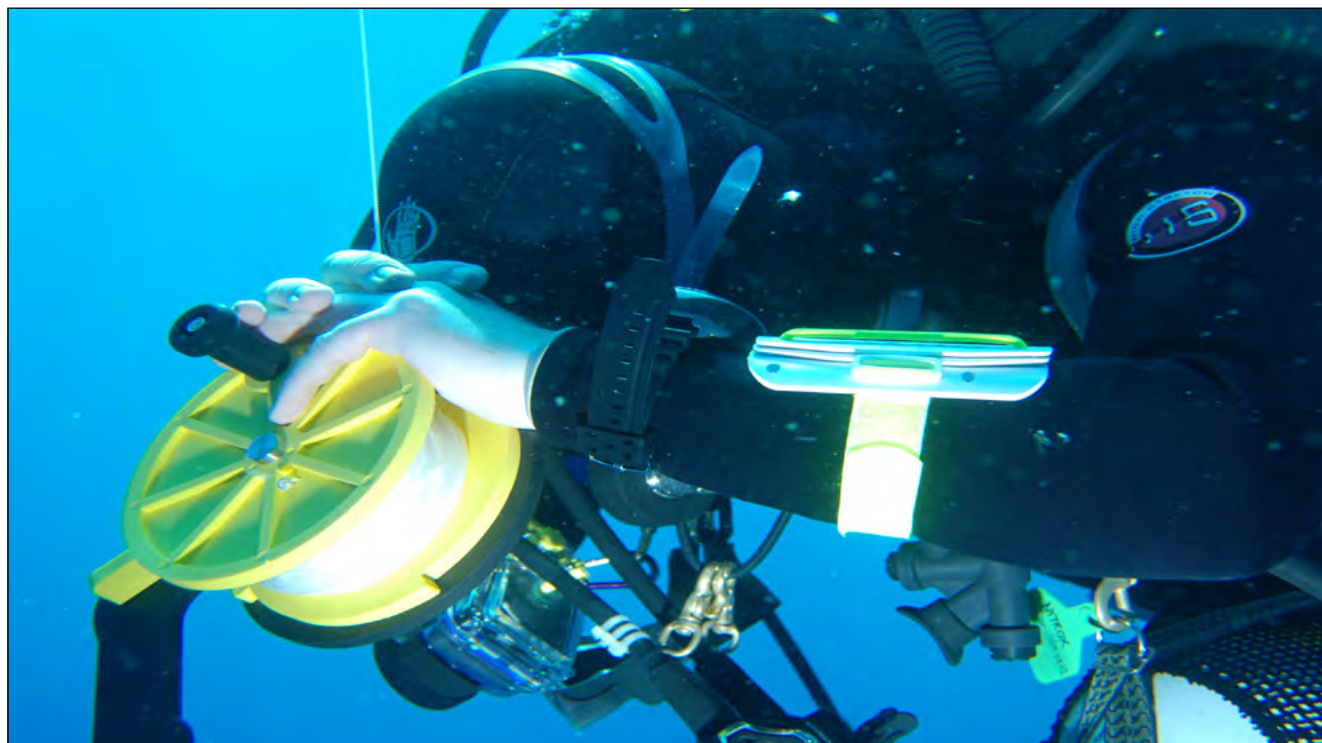
filling those 15L twin bad boys with an 8/60 mix (meaning 8% O<sub>2</sub> and 60% HE).

Now I have not yet spoken about your dive buddy and your team. This is an extremely important component of these dives. Touching on the team, these members must grow together as a unit – they must be able to rely on each other 100%.

The same goes for your dive buddy – the two of you will have to rely on each other and make a strong buddy team. Remember, you will have to spend quite a bit of time together, so be sure you get along.

After your training has been completed and you are qualified as a Trimix II diver you must decide where you want to do the 100m descent.

Before leaving for your dive all the necessary medical and emergency planning must be in place and everybody







DEPTH	TIME
33.0	3:42
TANK	NST
240	42

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needs to know exactly what needs to happen in each event – the focus of course being on the deeper build up dives and the big dive itself.

Divers Alert Network (DAN) must clear the deep dive application and they must be notified before and after each dive. This will help them with history in case of an emergency during the dive schedule. All divers must be DAN members with the master membership in place, ensuring the required coverage if things go wrong and medical attention is needed.

When getting ready for the big dive, build up dives are required, starting with relatively shallow dives which get deeper. The first dive was a 'check out' dive to 55m on air, getting everybody settled in their gear and in the team.

After the first dive the hard work began. Getting back the dive planning started with a set depth and getting the gas mixtures confirmed using computer programmes. The blending gets going and this is a lot of work, ensuring that all the correct mixes are blended and getting all the cylinders through the 'production' line. 6am until 11pm is the normal working hours for these dives.

The cylinders being filled are not only for the divers, but also back-up cylinders are filled, which will be carried with the back-up divers when they meet you at around 50m, coming back up from 100m. Normally these back-up divers will have 'travel gas', 'soft deco' and 'hard deco' cylinders with them. The 'travel gas' will be used to travel from the surface to a depth of 55m. The back gas cannot be used on the surface because of the low percentage O<sub>2</sub>. A 'soft deco' is a cylinder containing some helium and a higher percentage O<sub>2</sub> to fight possible counter diffusion

– this will be used from approximately 36m.

After swopping to 'soft deco' at 36m you will continue to around 14m and swop over to the 'hard deco' gas, consisting of a high percentage O<sub>2</sub>, something like EAN70%.

On the day of the 100m dive, everybody was nervous although relaxed. We analysed all the gas for one last time, got the breakfast down and moved over to the dive planning area. The computer programme was used and the dive computers were set along with the run times on the slates.

When we got to the beach, two boats were used because of all the gear, as well as ensuring better manoeuvrability out at sea. Remember there is no buoy line accompanying the dive team so the boats need to track the bubbles on the surface and keep a look out for the deploy buoys which will break the surface at around eight minutes.

These are tense eight minutes for the back-up divers and skippers alike. The dive actually starts when the yellow deploys break the surface and lie eerily on the surface – almost 35 stories below is where the dive is taking place.


Driving out to the drop point, looking at the faces around you, you know that this is diving. Last gear checks are carried out and on "go" you do your back roll, looking at the clouds for the last time as you fall backwards, holding all your cylinders safely. You equalise, adjust to a falling position, check your buddy and dive team, follow the dive master's bubbles and the descent goes by quickly. Gas swop, it gets cooler, then cold and darker. At 85m you inflate your wing to slow your descent rate. The visibility opens up – welcome to 100m.

You check your buddy and check the rest of the team. You check the time too – seven minutes has come, we dived a 100m (there is a difference between diving to 100m and diving at a 100m). You unclip your deploy buoy and prepare to shoot. It is important that everybody does this together as you can get separated quickly when the wind pushes the buoy at the surface, so you don't want the buoys arriving at the surface with much time between them as there might be a chance of the divers being dragged away from each other which will cause major issues, not only for the boats, but also for the back-up divers in case of emergency.

Ascending, decompression stops come and go quickly if you stay on your planned run time. You do your time at the deco stops but not longer than required – gas consumption and gas

availability are the critical factors here.

Meeting the back-up divers at around 50m brings a sense of safety. They not only carry supplement gas but can assist if required. More time is spent on the shallower stops, which is critical to flush your system to ensure 'the bends' stay at bay. The back-up divers keep moving around the group checking cylinder pressure, diver response and the overall wellbeing of the dive environment.

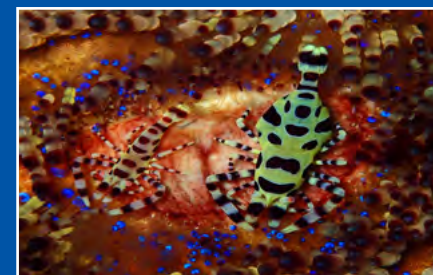
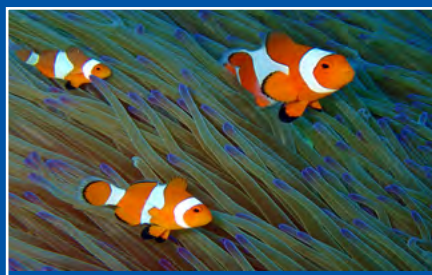
When your head breaks the surface and the kit is handed up to the boat you will know that all the training, preparation and sacrifices were all worth it. This type of diving is extreme – be aware when doing them and each of them will be thrilling and memorable. This is a journey but not one for all divers, yet it is not a diver that goes to 100m, but a whole team. 





# Mathew Kempton

A journey through the Lens





## Through the Lens

Photographer

I first certified with my wife (who re-certified after a 30 year break) and 2 of my adult children back in 2012. Having done the PADI Discover Scuba Diving 2-3 times as a family over the years we decided it was time to get on with it and get properly certified.

I'm now PADI Master Scuba Diver certified and have 650+ dives under my belt. I get in the water, on average, more than once a week and have been lucky enough to have dived in waters around all Australian States, except Tasmania, and countries including Fiji, Philippines, Malaysia, Indonesia, Vietnam, Maldives, Crete, Italy and the USA. I should have certified 30 years ago!!!

Sydney is home base for me. I count myself very fortunate to have such fantastic diving, both shore and boat, right on my doorstep.

Dives around Sydney I particularly enjoy include: Shelly beach (both sides) at Manly for the almost year round access and great variety of marine life there, the Apartments off Long Reef, when visibility is good, for Grey Nurse Sharks, Clifton Gardens for the amazing variety of macro life despite the flotsam and jetsam left behind by the fishing fraternity, Old Mans Hat for the Wobbegongs and Weedy Sea Dragons, Bare Island (both East and West sides) for the Red Indian Fish, nudibranchs and Weedy Sea Dragons, Shiprock in Port Hacking for macro life and the beautiful soft corals and sponges on the walls and the amazing Australian Fur Seals off Martin Island at Port Kembla.

Some of my highlight dives outside of Sydney have included diving with a whale in Jervis Bay, Hammerheads at the Rowley Shoals, the shark action out at Osprey Reef, Spider Crabs in Port Phillip Bay, the large numbers of Grey Nurse Sharks at Broughton Island, Fish Rock and Julian Rocks, the massive schools of jack and barracuda around Sipadan, the wonderful walls and muck diving of North East Sulawesi and majestic Manta Rays in Komodo.


I dive right throughout the year although, I have to admit, the Winter temperatures finally got to me a couple of years ago and I now dive, whilst in Sydney, in a drysuit for most of June through to October.

Although I'm always keen to dive in any location, my bucket list locations are the

Red Sea, the Solomons, Palau and Lord Howe Island.

A couple of years after first certifying for diving I got the underwater photography bug. Having said that, I've not ended up going down the path of a mirrorless or full DSLR rig with strobes and differing lenses, etc, but have opted for the humble Olympus TG series and housing. Why the point & shoot option? To start with I just wanted something that was relatively inexpensive, easy to use underwater, not too cumbersome and would take reasonable photographs.

The TG fit the bill. My combined diving and photography requirements haven't really changed too much over the years so I've stuck with the TG series. I've owned a TG2, TG4 and I'm now onto the latest Olympus offering - the TG6 (I must have some bias towards even numbers??!!). I've combined all these cameras with the associated Olympus housing, a shoe mounted GoPro and video light although with the TG6 you could argue the video quality is such I don't really need a GoPro. I think even my DSLR colleagues will agree the TG series really does take fantastic macro shots considering the cost and capability of the TG. Wide angle shots with the TG series are okay, obviously, nowhere near as good as a DSLR. Bottom line, the TG6 set up gives me what I want for the price I want to pay. Would I like the ability to take better photos, particularly wide angle, sure. Do I want to pay for it, not so sure. But, as the saying goes, never say never!

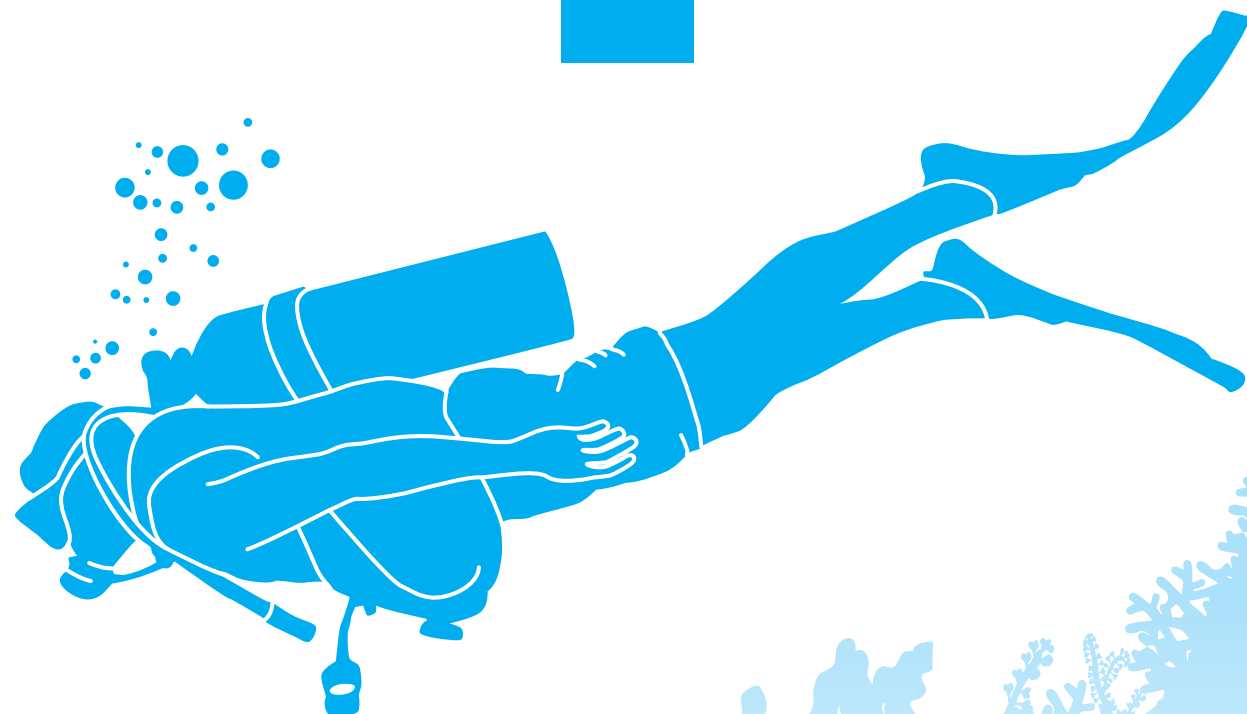
Friends often ask me what is the attraction of SCUBA diving. My reply: if you're fortunate enough to have been to Africa you will have gone there with an expectation that you're going to see wild animals. What you don't expect, at least I didn't, is the vast number and variety of animals you see (including the birds). Their differing behaviour and how close you get to them is also unexpected. I think it's the same underwater; no matter how often I dive, even at the same site, I never know what I'm going to see. It might be some new marine life, it might be marine life I've seen many times before but the behaviour is, for some reason, quite different, it might be not having seen a particular fish or animal in that site for a while. It really is like being on safari - underwater! I hope you find some of the photos of interest. 

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Soft Coral Candy Crab, Philippines, Aug 2019, Olympus TG4, f/6.3, 1/200 sec, ISO 200



Donald Duck Shrimp, Philippines, Aug 2019, Olympus, f/6.3, 1/200 sec, ISO 200



Blue Ringed Octopus, Raja Ampat, Feb 2019, Olympus TG4, f/6.3, 1/200 sec, ISO 200



Flamboyant Cuttlefish, Komodo, July 2016, Olympus TG2, f/2.8, 1/800 sec, ISO 100





Three Hypselodoris Apolegma Nudibranchs, Philippines, Aug 2019, Olympus TG4, f/3.5, 1/80 sec, ISO 200



Coleman Shrimp, Philippines, Philippines, Aug 2019, Olympus TG4, f/6.3, 1/200 sec, ISO 200

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Orange Clownfish, Raja Ampat, Feb 2019, Olympus TG4, f/5, 1/125 sec, ISO 200



Bargibanti Pygmy Seahorse, Raja Ampat, Feb 2019, Olympus TG4, f/4.5, 1/100 sec, ISO 200

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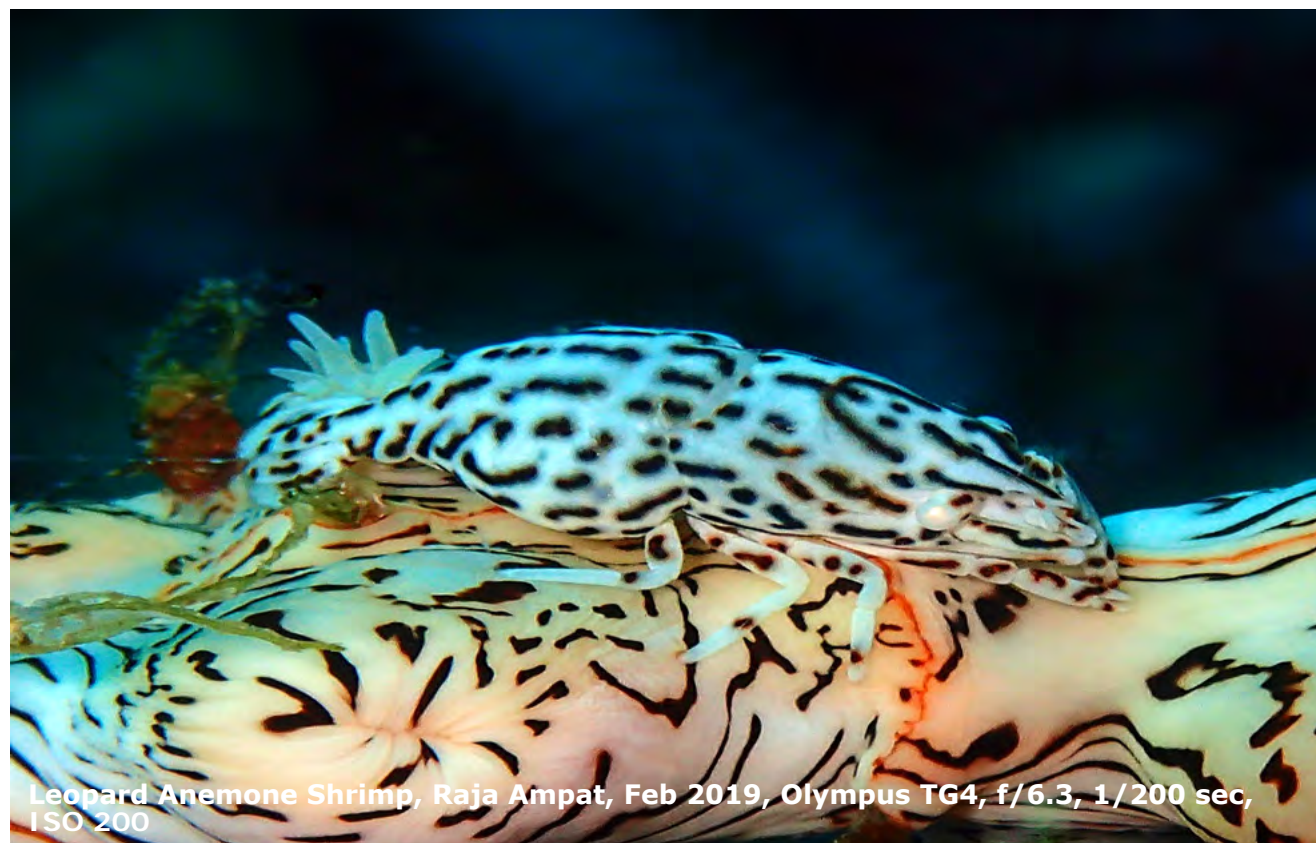
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# Southern Right Whales

Whoooooshhhhhh. The sound was explosive even though my head was below water and tightly encased in a 7mm hoody. Startled, I surfaced and looked around to see the remnants of the twin sprays from the blow of a young Southern right whale (*Eubalaena australis*).



I was snorkelling the kelp beds with two friends looking for Seven-gill sharks. Snorkelling and scuba diving is best in the winter – the water is warmer, the visibility better and between storms the weather and sea are perfect!

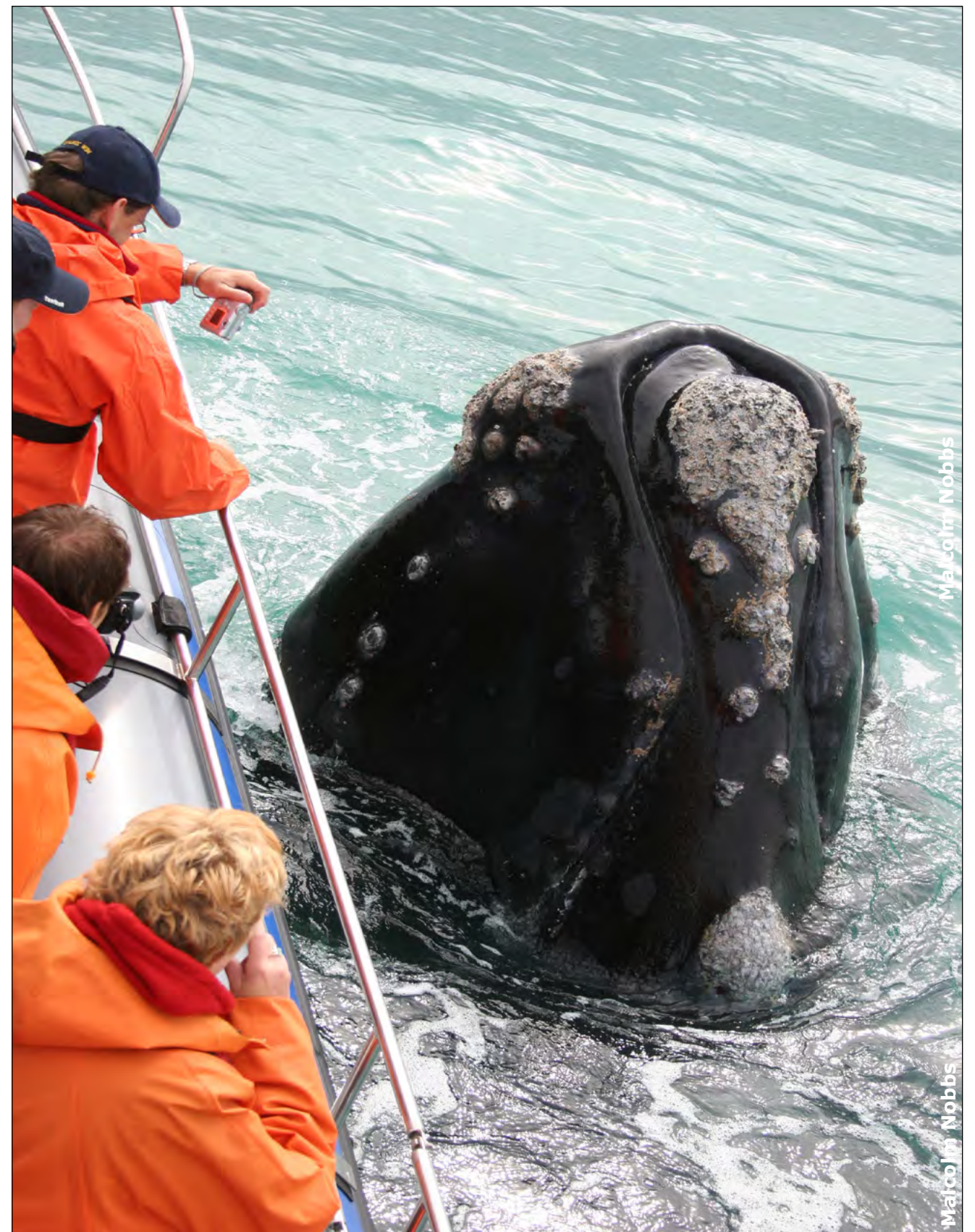
As we snorkelled on so we were followed by this curious youngster trying to figure out what we were. Because of the strict laws around whales and swimmers, divers and boats, we really needed the youngster to go elsewhere so we could carrying on looking for the elusive Seven-gill.

The youngster eventually got itself entangled in the kelp, and with the approach of a concerned mother to rescue the calf, we decided that exiting the water was the best option for both parties.

Sitting on the rocks above the bay we watched the mother and calf wallow in the still waters and discussed how little we know about this mammal which is such a huge tourist attraction around the world. The name 'Right' comes from whale hunters, who gave this species the name because it floated when dead and so was the 'right' whale to hunt.

The Southern right whale is a mammal, giving birth to live young, suckling the young calf and caring for the calf until they are learned in the ways of the sea (weaning).

The Southern right whale spends the summer down near the Antarctic feeding on copepods, a small crustacean, as well as krill and other zooplankton. Both the male and female migrate up to around 60° South in the





## Giant Stride

Southern Right Whales

winter. It is in the sheltered bays that occur at this latitude that the females give birth and nurse their calves, a round trip of many thousands of kilometres.

The female Southern right whale returns each year to a chosen site. It is not clear if this site is the same as where she was born, but whilst she is pregnant she spends little or no time at this site. Where she spends her winter pregnancy is unknown and why she chooses to be elsewhere is also unclear.

Little is known about the male Southern right whale, other than he does not seem to have the same degree of site fidelity as the female.

Research has been hampered because it is difficult to tell a male from a female Southern right whale from the surface. At this stage sex can only be confirmed from observing the genitalia.

The face of the Southern right whale is covered in callosities which is an outgrowth of skin. Crustaceans known as 'whale lice' populated the callosity making it white and rough.

The Southern right whale spends most of its time near the surface. This fact, together with the unique pattern created by the callosities on the face of the Southern right whale, has allowed for most of the population to be identifiable using 'finger print' software and photographs.



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The Southern right whale becomes sexually mature in its ninth year. Pregnancy lasts a year and weaning takes about a year as well. A reproductive cycle, on average, takes place over a three year period.

Conception results in a single calf. What we don't know is where conception takes place and what triggers weaning. It appears as if the Southern right whale is polyandrous. That means it conceives by mating with many males. If this is true then there must be some mechanism that the whale uses to choose the 'best' male's sperm to conceive by!

Why is this speculative fact so important? The birth and weaning of a calf is a solitary affair carried out by the female Southern Right Whale with

no known help from other females or males.

For the female a huge amount of her energy is used in accomplishing this feat. Imagine producing 600 litres of milk a day for three to four months and not even being able to eat for this period!

The survival gene is a dominant factor in our living world, and all animals from a single cell amoeba to a human, make very dramatic choices in ensuring successful progeny.

The same with the female whale, she too, because she has only one shot at it every three years, has to be sure that the calf that is to be born is going to be the fittest selected from the gene pool supplied at conception.






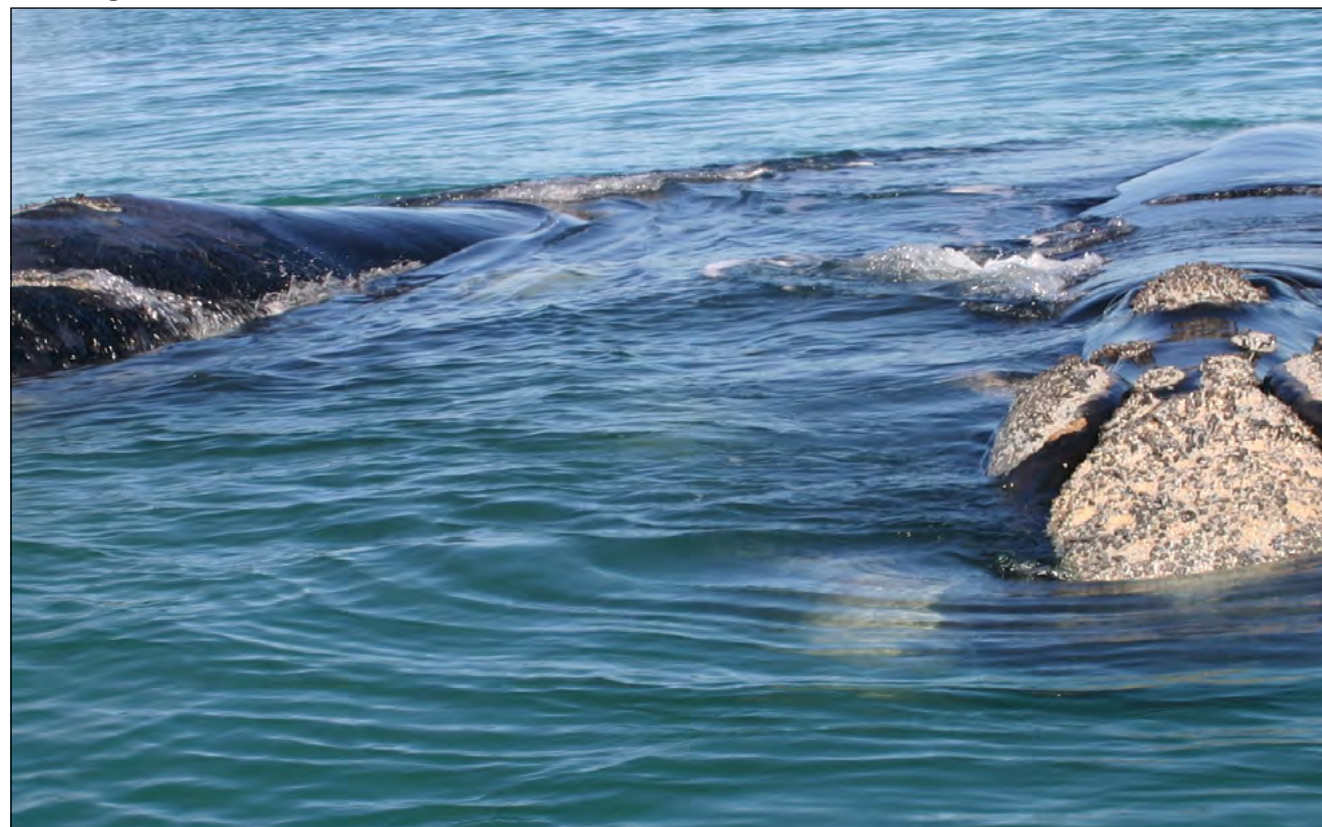
We also know that the Southern right whales are not social animals as we understand the term. Dolphins and Orca whales are social animals, and unlike these 'social' whales the Southern right whale seems to have a lesser repertoire of sounds.

This lack of vocalization perhaps begs one of the most intriguing questions of all. Considering that the southern oceans are tens of thousands of square kilometres in extent, a female Southern right whale has to 'tell' a male Southern right whale, swimming in this vast space, that she is ready for mating.

Alternatively the male whale has to be able to find the female that has let it be known that she is ready for mating.

Just imagine what methods the female whale could use to communicate with a male Southern right whale swimming a 100 kilometres away that she ready for mating. 

Imagine how sensitive he must be not only to detect the oestrous female but to find her in an enormous ocean. Searching for a pin in a haystack would be easy!





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# Deep Diver

## Small steps or a giant leap

Can you: Shut down the gas that you're breathing and move onto a redundant gas source? Manage complete buoyancy failures? Manage lethal gasses together with your life-giving gas at any depth? Lose a mask?

Swim without gas over a long distance to a buddy? Deploy a buoy without hesitation? Remain calm and in control under all conditions? Select the best gasses to any depth and understand the ramifications? Plan a deco schedule and understand what you are doing? Accept the risk of your decisions and function when there is no direct route to the surface? If you've answered yes to all the above then you can call yourself a deep diver.

The route to deep diver is through both training and experience. Training will give you the correct methodology and experience will make you a confident diver. Even if you know the theory inside out, it is the constant practice that will enable you to master deeper dives.

There are many people doing deeper dives (in the 'air' range), using recreational techniques and equipment. This is not safe, however, you do not have to buy twins and a multitude of side slung tanks to follow the technical approach. As with all things in life there are many different routes to achieving your aim. You can use a twinset from day one, or you can go for the more modular approach.

The first step is to understand nitrox – it is not a deep gas, but the knowledge you gain is key to what you will do next. You can use nitrox at any point – in my opinion when you first start diving is soon enough.

A formal deep diver course is your next step. For this you should be an advanced diver with a minimum of 10 dives. This trains you in redundancy and techniques used for decompression diving.

At this level you will not actually be doing decompression dives, but you will be practicing the techniques. You would be

using a single cylinder, with a small side slung to give you a redundant gas supply, and an H-valve cylinder. You will also use a reel and delayed marker buoy for deep deployment. This course would enable you to dive safely to 39m.

The next step is to leave the recreational diving and go to Advanced EANx. The entry level would be 'deep diver' with a minimum of 30 dives. (Although you can enter this level of training directly if you have a lot of experience in the water, you would still have to demonstrate the necessary entry-level skills).

Here you will do up to 15 minutes of decompression during training dives. Equipment needed includes a single cylinder, with an H-valve and small side slung decompression cylinder. Gasses used range up to EAN40 on the back and up to 100% oxygen for decompression.

Dive planning is rigorous and the knowledge gained gives you the backbone for all future technical deeper dives.

At this level you are doing pretty serious diving in the 42m range using techniques that will stand you in good stead for much deeper dives (later in full tech gear). There is only a slight modification from your normal recreational gear but you are now evolving into a deep diver.

As an intermediate step, the above courses can be combined with a trimix gas blend, allowing you to see the effects of trimix before taking the step up to 'full tech'.


Technical diver (normoxic diver) takes you onto trimix to 60m. Entry requirements are 100 dives of which 30 must have been deeper than 27m. You will use a gas that can take you all the way from the bottom to the surface without the necessity of changing mixes (normal oxygen levels).

You will also use higher gasses for decompression – again up to 100% oxygen. Now we are doing serious deco. You would find yourself doing stops that could take you up to an hour, where your bottom time is a small proportion of the total dive time.

The next step takes you to effectively

anywhere you would want to go – trimix. Entry requirements: normoxic diver and 200 dives or sufficient experience doing technical dives. You will use travel, deco and back gasses and will be carrying at least three different gasses, which will allow you to move with a breathing mix best suited to each depth.

All of the above can be done with either open or closed circuit equipment. The initial cost of a closed circuit rebreather is high, but it is very comparable to a full set of technical open circuit gear, and will pale into insignificance when you begin to compare trimix gas costs. (But that is the subject for another discussion).

So small steps or a giant leap? Deep diving is not for everyone. My advice is small steps, but they can be well thought out, deliberate, effective, quick and planned direct steps, done in a calm and informed manner. 



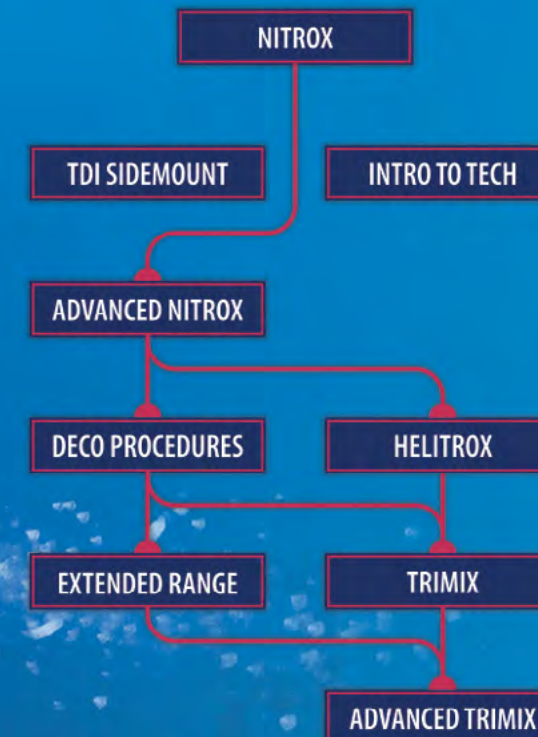




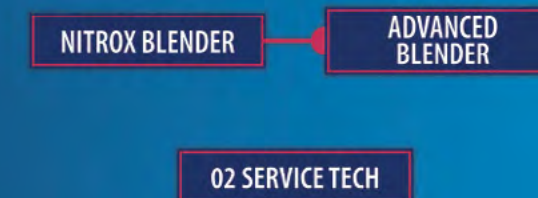
TECH  
DIVERS  
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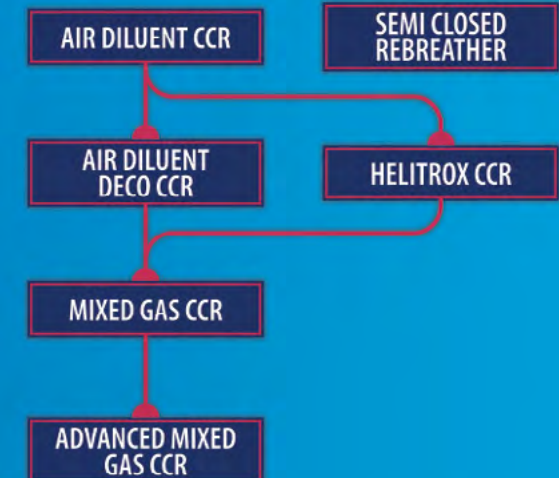
## OPEN CIRCUIT



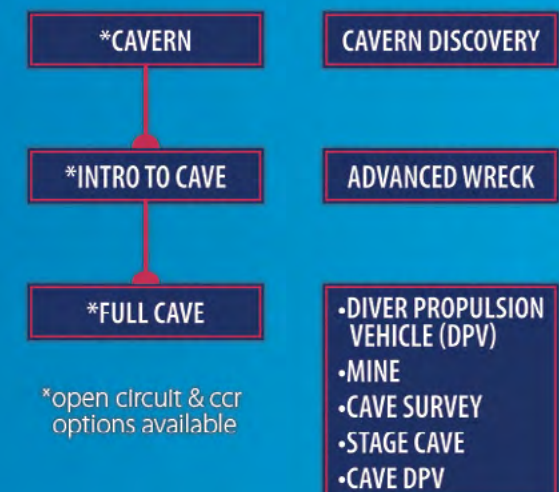
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# What attributes do you think an instructor should have in order for them to be considered good?


## Q & A

### Nuno Gomes



To start with, you need a good diver who has all the necessary theoretical and practical knowledge and has mastered the required skills and techniques.

The other important points for a good dive instructor are:

- The instructor must be able to deal with people
- They must have a lot of patience
- They need to have the ability to impart knowledge and make the subject matter interesting for their students
- The instructor should have a personality that gives them presence and allows them to come across as being a role model and mentor
- A good instructor will instil discipline without being authoritarian
- Last, but not least, the instructor should teach for the love of the sport, rather than for the money aspect. 

### Barry Coleman




I have one word that describes the most important aspect of being a good dive instructor – attitude. It covers all the areas and applies to all the situations that may be encountered.

The amount of time spent in the field is a good indicator of

an instructor with “the right attitude”. There is an old saying in the diving industry: “You get old divers and you get bold divers, but very rarely do you get old, bold divers”. A good indicator of an instructor with the right attitude will be the number of years spent as a full-time instructor and having been able to weather the storms. Doing the maths will help weed out the good from the bad.

I’m not saying that a newly qualified instructor won’t have the correct attitude, but only time will let them shine. The beauty of most of today’s training


programmes is that the “instructor” is more of a facilitator conducting a well-proven programme. All the students need to do is make sure they follow the set course parameters, which are given upon enrolment. If the instructor goes outside of these parameters, it’s a sign that they have the right attitude and are willing to give more information than just the bare essentials.

Training is a vital part of being a good instructor, but it’s not the only one. A huge dose of patience, lots of humour and a touch of command would go a long way. Wrap these up, mix in some physical fitness, remove the expectations of a high salary, bake until ready and allow to cool. The end result... a good dive instructor. 

### Pieter Smith



It’s not about the diving school, agency or reputation, but rather about the individual instructor! Good leadership, coaching and communication skills, combined with a true love for diving is the recipe for a good instructor. A good


instructor will lead by example – they love diving, otherwise they wouldn’t be doing it in the first place. A person becomes an instructor because they want to share their experiences with others and want to influence others in a positive manner. Diving is a dangerous sport and doesn’t come easy and natural for most; a good instructor must be able to “convince” others to take the brave step to go underwater – a very unnatural act to do – and must be there with the students when they take that big step! Instructors are role models for their students. An instructor should act responsibly and ensure that their students acquire the correct skills and act in the proper manner when underwater. Patience is key to being a good instructor. This allows the students to form a bond and place trust in their teacher. Good instructors are unique and therefore quite scarce. When you find one, don’t let go. 

### Pieter Venter



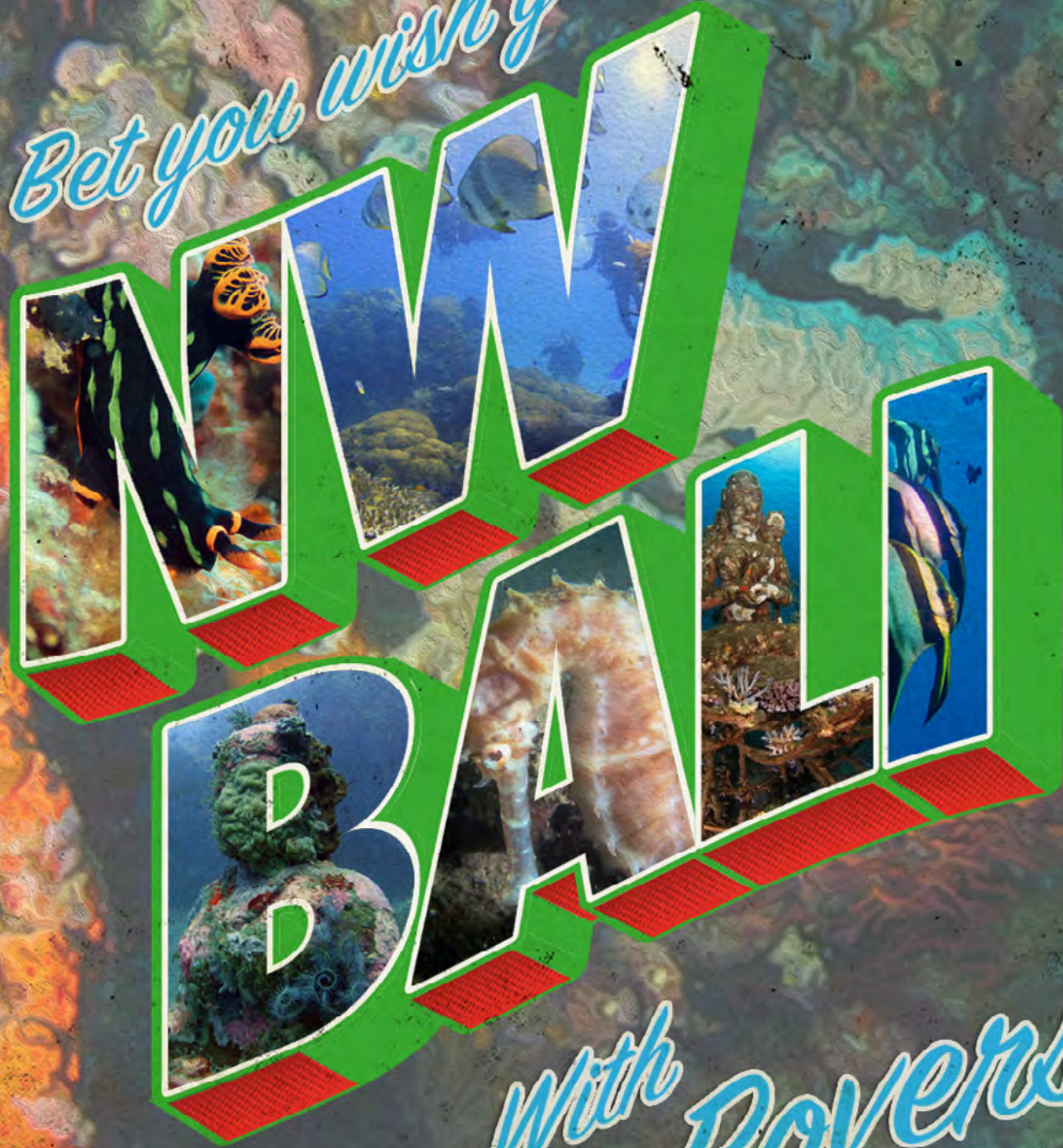
Twenty years ago, my SAUU 1 star course instructor was an ex-Navy PT instructor with bulging veins on his forehead. The course duration was six weeks – six weeks filled with fitness tests, drills, pool sessions, eight sea dives and two dam dives. Despite the

toughness of the course and cold Atlantic waters we had to practice in, many of those students are still diving today. My wife’s course was a half-hearted two weekend affair with the instructor only getting into the pool during the last pool session - very few of her group still dive today. The telling difference was the instructor. A good instructor not only needs to be an experienced and knowledgeable diver, but must also know how to teach from the beginner level. Not all good divers are able to become good teachers. The right instructor will understand how long it takes to get the necessary knowledge across to their students and will be willing to spend that time perfecting their students’ skills and getting them to reach a comfort level in the water. This will allow the students to learn to enjoy their diving and hopefully keep them in the water for many years to come.

These days, there are too many certified divers who are not properly qualified and who do not dive. A good instructor will not be afraid to fail students who do not meet the requirements and will be in the water with the learners during the critical pool sessions. This will allow them a close-up chance to assess the students’ comfort levels and skills in the water. While their students are in the pool, an instructor should not be catching a tan, parading around in a bikini or Speedo or feeling too important to join in for their 11345th pool session – this is not acceptable. A proper instructor will also ensure that all aspects of the course are completed in the right manner – this includes the paper work and ensuring that registrations and certifications are completed on time. 



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Earning the rating of SSI Master Diver is the pinnacle of recreational scuba diving. Becoming an SSI Master Diver in 2021 not only allows you to join the growing ranks of this prestigious dive rating but will make you a better, safer diver. There are many reasons why every diver should strive to achieve the Master Diver rating; however, we have listed our top four here.



#### Reason 1: Become the Best of the Best - Master Diver

Earning the SSI Master Diver rating is not exactly easy. You must first log at least 50 dives and get certified in a minimum of five SSI specialty diver courses, one of which must be Diver Stress & Rescue.

All of this time in the water will, however, make you an excellent diver. In fact, you will be among the elite 2% of divers that earn this rating. If you want to work your way up to be the best possible diver without going pro, become a Master Diver.

The fact is, everybody wants to be or should want to be a BETTER diver and that requires gaining dive experience!

#### Reason 2: Learn New Skills

Since one of the requirements to become a Master Diver is to earn at least five specialty diver certifications, you will undoubtedly learn new skills. Since four of the five needed specialty certifications can be in any of the SSI specialty programs, you have many underwater skills to choose from.

Learn to take underwater photos, dive at night, use a dry suit, or discover more about the aquatic environment in one of the SSI Ecology programs. Your options are seemingly endless.

#### Reason 3: Become a Safer Diver

One of the five required specialty certifications to become an SSI Master Diver is Diver Stress & Rescue.

This program alone will significantly increase your diving safety; however, combined with the number of required dives and time spent with an SSI instructor achieving the necessary specialties will unquestionably make you safer in all areas of diving.

#### Reason 4: Bragging Rights

Because you will be among only 2% of divers that achieve the Master Diver rating, you will have earned bragging rights amongst your


dive buddies. Logging 50 dives and completing five SSI certifications is no simple task.

As an SSI Master Diver, you should be proud of the hard work and dedication you invest in the sport of scuba diving. Make all of your dive buddies jealous with this prestigious recognition.

So, whether you are looking for a great way to become a better, safer diver or just want the right to claim yourself as the best diver amongst your fellow diving peers, there has never been a better year than 2021 to become an SSI Master Diver.

What are you waiting for? Contact your local SSI Training Centre and get started today!

Ask your SSI Dive Centre about the MASTER DIVER CHALLENGE!

Challenge your fellow dive buddies to see who can be the first to become a Master Diver! 





# Buoyancy Compensators

A buoyancy compensator or BC forms a central part of the scuba kit as it houses a number of individual pieces of equipment.

The primary role of the BC is to counter the weighting effect and ultimately assist the diver in obtaining and maintaining neutral buoyancy.

The BC's other very important function is to secure and transport the diving cylinder during a dive.

Additional features the BC provides are clip-on points (D-Rings) for accessories and integrated weighting systems. Two types of BC are available:

## Jacket-type BC:

This is an inflatable jacket worn around the upper torso. It acts as a harness for the cylinder.

These BCs are comfortable to wear and are generally the most popular type used in sport diving.



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Pic: Alison Perkins. OZTek2019 Marine Diver Category

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### Wings/technical BC:

This BC consists of a harness worn in the same fashion as the jacket type, with an inflatable bladder secured to the back of it.

A back plate made from stainless steel, aluminium or plastic provides support to the diver's back.

Diving with a wing is very comfortable and unrestrictive, because all inflation takes place behind you on the inflatable harness and no squeezing takes place on your body.

Wings are able to lift more weight, which is why they are used in technical diving where twin cylinders are used together with a slung cylinder.

The configurations are versatile, allowing extras to be added, including

an extra wing for more lift.

This type of BC is becoming more popular amongst sport divers.

### Cleaning and storage

A BC is an expensive piece of equipment and a very important article in your kit, so you must take care of it. Before and after diving, inspect it for tears or stitching that is loose and make repairs if necessary.

Test the oral and power inflator buttons for stickiness as there may be sand or salt lodged inside. Wash the BC in a tub with a suitable detergent, making sure to wash the inside, too.

Dry it correctly afterwards by hanging it in the shade while partially inflated. After drying, make sure all the water is out of the BC before storing it partially




inflated in a cool dry place.

### Explanation of chart

This chart gives you an idea of what is available on the market, what it looks like, what type of features it offers and what it costs.

The types vary from jacket to back inflation, all depending on what you are looking for. D-rings give an indication of how versatile your equipment configurations can be and where you can clip on your accessories.

Tank strap and back plates show how your cylinder is secured as well as the comfort thereof, especially when using twin cylinders.

The lift capacities will help you to select a BC suitable to your individual needs. 





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

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

# OZ DIVER



# Marine Species Guide

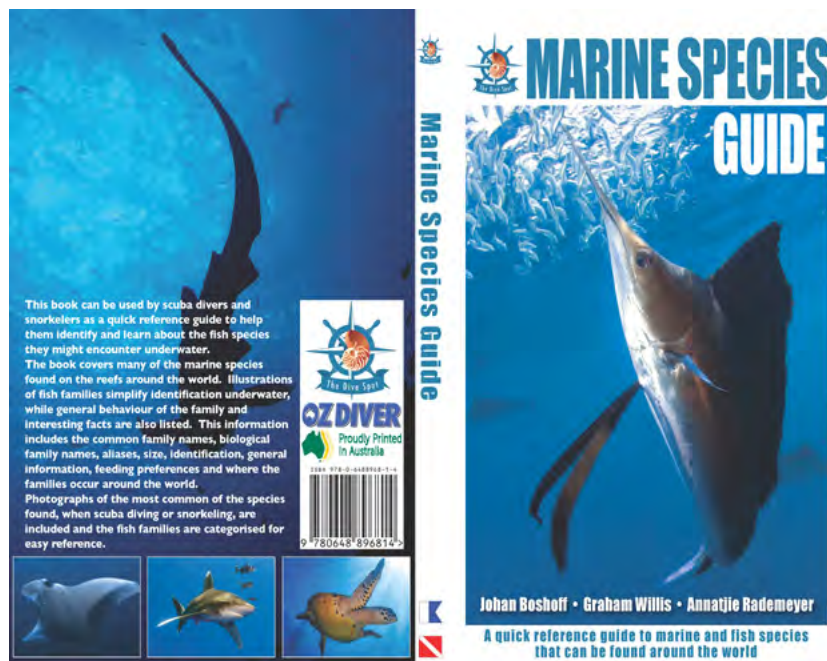
This book can be used by scuba divers and snorkelers as a quick reference guide to help them identify and learn about the fish species they might encounter underwater.

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

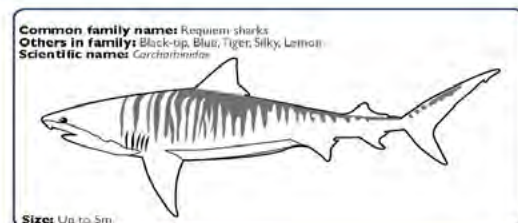
This information includes the common family names, biological family names, aliases, size, identification, general information, feeding preferences and where the families occur around the world.

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

To buy your copy for \$ 25, visit [www.ozdiver.com.au](http://www.ozdiver.com.au) or email [info@ozdiver.com.au](mailto:info@ozdiver.com.au)



## Requiem sharks



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

**Size:** Up to 5m

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

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

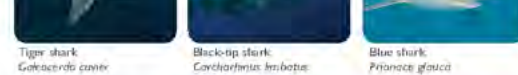
**Blue shark** (*Prionace glauca*): Long body, tapered at each end. Very long pectoral fins. Top of body darker blue. Tip of pectoral and anal fins are black. Up to 4.5m average 1.5m.

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

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

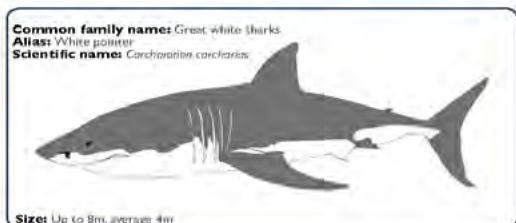
**DISTRIBUTION:** Widely distributed in all of the tropical oceans of the world.

**Common species:**



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

## Great white sharks



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

**Size:** Up to 8m, average 4m

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

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

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

**DISTRIBUTION:** Occurs in all subtropical oceans of the world.

**Common species:**



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

# Scubapro A2 Dive Computer

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

By Johan Boshoff

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

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

You can choose from six dive modes: Scuba, Gauge, Freediving, Trimix, Sidemount and CCR. Its Predictive Multi-Gas algorithm can accommodate up to eight gases (21-100% O<sub>2</sub>) plus two in CCR mode. The digital tilt-compensated compass provides easy navigation underwater or on the surface. And when the diving is done, cord-free connectivity using a Bluetooth LE interface lets you easily sync with a PC, Mac, Android or iPhone, for data downloading and more. The A2 has wireless air integration which can handle multiple transmitters while monitoring tank pressure and providing true remaining bottom time based on a diver's workload from breathing. An optional heart-rate monitor belt allows the A2 to record heartbeat and skin temperature, providing even more vital, individualized information that can be factored into your decompression calculation.

## Features

- Wireless air-integration can handle multiple transmitters, monitor tank pressure and provide true remaining bottom time (RBT) calculations based on the workload from breathing
- Digital tilt-compensated 3D compass allows for easy navigation
- Predictive Multi-Gas ZH-L16 ADT MB algorithm accommodates eight gases (21-100% O<sub>2</sub>) plus two in CCR mode
- PDIS (Profile Dependent Intermediate Stops) calculates an intermediate stop based on N<sub>2</sub> loading, current and previous dives and breathing mixes for better diving
- Microbubble levels let you adjust the level of conservatism in the algorithm to match your experience level, age and physical conditioning
- Heart rate monitor records heartbeat and skin temperature (with SCUBAPRO HRM Belt only) that can be factored into the decompression calculation along with workload
- Multiple Dive modes: Scuba, Gauge, Apnea, Trimix, Sidemount, CCR
- Sport mode offers sport-related functions like a swim stroke counter, activity counter (pedometer) and stopwatch
- High-resolution hybrid matrix display with large numbers is easy to read under water, even in adverse conditions
- Intuitive menu and four button controls make it easy to navigate through the system
- Lightweight design is so comfortable on the wrist you won't want to take it off
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It also folds up easily for storage and transport to your favorite dive site. The unique handle on the set also makes transporting the system more manageable.

This complete mounted set includes a 16-liter standard single tank donut, 3mm aluminum silver backplate, 6mm aluminum silver D-rings, a Stainless Steel 316 silver buckle, and a standard webbing harness.


The left shoulder also features a unique, aluminum 2-point quick release silver buckle, an exclusive design only featured by Mares XR that makes donning and doffing the unit easier without compromising the set's integrity like other manufacturers' units that still use plastic buckles.

Storing your dive accessories is not a problem with this Single Backmount Set.

In addition to 6-D rings, the BCD includes a pocket with a lower extension.

Easily add additional weight with two removable side weight pockets. The double tank straps are made of stainless steel 316 buckles and black flat-head bold screws.

Dive into the mysterious world of Extended Range fully equip with the XR-Rec Silver Single Backmount Set.

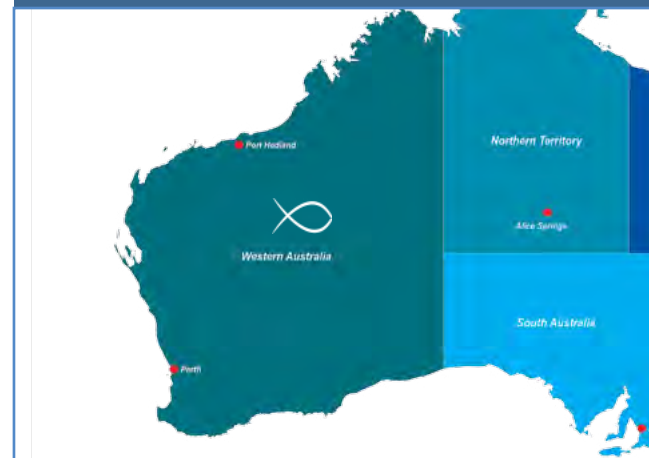
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Web: [www.divingadelaide.com.au](http://www.divingadelaide.com.au)

## Underwater Explorer's Club of SA



The UEC is the oldest recreational scuba diving club in Australia, established in 1954. We do regular dives at locations within metropolitan Adelaide and have frequent trips to regional South Australia. Why not come and join us for a dive.

Phone: +61 (0) 417 838 387

Mail: [secretary@uecofsa.org.au](mailto:secretary@uecofsa.org.au)

Web: [www.uecofsa.org.au](http://www.uecofsa.org.au)

## Glengowrie

## Downunderpix



Downunderpix is an underwater photography business established in South Australia. We provide all things underwater photography to the local, national and international markets. This includes supplying a range of underwater photography services as well as selling underwater camera equipment and scuba diving equipment.

Phone: +61 (0) 41 981 9083

Mail: [info@downunderpix.com](mailto:info@downunderpix.com)

Web: [www.downunderpix.com](http://www.downunderpix.com)

## Victoria



## ausdivinginstruction- Geelong



Learn to Scuba Dive in Melbourne & Geelong @ Australian Diving Instruction Geelong's only PADI 5 Star IDC Facility, Offering Charter Boat, PADI Specialties Courses including Tec 40>45>50, Trimix 65, Trimix Diver, Accommodation, Local/International Dive Trips, Dive any of the 4 WW1 J Class Submarines the HMAS Canberra, and Ships Graveyard of Bass Straits.

Phone: 0408365216 or 0352722181

Mail: [steve@ausdivinginstruction.com.au](mailto:steve@ausdivinginstruction.com.au)

Web: [www.ausdivinginstruction.com.au](http://www.ausdivinginstruction.com.au)

## Bay City Scuba



Bay City Scuba is Geelong's premier dive shop. Offering all levels of training from Freediving through to Technical training and offering a huge selection of equipment to your diving needs. A RAID training facility offering extensive technical OC & CC rebreather training.

Phone: +61 (0) 35 248 1488

Mail: [info@baycityscuba.com](mailto:info@baycityscuba.com)

Web: [www.baycityscuba.com](http://www.baycityscuba.com)

## The Scuba Doctor Australia



The Scuba Doctor is an online and in-store dive shop stocked with quality brand recreational, technical and commercial diving products. Low prices on scuba, spearfishing, freediving, snorkelling and watersports equipment, plus Air, Nitrox and Trimix fills.

Phone: +61 (0) 3 5985 1700

Mail: [diveshop@scubadoctor.com.au](mailto:diveshop@scubadoctor.com.au)

Web: [www.scubadoctor.com.au](http://www.scubadoctor.com.au)

## Dive Victoria Group



Our Training, Dive Charter and Group Accommodation services cater for local, interstate and international divers. On our doorstep we have amazing wall dives from 10-100m that we can dive every day and wrecks 8-80m in the Ships Graveyard

Phone: +61 (0) 3 5258 4188

Mail: [info@divevictoria.com.au](mailto:info@divevictoria.com.au)

Web: [www.divevictoria.com.au](http://www.divevictoria.com.au)





## New South Wales



## Sydney

## Frog Dive



Frog Dive is one of the oldest dive shops in the Sydney area. We can train you right through from an openwater course to CCR training. Sales, training, hire, servicing, boat and weekly shore dives we do it all at Frog Dive.

Phone: +61 (0) 2 9958 5699

Mail: john@frogdive.com.au

Web: www.frogdive.com.au

## Southern Cross Divers



Southern Cross Divers is best known for rebreathers and "tec" diving – we do nothing else but "tec". We will not stock a unit unless we can offer the customers a complete solution to all their CCR needs. We are Australia's CCR specialist store.

Phone: +61 (0) 2 9969 5072

Mail: barry@southerncrossdivers.com.au

Web: www.southerncrossdivers.com.au

## Killarney Vale

## Pro-Dive Central Coast



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Web: www.feetfirstdive.com.au

## South West Rocks

## South West Rocks Dive Centre



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Mail: info@southwestrocksdive.com.au

Web: www.southwestrocksdive.com.au

## Queensland



## Sunshine Coast

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Mail: rob@scubaworld.com.au

Web: www.scubaworld.com.au

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## Ozaquatec- Brisbane



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Mail: admin@ozaquatec.com

Web: www.ozaquatec.com

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## Devocean Dive- Gold Coast



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Phone: +61 (0) 75 528 0655

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Web: www.devoceandive.com

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## Bicheno

## Bicheno Dive Centre



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Mail: bichenodivecentre@bigpond.com

Web: www.bichenodive.com





# OZ DIVER



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Christopher Barlet