

July / September 2023

# OZDIVER

AUSTRALIA'S PREMIER DIVE MAGAZINE

BEQA

DIVE THE  
SOLOMON'S

THE  
DEEP  
SIDE

WHY  
TRIMIX

MONTAGUE  
ISLAND

# SULAWESI



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Dray van Beeck

**July / September 2023 Edition**

# Editor's Deco

One thing I learnt during the last 20 years being a publisher is that the human race is killing the planet! People don't think about tomorrow – they only care about today!

I think humans are the stupidest species on the planet and we don't even realise that we are on top of the food chain. If it walks, swims or crawls, humans will put it on our plates and eat it!

Every living creature on Earth has its own place on the food chain. As we are on top, we decide on what we can and can't do. It was humans who decided to kill sharks, whales and every other type of animal in the waters and on land. It was humans who decided to plunder our oceans!

I know we can't save the world overnight, but baby steps will get the ball rolling. Saving something small will lead to saving something a bit bigger.

I decided to give a free digital version for some of my dive books to my readers to download, as all the hardcopies are sold out

So remember to visit OZDiver's website and make sure that you download your free copy.

Editor in Chief & Publisher

**Johan Boshoff**

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

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COVER PHOTO  
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Johan Boshoff

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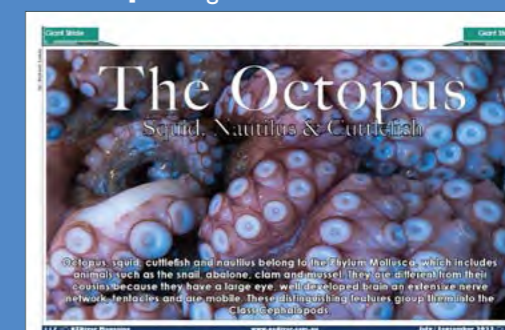
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# Surf's Up

By: Guido Duken

The sea didn't look too bad while we were kitting up. True, the surf had kept us beached the previous night, but now it was definitely calmer. And although the swells were still of considerable size, it wasn't undiveable. After all, what could possibly go wrong in the comparative safety and shelter Bay? As it turned out, lots could and did...

Our dive plan was simple. As part of our Advanced Scuba course we had to do a compass navigation dive, which entailed taking a bearing on a buoy and navigating there underwater. A gully on Beacon Isle would be our entry and exit point. Piece of cake!

However, as we entered the water the first problems arose. While we donned our fins the steadily incoming waves drove us from our entry point towards the distant beach. Swimming on the surface proved futile and our group was soon separated. Luckily my buddy and I managed to stay together and we quickly crafted a contingency plan. We took a new compass bearing and submerged to the 6m bottom where life was calmer, although the surge was

still powerful. A further woe was that visibility was less than a metre, which meant that locating a single buoy rope was practically impossible.

Still, we kept our course, until we judged we were near our target. We surfaced, and were pleasantly surprised to discover that we had navigated to within 2m of the buoy. However, the unpleasant surprise was that the swells had increased in size and frequency. Exiting in the gully would be impossible, so we headed for the beach.

We submerged again but, as it became shallower the surge correspondingly increased in strength, sweeping up sandstorms that left zero visibility. Moreover, it pushed us forward with incredible momentum. Rushing through the zero visibility like a steam train, I expected to make serious contact with a rock at any moment. At 2m depth we decided that we had had enough and surfaced.

On top the surf was really pounding, so I inflated my BC and put the snorkel in

my mouth. Bad move. I looked around just in time to see the mother of all waves rearing up. I realised too late that with an inflated BC I couldn't dive beneath the wave. I was picked up like a cork and sent spiraling to the bottom, where the wave pounded me with relish. After what seemed an eternity, the sea spat me back to the surface.

By now my lungs were burning and I just managed a quick gasp of air before the next wave hit me. I tried putting the DV in my mouth, but during the pounding my marker buoy had wound itself around my hand and second stage. Luckily I managed to untangle the DV enough to force it into my mouth, and relief flooded me as the air flowed into my burning lungs.

I stood up and discovered that the waved had washed me into knee-deep

water. I staggered onto the beach, and as I did my cylinder fell out of my BC. But at that stage I couldn't have cared if the world had collapsed around me. I shrugged off my equipment and wearily sat down, catching my breath while my buddy crawled out of the surf zone. I learned a few lessons from this adventure. Number one; don't inflate your BC in a surf zone. Number two; don't take your DV out of your mouth. And number three; make sure your tank is tightly fastened. If the cylinder had come loose in the surf and hit my head, it could have been curtains for me.

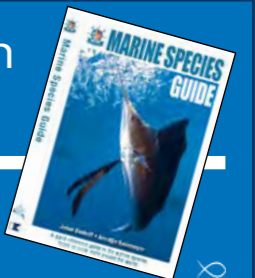
But probably the biggest lesson I learnt was to respect the immense power of the sea. If you have any doubt about the conditions, stay on land. And it is this knowledge that has probably made me a better diver. ■



## WIN

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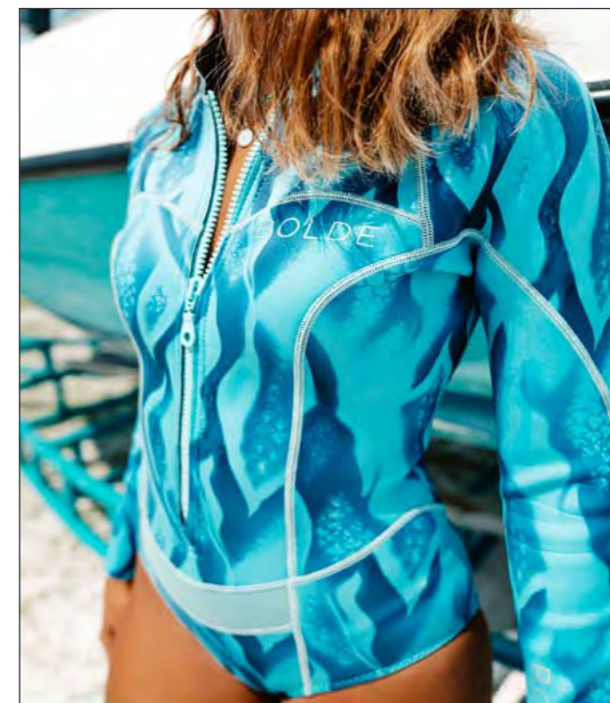
Here is a chance to be heard! If you have anything that you would like to share with OZDiver Magazine and other divers, send an email to Log Book at [info@ozdiver.com.au](mailto:info@ozdiver.com.au). Remember that letters have more impact when they are short and sweet. We have the right to edit and shorten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



# OZ NEWS

## First wetsuit brand exclusively for female divers and snorkelers.

Amanda Elizabeth, a Perth-based shark biologist, has launched a bright, bold, and unapologetic wetsuit brand for women called BOLDE. Her wetsuits are made specifically for divers and snorkelers, with the current range including a jacket, springsuit and steamer. All the wetsuits are made from premium, Japanese limestone-based neoprene, a more environmentally friendly option than the traditional petroleum-based neoprene and can be paired with BOLDE's matching mask and snorkel set, with more accessories to be released soon.



Having spent a lot of time in the water, Amanda knows the way a wetsuit should feel, but she found many wetsuits did not fit properly, were not flattering and were often the same, boring black colour. "I love being in the ocean, but I couldn't find a wetsuit that I was excited to wear, one that was bright, bold, and reflected my personality. I thought, why can't a wetsuit be functional and stylish, one that would look great in and on the water?"

So, Amanda created her own colourful wetsuits, tailored specifically to a woman's unique body shape. "Our wetsuits are designed specifically for women, by women".

There has been a rise in women participating in previously male dominated water activities such as diving, but the wetsuit industry has not kept up with these changes. In 2011, women only made up around 20% of scuba divers, by 2021, this number had risen to over 30% (Zippia 2022).

BOLDE was created to empower women who are pushing the boundaries, who are challenging the status quo by doing what once were, male dominated water activities.

Stock is now available worldwide at [www.boldewetsuits.com](http://www.boldewetsuits.com)

### About Amanda Elizabeth

Amanda Elizabeth is a Perth-based shark biologist who saw the need for women to look and feel amazing while being on and in the water.

She promotes the conservation, education, and research of sharks through a number of activities including film, media, speaking engagements, shark research and school presentations.

Amanda hosted and co-wrote a documentary for Discovery Channel's Shark Week called Shark Soup, which highlighted the effects of the shark fin trade and Australia's involvement in it. 🐡

# Predators munch crown-of-thorns starfish

University of Queensland scientists have identified natural predators which could help fight outbreaks of the coral-eating crown-of-thorns starfish (COTS) on the Great Barrier Reef.

PhD candidate Amelia Desbiens from UQ's School of Biological Sciences tested more than 100 species of crabs, shrimps, worms, snails, and small fishes and found one species was a standout at eating juvenile COTS. "The red decorator crab - or *Schizophrys aspera* - was by far the most consistent predator consuming COTS in 89 per cent of the feeding trials," Ms Desbiens said.

"We were surprised by its voracity - each red decorator crab devoured more than five COTS per day while most other species barely ate a single one. "It's one of the best predators of COTS we've seen and could be a natural buffer against future outbreaks on the reef.

"We also saw 10 other species of crabs eat juvenile COTS fairly consistently, while other animals, including the short-tailed latirus sea snail and the iridescent fireworm, were less enthusiastic eaters." Coral rubble or dead coral is the preferred home of juvenile COTS, so the researchers searched for and collected potential predators that had, until now, flown under the radar.


They then introduced juvenile COTS to the predators in small tanks and observed their feeding behaviour over several days. Ms Desbiens said it had been suspected that the presence of specific predators could explain why some reefs escape COTS outbreaks. "One of the problems is that predators and their rates of predation on COTS aren't well understood," she said.

"Few animals successfully eat adult COTS but they are vulnerable when young because they are small and lack toxic spines to defend themselves.

"This makes it the perfect time for predators to strike and it is an opportunity for researchers and managers to understand a natural process that could reduce COTS numbers.

"COTS are mass-reproducers and can develop into large populations so it's vital we find a way to deal with outbreaks quickly." Senior author, Dr Kenny Wolfe said research into the role the red decorator crab plays in helping to protect coral reefs would continue.

"We'd like to conduct broader surveys on the Great Barrier Reef across areas with and without outbreaks to evaluate whether the presence of this crab can help predict the chance of COTS gaining a foothold," Dr Wolfe said. "This preliminary study sets us on the right path to resolving the role naturally existing predators could play in controlling COTS outbreaks."

This research is published in Coral Reefs. Funding support was provided by the COTS Control and Innovation Program, which is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation. 

# Donate 10 Minutes of your Screen Time to the Great Barrier Reef


Citizens of the Great Barrier Reef launches innovative technology built on citizen action to scale up conservation outcomes for the Great Reef Census. Australian talent has been united by the call to protect the reef; drawing skills from all corners of industry including software engineers, AI specialists, yachtsmen, creative agencies, marine scientists and Australian schools to construct a people-powered initiative that stops the digital scroll and uses your focus for purpose.

Any individual can take part in this global effort, simply by picking up their phone, or tablet and logging on to [greatreefcensus.org](http://greatreefcensus.org). By donating just 10 minutes of screen time; you can analyse 5 reef images taken during the Great Reef Census.

This information will help coral scientists and reef managers to understand changes on the reef and better manage risks such as Crown of Thorns Starfish, helping to conserve the future of the Great Barrier Reef.

Over the past 3 years, The Great Reef Census has surveyed more than 3,230 sites across more than 500 individual reefs, generating nearly 80,000 individual images from the Torres Strait in the Far North all the way to Lady Elliot Island and the remote Swains, creating one of the broadest scale images of the Great Barrier Reef.

Now Citizens of the GBR has matched this colossal marine operation with donations in kind by the greatest of both national and global creative industries, enabling people around the world in becoming citizen scientists.

This innovative new platform is live and is set to engage thousands of everyday citizens across the globe to join The Great Reef Census. Act now - pick up a computer, phone or tablet and donate 10 minutes of your screentime to analyse 5 images now at [greatreefcensus.org](http://greatreefcensus.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



*Photo: Gerald Rambert*

With so many islands, liveaboard is one of the best ways to access those hard to reach dive sites.

[visitsolomons.com.sb](http://visitsolomons.com.sb)

# Montague Island

It definitely gets the seal of approval!

Page: 265 in The Dive Spots of New South Wales



Montague island, or Barunguba, lies about nine kilometres off the coastal town of Narooma on the South Coast of NSW.

It is an island rich in Aboriginal history, the traditional custodians of the land being the Yuin people.

For them, the island holds great cultural significance, as it was believed to be a place of spiritual connection to the Dreaming.

The European exploration of the area began in the late 18th century, and Montague Island quickly gained recognition as a strategic location for maritime navigation. In 1817, a signal station was established to guide ships along the treacherous coastline.

However, it was not until 1881 that a lighthouse was built on the island

to provide a more effective means of guiding vessels through its dangerous waters.

The Montague Island lighthouse, a striking structure standing at 21 meters tall, played a crucial role in ensuring the safety of ships traveling along the south-eastern coast of Australia.

The lighthouse keepers and their families lived on the island until it was automated in 1987. You can take tours of the island under the auspices of the National Parks which run for a couple of hours and are well worth the walk.

Montague island is a nature reserve and a bit of a wildlife hotspot.

It has been referred to as Australia's Galapagos...without the Marine Iguanas! You have Humpbacks cruising





## PADI Women's Dive Day 15 July 2023

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a balance between humanity and the ocean.

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back South in the spring, over 12,000 pairs of Little Penguins, around 15 different bird species, an aggregation of Grey Nurse Sharks and, the diving and snorkelling jewel in the crown, around 1,000 Australian and New Zealand Fur Seals.

The dives, or snorkel trips, you normally do are on the Eastern side of the island which tends to be more protected.

If you dive it is probably going to be a drift round from Pebble Beach to the North and then South over the Pinnacle.

To be honest it's an ok, rather than a must do, dive unless something interesting cruises past.

The topography is rather barren boulders intersected at one point by a range of pinnacles. The main game is move onto the seals!

There is a very protected spot in most seas, to the South of the Pinnacle drift, which is a haul out for seals.

The seals are most likely to be Australian Fur Seals (*Arctocephalus pusillus doriferus*) and are closely related to the South African Fur Seal.

The Australian Fur Seals are joined by their Kiwi cousins the New Zealand Fur Seal (*Arctocephalus forsteri*) and telling the difference between the two is tricky for the uninitiated diver.

If you are interested a couple of hints are that the Australian Fur Seals are happy to be in each other's company, even on top of each other, so their colonies tend to look a little overcrowded.

The New Zealand Fur Seals in contrast, like a bit of personal space and even though they will hang out with their ANZAC cousins if the Aussies get too



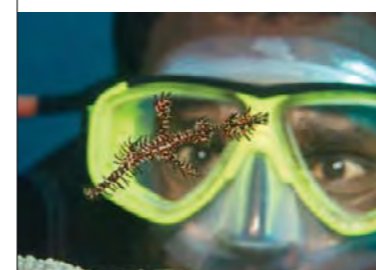
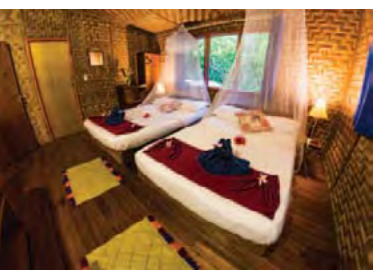
close, they are likely to be told to back off in no uncertain terms.

The other hint is that the NZ Fur Seal's necks slope forward when their head is up and when sitting out on the rocks their fore flippers are tucked in and hind flippers tucked under the body.

The Australian Fur Seals on the other hand have a more upright posture and when lying on rocks their fore and hind flippers tend to be stretched out from their body.

In terms of overall appearance, the Australian Fur Seals are the largest fur seals found in our waters and the males are much larger than the females, carrying a mane of dark coarse hair when mature.

The NZ Fur Seal males are also much larger (2-3 times heavier) than the females. The pups of both species are



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

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

dark frown, fluffy and just a touch adorable. The best time to see the pups is in summer, from December onwards, and for the adult seals winter thru spring is peak season.

Both species of seal were heavily hunted in the 18th and 19th century.

They are now protected species and although their numbers are not yet back to where they were, they are reasonably healthy.

Estimates are that there are around 80,000 NZ Fur Seals in Australia (they don't need a visa after all) and 120,000 Australian Fur Seals.

All fur seals cool down in the same way. They roll on their side on top of the water and stick a flipper in the air which looks as if they are giving you a wave.


In the water I would not bother trying to tell the difference because you are here to watch, play with (because they

react in kind) and possibly photograph the seals. The main bay where the seals are hanging out has some nice topography with small walls, a sandy bottom, and a decent cover of kelp on the shallower rocks.

This is also a good place to snorkel with the seals because you can get awfully close to where they are sunbaking, and they are very inquisitive.

The site is shallow, so your air is going to go the distance and you will have plenty of light. The only thing I would say is that you do burn through a bit of air if you take the business of playing with the seals seriously.

The more you loop around, hang upside down and generally whoop and holler...the more the seals will do the same.

Diving, or snorkelling, with seals is just a joy and I hope you get to Montague soon. 





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# The Manta Ray

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

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

When it comes to identification you're more likely to confuse the Manta ray (*Manta birostris*) with a low flying airplane than another fish but over the years it has been confused with *Mobula* (*Mobula mobular*), a type of giant Devilray up to 5m across and usually found in the Mediterranean – or at least it was before fishing devastated its numbers.

Other *Mobula* species can be seen in the Gulf of California and the Eastern Atlantic but of the three that are found in our waters the Sicklefins (*Mobula tarapacana*) and Bentfin devilray (*Mobula thurstoni*) are very rarely encountered.

The Shortfin devilray (*Mobula kuhlii*) is occasionally found in the KwaZulu-Natal nets but it's usually not much more than a metre

across. In fact, of the three *Mobulas*, the largest, the Sicklefins, grows up to about 3m. So if you see a ray bigger than your car – Mantas can grow to 7m or more across – then chances are it's a Manta.

The other way of being 100% sure is to take a look at the mouth. Unlike similar looking *Mobulas* the Manta has its mouth right on the leading edge of its face – instead of underneath its head like other rays.

The protrusions on each side of the mouth are the cephalic lobes – extensions of the pectoral fins – that stick out and forward being rolled up into spirals when the Manta swims, and uncurled into flattened paddles when eating.

The cephalic lobes help funnel food towards the mouth of the Manta where tiny (we're talking pin-head size here) peg-like teeth in the lower mouth do the rest. As you can guess from the teeth, the Manta is a filter feeder so it nourishes its vast bulk on plankton and small fish. It's obviously a high protein diet since not only do Mantas grow huge and live long (+25

years), they are surprisingly athletic and are often seen breaching entirely from the water and even somersaulting.

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

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


On the subject of colour, Mantas come in a variety of dark and light patterns – so much so that for a long time scientists were unsure as to whether they were a single species or formed a number of subspecies. The fact that their range includes pretty much the tropical and semi-tropical waters of the entire globe

helped support the theory that there might be entirely different species in different areas. DNA data, however, doesn't suggest that there is a major difference between, for example, the Atlantic and Pacific Mantas, or the mainly black or mainly white ones.

The IUCN Red List assigns the Manta 'Near Threatened' status in recognition that while populations seem relatively healthy, it is a slow moving target and one that even the most short-sighted fisherman is likely to notice.

Mantas are hunted for their skin, liver oil, meat or for the Asian medicine market, and like a lot of big sharks and rays, the Manta doesn't reproduce quickly. In fact, while there's some debate about the gestation period, it is thought that the female Mantas are pregnant for between 10 and 14 months before giving birth to just one or two pups at most. That makes it hard for the Manta to come back if its numbers are depleted.

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

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



Fiona Ayerst

# 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?**

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.

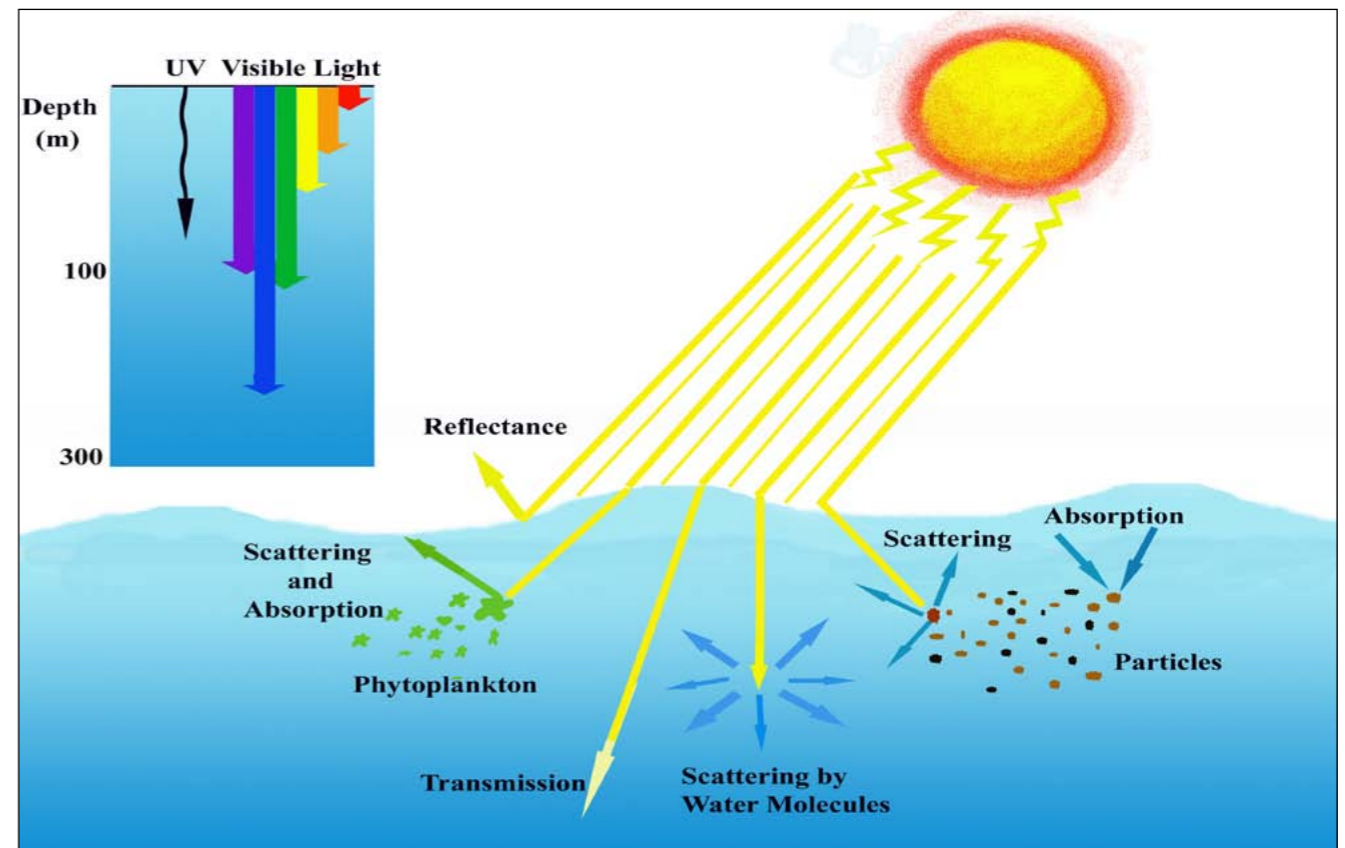
However, the 'pulsing' of upwelling on the west coast, and resulting 'pulses'

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). 



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**Mangrove trees form mangrove swamps, which are among the most important coastal marine ecosystems.**

Although mangrove swamps are smelly, muddy, full of mosquitos and generally, their tangled root systems provide havens for many small organisms, their murky waters provide nutrients for microorganisms that are in turn food for juvenile animals.

Mangrove trees are not a single species, but actually a group of more than 50 species from several families of halophytic trees and shrubs.

The combination of protection and food gives young animals a better chance for survival than they would have in the open sea.

This is the reason why mangrove swamps are important to the environment: they act as nurseries for adjacent marine ecosystems, such as coral

reefs. Many of the species they nurture are commercially and economically important. The second reason mangrove swamps are important to the environment is that they filter run-off water.

By trapping run-off sediment, the mangroves protect sensitive offshore ecosystems (coral reefs in particular), that would be hurt or killed by settling sediment.

Today, many ecologists consider mangroves as transitional ecosystems from marine to terrestrial.

A third benefit of mangrove swamps is that they hold sediment in place. They slow waves and reduce erosion while retaining the nutrients used by organisms living there. Mangrove

swamps are particularly good for protecting shorelines from storm erosion by slowing down and dampening storm waves.

Although a hurricane will still cause some erosion through a mangrove swamp, the sediment loss and erosion are negligible compared to the effect on unprotected shores.

The fate of mangrove swamps (commonly just called mangroves), has become an important issue related to urban expansion and bioproductivity.

To those unfamiliar with their crucial role as a haven where juvenile organisms get a change to survive to maturity, mangroves appear to be useless swampland.

Consequently, at one time developers filled in mangroves and built housing and office buildings. An even bigger threat is the conversion of mangroves into shrimp mariculture farms. The concern is that the loss of mangrove swamps is a loss to adjacent ocean ecosystems. ◀





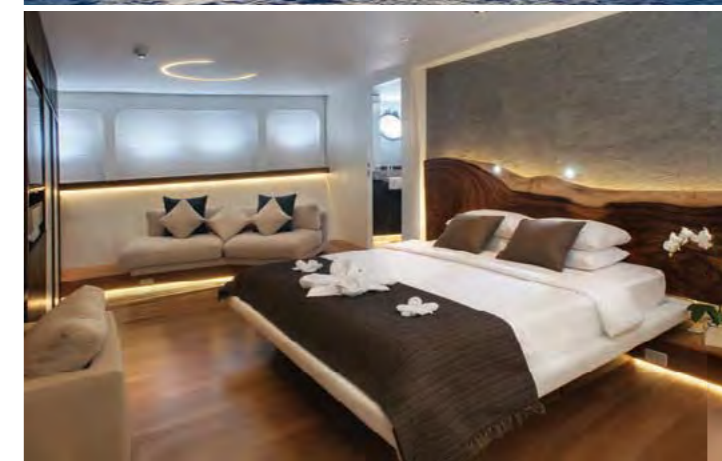
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*"The reef systems here are some of the most pristine I have seen anywhere in my dive travels around the globe, and Wakatobi resort and liveaboard are second to none. The diversity of species here is brilliant if you love photography." ~ Simon Bowen*



# GLOBAL NEWS

## PADI Women's Dive Day Returns on July 15 – Find an Event Near You

PADI Women's Dive Day is coming up on July 15th, 2023, and the PADI team couldn't be more excited! PADI Women's Dive Day is a day dedicated to promoting women in the world of diving. Commencing in 2015, the event has been growing in popularity ever since with women all over the world coming together to dive, connect, and inspire each other.

So, why should you join in on the fun? Here are just a few reasons:

### **Community: Connect with Other Divers**

Diving can be an incredibly social activity, but it can also be intimidating if you're new to it.

PADI Women's Dive Day is a great opportunity to connect with other divers who share your interest in diving. You'll have the chance to swap stories, learn from each other, and make new friends.

Who knows? You might even find a new dive buddy!



### **Inclusivity: Celebrate Women in the Dive Industry**

Women have been making waves in the dive industry for decades, but they're still underrepresented in many areas.

PADI Women's Dive Day is a chance to shine a spotlight on the incredible women who are leading the way in diving. From dive shop owners to underwater photographers, there are so many inspiring women to celebrate.



### **Adventure: Try Something New**


If you're new to diving or haven't been in a while, PADI Women's Dive Day is the perfect opportunity to get back in the water. Many dive shops offer special events and activities on this day, so you can try something new and exciting. Whether it's a shore dive, a boat trip, or a night dive, there's something for everyone.

### **Conservation: Make a Difference**

PADI Women's Dive Day isn't just about having fun; it's also about making a difference. Many events on this day are focused on environmental conservation and education. By participating, you can help raise awareness about the importance of protecting our oceans and marine life.

So, what are you waiting for? Mark your calendars for July 15th, 2023, and join in on the fun. Find a Women's Dive Day event near you at [www.padi.com/women](http://www.padi.com/women).

You'll find a list of events taking place all around the world, from local dives to exotic getaways.

It's the perfect opportunity to explore the underwater world, meet new friends, and celebrate women in diving. Whether you're an experienced diver or brand new to the sport, PADI Women's Dive Day is a day you won't want to miss. 



# DAN Safety Services Has Your Back

Divers Alert Network (DAN) is pleased to announce that its Safety Services department is standing by to assist divers, dive professionals, and dive business owners around the world.

Check out our new video to learn how DAN Safety Services can help your dive business operate as safely as possible.

DAN Safety Services works to help dive professionals mitigate risks, prevent accidents, and manage dive-related injuries through a variety of programs and channels, including publications, e-learning courses, free phone consultations, online tools, safety products, and first aid training.

Through these programs DAN works to support the dive community and ensure that divers everywhere can enjoy the underwater world.


"As the busy dive season approaches, we encourage the industry to take advantage of the many great tools and resources that DAN Safety Services has created," said Bill Ziefle, DAN President and CEO. "Our team of experts is dedicated to enhancing safety industrywide and providing a high level of support to dive pros and business owners.

We believe that dive safety is a shared responsibility, and we are committed to providing the resources and support needed to promote a culture of safety in diving."

DAN's Safety Services department is staffed by experienced professionals who are available to help dive operators identify hazards, mitigate risks, and limit liability. For more information, visit [DAN.org/Safety-Prevention](https://DAN.org/Safety-Prevention) or call DAN at +1-919-684-2948.

About DAN: The world's most recognized and respected dive safety organization, Divers Alert Network (DAN), has remained committed to the health and well-being of divers for more than 40 years.

The organization's research, medical services, and global-response programs create an extensive network that supports divers with vital services such as injury prevention, educational programs, and lifesaving evacuations.

Every year, hundreds of thousands of divers around the world look to DAN as their dive safety organization. Join the DAN community or learn more at [DAN](https://DAN.org). 



# Solomon Islands lifts COVID entry requirements

**Dereveke: "demonstrates commitment to facilitating tourism and highlights confidence in having effectively managed COVID-19 situation"**

Honiara, Solomon Islands - Effective immediately, the Solomon Islands has lifted all COVID-19 related requirements and travellers to the destination no longer need to provide proof of COVID-19 vaccination or COVID-19 test.

However, passengers arriving into the destination will still be required to complete a health declaration card which will be made available on board arriving aircraft or at point of entry into the destination.

Tourism Solomons CEO (acting), Dagnal Dereveke said the announcement by the Ministry of Health & Medical Services (MHMS) would significantly enhance the appeal of the Solomon Islands to those travellers who might have been deterred by previous restrictions.

"The decision to drop COVID-related entry requirements showcases the Solomon Islands as a welcoming and traveller-friendly destination, it demonstrates our commitment to facilitating tourism and highlights our confidence in having managed the COVID-19 situation effectively," Mr Dereveke said.

However, he said the destination would not be letting its guard down.

"During the pandemic, which saw the Solomon Islands close its border for more than 800 days, Tourism Solomons worked closely with the Ministry of Culture & Tourism (MCT) to proactively promote safety and service excellence across the tourism sector," he said.

"This involved introducing health and safety guidelines promoting hygiene facilities, maintaining cleanliness, monitoring activities and educating our people.

"Our main aim now is to continue to train our local tourism industry workforce to ensure they deliver a safe, healthy environment and experiences for our visitors."

Mr Dereveke said the timing for the MHMS announcement was even more relevant given in just a few months' time the Solomon Islands will be hosting thousands of athletes, support staff and spectators attending the 2023 Pacific Games taking place in November. 



# Solomon Islands

## Wrecks & Reefs



When you head away for a dive trip to a place with more than 900 islands bathed in clear tropical waters and renowned for their shipwrecks and volcanoes, - you know you're in for some good diving!

The Solomon Islands is a place I had long wanted to visit, as being relatively close to the equator it falls within an area having some of the highest marine biodiversity in the world.

The warm waters of this archipelago provide spawning grounds and migratory routes for over 1000 fish species, as well as being home to dolphins, dugongs sharks, rays, crocodiles and six of the world's seven species of marine turtles.

As if this isn't enough, the islands also have a rich and fascinating history and a huge concentration of WWII shipwrecks and plane wrecks to dive on. Some of the most intense fighting of the war occurred here between

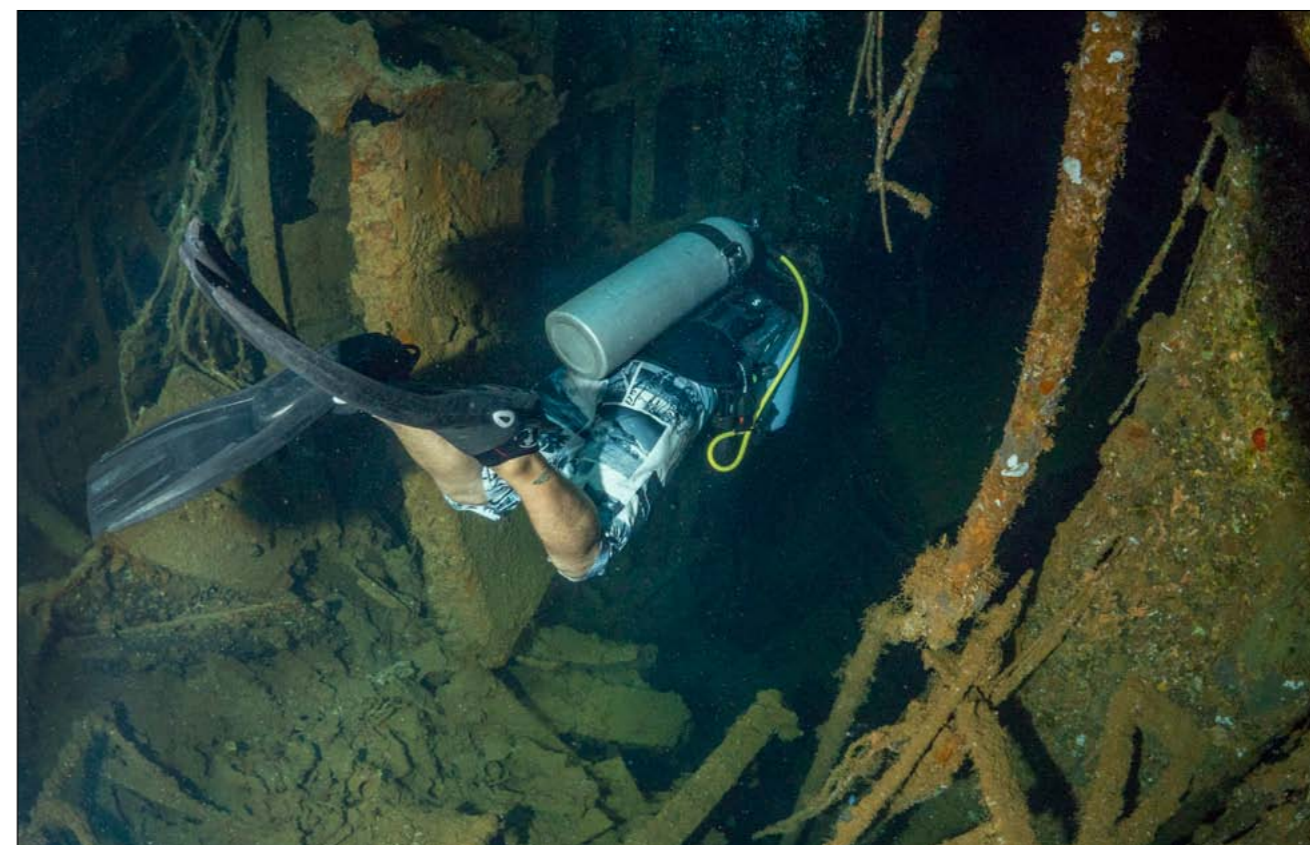
1942 and 1945, and over 70-years later there are still many reminders of those battles spread right across the Solomon's, both above and below water.

#### HONIARA

My diving in the Solomons began out of the capital city of Honiara with Tulagi Dive, a great little dive shop on the main island of Guadalcanal run by Australian ex-pat Troy, who has been diving in the Solomon's for over 30 years.

Troy has a wealth of knowledge to share about WWII history and some fascinating back-stories to tell about many of the wrecks in Iron Bottom Sound - (given its nickname for the 50+ ships sunk there during the war).

As the Sound is 600M deep many of the wrecks are well beyond diver depth, but of the 10 or so that are diveable, a handful can be done as shore dives within an hour or so's drive of Honiara.



Here are four of the wreck dives that can be done from the shores of Guadalcanal, preceded by an interesting drive on the back of a small truck weaving through potholes and picturesque villages to the north end of island, ...all part of the experience!

### The Hirokawa Maru

This large wreck lies at an angle down the reef from only 3m at the bow to around 56m deep at the stern.

The wreck is largely intact but well-encrusted with hard and soft corals, sea whips and colourful fans.

There are some easy penetrations nearer the stern, and the engine is still visible along with the crankshaft and gearbox. Although there wasn't a lot of fish life on this wreck it is a fascinating dive.

The Kinugawa Maru, This large Japanese transport ship is not far

from the Hirokawa Maru, and was deliberately beached to unload troops and supplies after coming under attack by US forces.

You can see the engine block protruding from the water from the beach, but the stern of the vessel lies in 56m.

This wreck is also well covered in soft corals and anemones, and there are still a few places where you can get inside, although care is needed not to stir up the silt.

The highlight of this wreck for me though was the cathedral-like engine room at 8M, which is tiger-striped with shafts of light and shadow.

### The I-1 Submarine

The I-1 sub is a bit further up the island off Vasale, and lies just off the reef in from 3-28M.

It is barely recognizable as a submarine



now having been rammed, blasted and partially salvage, but is still a great dive with lots of life on it.

There is also an interesting back-story to this wreck, and even a Kiwi connection! She was detected off Guadalcanal by two NZ ships, RNZN Kiwi and Moa, who dropped depth charges, driving the submarine to the surface.

After a close quarter battle the RNZN Kiwi eventually rammed the sub damaging her conning tower and hull, and forcing her onto a nearby reef.

The Japanese crew set destruction charges but failed to destroy her completely, and in the following weeks codebooks were retrieved from the wreckage crucial to US intelligence.

#### The B17 bomber, 'Bessy The Jap Basher'

This was probably my favourite dive out of Honiara, - I have always liked seeing planes underwater (although I hope I never ride one in) and this B17 still has lots of recognizable features! Lying in only 4 to 18M depth and about 70 metres from shore it is covered in colourful soft corals and has good fish life around it.

There is still a wing attached and a prop' remaining, as well as three machine guns now encrusted in purple sponge.

#### Honiara City

With a 'surface interval day' to spend around Honiara before flying on to Gizo for more diving we took the opportunity to visit the Vilu outdoor war museum, an amazing collection of war relics from Japanese field guns to bomber and fighter planes.

To be able to walk around and actually run a hand along the gun barrels or feel the bullet holes in a plane's wing brought home the reality of war far more than any words.

Honiara itself is an interesting juxtaposition of modern and traditional life, and definitely worth a good look around - from the bustling and colourful daily market to surrounding sights like the US and Japanese war memorials.

While the Solomon's climate is hot and humid, the accommodation in Honiara is to a very high standard, and the main hotels all have comfortable air-conditioned rooms and pools to cool down in at the end of the day ... essential if you feel the heat as much as me!

#### GIZO

After 3 days of wreck-diving around Guadalcanal it was time to fly out of Honiara and on to Gizo for some mixed wreck and reef diving.

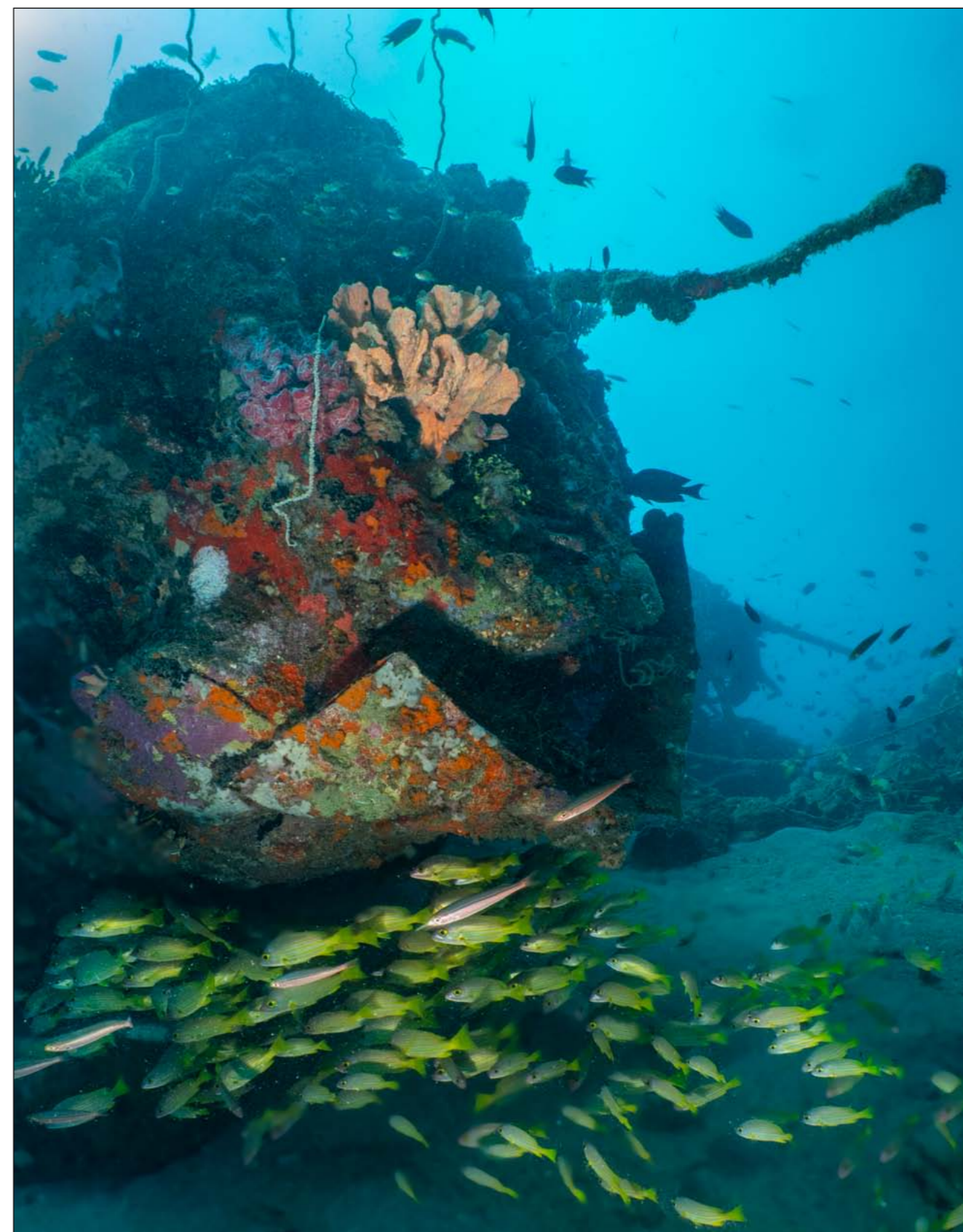
Internal flights in the Solomon's are either on a Dash 8 or an 18 seat Twin Otter, real workhorses capable of short take-offs and landings, which make them ideal for island hopping!

Small islands present their own problems when it comes to building airstrips, and Gizo's novel way of solving this was by joining two small islands together and levelling them to make what is still a short runaway.

Consequently Gizo must be one of the few airports in the world with no parking lot, because there are no roads on the tiny island and no vehicles; - just a jetty!

I was greeted at the tiny terminal by Danny Kennedy, owner of Dive Gizo, who ferried us over to the dive shop on the main island of Ghizo (same name different spelling) to offload our dive gear, then across to yet another small island (Mbabanga) to spend the night at the iconic 'Fat Boys' resort.

With its laidback restaurant built out over the water on stilts, great food and



quirky but comfortable bungalows - all with amazing views over the lagoon, this is a great place to stay!

The diving out of Gizo proved to be a nice blend of wreck and reef diving, and we did 5 great dives with Danny getting a good overview of what is on offer here.

#### Toa Maru

Our first dive was on the wreck of the Toa Maru, a nearly intact 140m long Japanese transport ship.

The stern lies at 37M and the bow at 7m, making it a great dive profile.

Being intact it is easy to penetrate and take a look around inside, and there are still many WWII relics to see - from old Saki bottles and ammunition to a small Japanese tank!

The clear water of the Solomon's means you can also get a great perspective

of the whole ship from the bow, and there are lots of soft corals and fish life on the deck and rails, - even Crocodile fish!

For our second and third dives Danny took us to famous 'Grand Central', followed by 'Beach Dive'.

Grand Central is renowned for having had the second highest fish count in the world on a single dive, (over 270 different species of fish), and Beach Dive for its surreal seascape of huge sea fans, bright red whip corals and massive wine-red barrel sponges the size of 100 litre drums!

#### Japanese Zero & Hellcat

Right in the heart of Gizo Harbour is a quick and easy dive on a Japanese Zero lying in only 9M of water; - the visibility isn't great but its still a fascinating dive, providing the strange juxtaposition of finning around an historic 70 year-old WWII wreck, only



to surface a few metres away from a bustling little jetty! Our final wreck dive with Danny before moving on to Munda was on an intact Hellcat 'Betsy II' in Blackett Strait, lying on a silty and weed covered bottom in just 10M.

This US fighter plane was actually discovered by Danny back in 1986, and apparently the pilot Richard Moore was able to make a flaps-down water landing after being shot in a firefight over the Strait...quickly being rescued by a canoe full of friendly Solomon islanders.

Considering how many WWII ship and plane wrecks litter the South Pacific I am amazed that researchers have managed to find out the stories of many of these wrecks – right down to the names of individual pilots and crew.

#### MUNDA

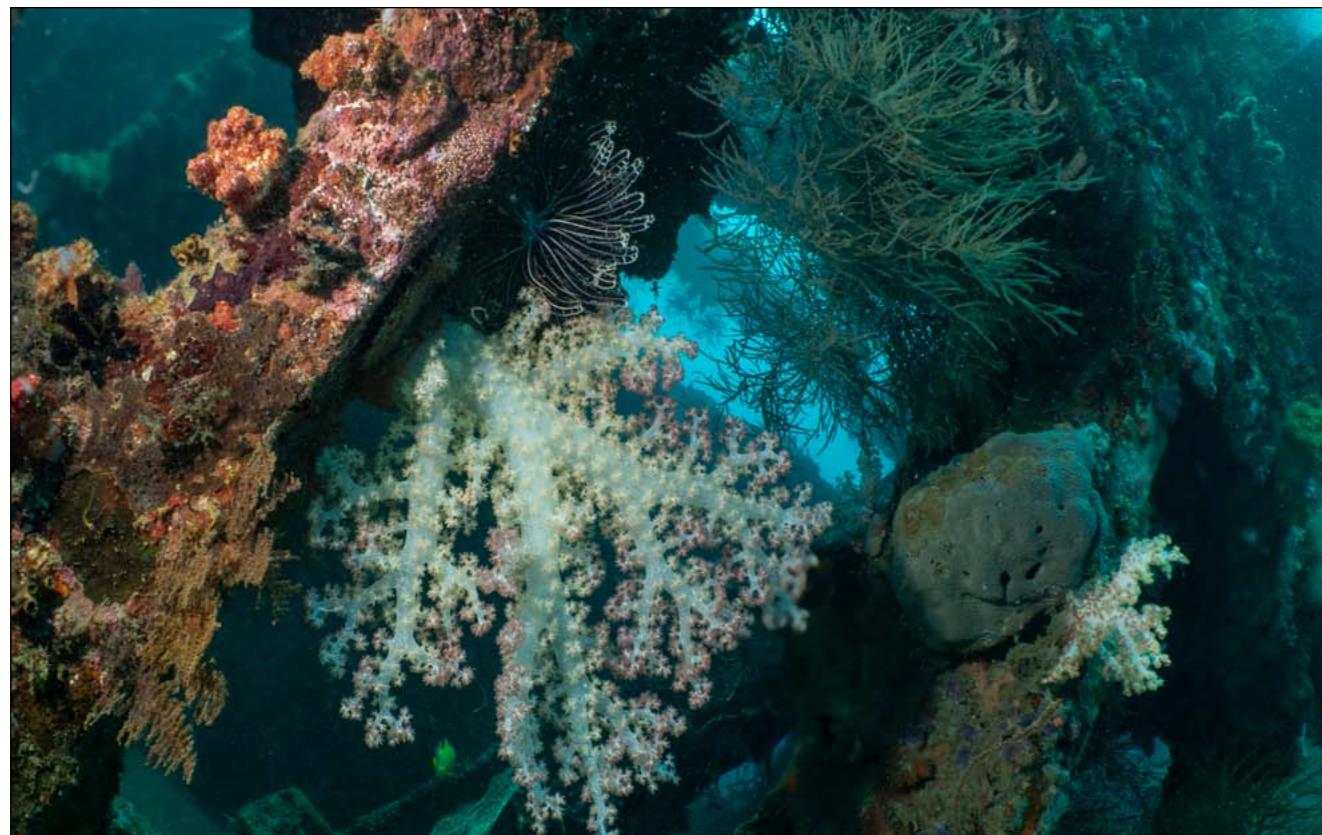
My last stop in the Solomons was the

small village of Munda, which lies on the edge of beautiful Roviana lagoon in the Western Province of the Solomons, - a huge body of water dotted with small islands that offer some spectacular diving!

I arrived into Munda by boat from Gizo, and after settling into the comfortable Agnes Gateway hotel, wandered across to meet Belinda Botha – owner of Dive Munda.

Dive Munda has won numerous awards for dive tourism and is highly regarded around the world, - no surprise when you meet Belinda, who has a passion and enthusiasm for diving that is inspiring!

Not only is she regularly exploring and adding new dive sites she is also committed to helping the local community develop and grow in a sustainable way by training and employing local dive guides,



## Dive the World

Solomon Islands

By: Dave Abbott

encouraging local eco-tourism ventures, sponsoring annual fish counts and promoting sustainable fishing practices.

For me the main attraction of Munda is the beautiful reef and wall diving, but there are also some very good wrecks dives to be had around Munda too.

My two favourites were the WWII Airacobra - an American P-39 fighter plane, and the Douglas SBD-4 Dauntless dive bomber, both close to Munda in easily diveable depths.

### The Bell P-39 Airacobra

The Airacobra is largely intact and sits upright on a flat sandy bottom in 27M. Drifting down on it from above gives you a great perspective... as you get close what at first looked like a drab outline is revealed as a beautiful

colonised in colourful corals and encrusting invertebrates, and home to

some interesting fish life.

The Bell P-39 Airacobra was one of the main American fighter aircraft when the United States entered World War II, and had an innovative layout with the engine behind the pilot in the centre of the fuselage.

### The Douglas SBD Dauntless

This plane is also sitting on a sandy bottom but in shallower water at only 13M.

Like the Airacobra it is covered in colourful hard and soft corals and teeming with fish life, it's propellers curved backward from the impact but not snapped off as you would expect.

The Douglas SBD Dauntless was a World War II American scout plane and dive bomber, and was the main carrier-borne US Navy dive bomber from 1940 through to 1944.



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This particular wreck has an interesting history, as the American pilot who was flying the plane when it was shot down came back to dive on it as an old man, and even stranger, the Japanese ex-soldier who claimed to have shot down the plane during the war also came to the Solomons to dive on the plane wreck!

On my final day in Munda I paid a visit to the Peter Joseph WWII museum, a must visit for anyone interested in WWII history.


I loved the authenticity of this hands-on 'museum; - it is run by an old guy with a passion for WWII history and he has personally collected most of the relics himself from the jungle around Munda.

Each piece had a personal history, and

it is easy to conjure up images of the young American and Japanese soldiers who held these weapons battling the appalling heat and humidity of the Solomon Island jungle.

I was sorry to leave Munda when my trip finally came to an end; I had experienced some spectacular diving, made lasting friendships, had a taste of the Solomons rich and vibrant culture, and been entranced by its beautiful scenery.

I was going to miss the Solomons spectacular golden sunsets, friendly locals, delicious local food and amazing marine life.

If you haven't been already, make sure not to miss the beautiful, wild and exciting dive destination that is the Solomon Islands, I know I will be back! 



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# Northern Sulawesi

Great to be back!



In February and March this year me and my two dive buddies, Mathew, and Liz, headed back to Northern Sulawesi for the first time in three years.

COVID had put paid to our plans to visit in 2020...and then 2021 and even 2022 proved difficult as Indonesia was understandably cautious about opening its borders. We were not sure what we were going to find.

Were the walls of Bunaken still vibrant? Were the soft corals of Bangka their iridescent selves? Were the large turtles still to be found? Importantly what was the new Thalassa resort like?

We had followed their journey from leaving their old resort in Molas to building their new resort in Bahowo through weekly live streams for almost two years...but what was the reality?

We had been to their old resort multiple times from 2014 onwards and were very happy with it ...but the new one? As a bit of a spoiler there was no reason to worry about any of that...diving here

was back with a bang.

Travelling through Singapore has become more expensive, both in terms of the airfare, services in the terminal and any overnight stay in the transit hotel...but that is pretty much the same everywhere. SCOOT has taken over from Silk Air but runs a similar schedule and given SCOOT is Singapore Airline's low cost offering you can still book your gear all the way from Sydney to Manado with a 30Kg allowance.

30Kg is never enough for me with all the camera gear...but it is a very good start. Travelling through Indonesia via Denpasar or Jakarta is also a possibility, just a touch more expensive and the connections are not quite as convenient.

Anyway, we got there, and Manado airport has had quite an upgrade since I was there in 2019 and is now quite large and modern. If Australian (and indeed a range of other nationalities) you can get a visa on arrival.



As a tip have a physical card if you want to pay by credit card (do not rely on your phone) or have the exact change in USD/AUD or other currency if you do not wish to overpay. Also have a paper copy of your COVID vaccination certificate to move things along.

Having made it through Immigration and Customs we were picked up at the airport and driven off to the new Thalassa resort (some 10 minutes down the road from the old resort).

By the way, given it's a more remote area of Indonesia even though credit cards are still used in many places, it does make sense to have a reasonable amount of Indonesian Rupiah cash on hand - say up to AUD \$200 worth.

First impressions of the resort? Much more rain 'forestry', more tranquil and an Ubud-like feel from the highlands of Bali...but without the monkeys thank goodness.

Although a little smaller the rooms are a cut above the old resort (which were just fine by the way), more modern and with separate sleeping and living areas. There is also a purpose-built spa and massage area which is new.

A lovely pool to wallow in and a couple of large villas to house up to 4 people each...probably 5 with a pullout.

All in all, a great spot from which to launch our week of diving...before heading over to Lembeh for a bit of muck!

The new resort does not have the luxury of a short walk to the jetty...so we all hop in the car for a 3-4-minute drive to meet up with your gear which had already been collected from our rooms and was already on board.

That's one of the great things about going on a dive holiday in Asia...your gear simply vanishes at the end of your dive day...and then magically re-appears, all washed, the following day.

Carrying tanks to and from the boat? What's that? It's easy to get spoiled...

but don't forget you are on holiday!

With the boats leaving from Bahowo you are about 10 minutes closer to those walls at Lekuan which fringe the island of Bunaken.

That means it is quite doable to have a couple of dives and to have a couple of dives and drop back into the resort for lunch if you wish.

Or mix it up if some on the boat want to do two dives and others three dives.

We had lunch on the boat most days...staying out for three dives.

Most of the time we dived a couple of dives off Bunaken or Manadotua and then headed to the mainland for a third dive just to mix things up a bit.

Walls in the morning and a bit of Macro in the afternoon.

The walls off Bunaken and Manadotua are legendary. They are vibrant and bustling with turtles in almost every spot.

Can you get fed up with turtles? Not really but we did become a little more indifferent if that's possible!

It was heartening to see that the turtles (Hawksbill and Green) in such numbers and of such a decent size.

Some locations saw their sea life suffer during COVID as some locals turned to the sea for food.

It was unfortunate but understandable given they had no way of earning money and government subsidies were thin on the ground.

The turtles are protected in Bunaken I am happy to report that the walls off Bunaken appear to be house just as many turtles now as they did pre-COVID.

The walls drop to over 60m in many spots and the visibility was a good 20-25m...more in some spots and less in others.



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Importantly the temperature was a very pleasant 29C...but even then, after three dives, you are probably grateful for your 3mm wettie.

The corals at Fukui were in good condition and the cracks in the rock that stretch up to the sky at Celah Celah were a joy to behold.

Turtles were everywhere, the shoals of smaller fish shimmering up and down the walls still present and but for the absence of Morays all was good with the undersea world.

Photo 16 Green Turtle resting  
As well as the diving at Bunaken we wanted to make sure that at some stage we fitted in a day trip to Bangka, up on the northern tip of Sulawesi.

Bangka has always offered some top-class diving that is just a bit different from Bunaken.

The water is even clearer (hard to believe I know), the corals (particularly

the soft corals) more spectacular and it is a great spot to find Pygmy Seahorses as well as, if you are lucky (which we have been), a passing Dugong.

The only potential downside is current. Those corals are nourished by the faster moving water and sometimes that can make the diving more like a workout than a leisurely stroll.

This time the current was pretty punchy which makes the photography a touch challenging and rules out stopping to get a shot of the Bargibanti pygmy sea horses.

Even if you could stop you would end up trashing the corals...so it was an easy choice to stick with the wide-angle lens and move on!

As it happens, we went up to Bangka and then continued around to Lembeh on the Eastern Side of North Sulawesi as part of our commute from Thalassa Resort Bahowo to Thalassa Resort Lembeh.



It was a little choppy getting round but nothing that was too uncomfortable, and we were joined by a pod of dolphins to see us on our way.

Anyway, Lembeh is a different story so that will have to wait until the next article.

It was so good to be back at Thalassa (II) with many of the same staff who were in Thalassa I.

Happy, smiling faces are the order of the day with an attitude to match.

The resort continues to develop the children from the local school in the tourism sector by providing them roles and mentoring in the dive industry, on

the boats and in the hospitality area as well. In fact, if you are lucky enough to be on one of the liveboards that ply the Indonesian waters you are more than likely to trip across a guide or two that owes their start to Simone and her team at Thalassa.

There are still a few edges to round out after the significant task of building a brand-new resort and having no visitors for two years but that will happen, and I don't think you have to wait for that.

I would head back tomorrow.

I hope you have the opportunity to visit Simone, Fendy, Arjen, Maria, Jacob and the rest of the team at Thalassa, enjoy their hospitality and dive your heads off! 🏊



# More Than a Sore Shoulder

**A DAN member recounts his experience with decompression illness.**

I remember sitting at my computer while thinking about all the ibuprofen I had been popping for the past 18 hours and wondering why I still had the dull, aching pain in my shoulder. Could this be more than soreness from carrying gear back and forth from our shore entry point or exertion from a windy, wave-filled entry and exit? Could I have decompression sickness (DCS)?

My dive profile from the previous morning was well within safe limits, but something was obviously wrong, so I called DAN. I explained to the DAN medic that I had been using my rebreather on a technical dive and that the dive went fine. I reported the timing of my symptoms, noting that I was cold at the end of the dive but didn't notice anything else until my left shoulder started hurting about an hour after the dive. The DAN medic recommended I go to the emergency room at and tell them I had a dive injury. The emergency room staff started me

on oxygen while doing tests. I had been there for only about 45 minutes before the hyperbaric nurse came in and asked about my dive and if I'd be up for another one.

The U.S. Navy Treatment Table 6 recompression gave me plenty of time to recall the dive and think about how I ended up with DCS.

We were diving the PB4Y Privateer, a Navy bomber that crashed during a training flight in 1956 and sank to about 46 metres. I've made plenty of dives, but on this day the wind was whipping up big waves so strong it felt like a current. The water movement knocked my camera and lights off my scooter, so I had to spend time retrieving them from where they had washed ashore.

I kept my stage cylinder on my left side as I walked on shore, unnecessarily carrying the extra weight.

One of our group members got separated from us when his scooter propeller broke, so we surfaced to find him and evaluate the situation before he had to head back while some of us continued the dive. My buddy and I ended up too far south of where we intended to intersect the descent line at 30 meters, so we had to scooter back north.

The delays meant that by the time I needed my heater, we weren't as close to the wreck as we would typically be— and I wondered if we would even make it to the line and down to the wreck. We found it a few minutes later and had a great dive on the plane. After we had our fill of this gorgeous wreck, we turned the dive and headed back up. Our ascent was uneventful, decompression was easy, and I felt comfortable until suddenly getting cold. My heater's first battery pack was drained, so I switched the cord leads to my second battery pack and flipped it on to discover there was no heat.

It would be an uncomfortably cold last 15 minutes of the dive for me. My buddy still had a few minutes of decompression left when I was theoretically done, so I waited for him to clear before we headed back to the beach.

My left shoulder started bothering me when I was driving home, and I regretted the extra effort I exerted to go ashore and retrieve my camera along with the strain of the extra weight I had carried. I took some ibuprofen when I got home and snuggled up with my pups after putting away all my gear. When I finally stopped moving, I realised how unusually tired I was. I did nothing for the rest of the day and then took more ibuprofen before going to bed, but my shoulder pain kept me from getting a good night's sleep.

I was still in pain in the morning and needed more ibuprofen before going to work, where I finally realised it wasn't just a sore shoulder.

It was a relatively minor case of DCS, and I had only isolated pain in the muscles and joint that resolved after my chamber treatment. The extra stress from carrying my stage cylinder while out of the water may have also contributed to my pain. My only additional obligations were a 30-day follow-up appointment with the hyperbaric physician and a restriction from diving for at

least 30 days. When reflecting on what likely went wrong, I realised that my 15 minutes of cold decompression after 45 minutes of comfortably warm on-gassing at depth was a textbook case of what not to do. While it would be nice to be warm for the whole dive, I typically start and do the deepest part of my dive cool and then turn on my heat when I leave the bottom and start decompression.

I could have avoided all these problems if we had recognised the many difficulties the conditions caused as warning signs to call the dive earlier. We chose to continue, and it turned into a learning experience.

Even with plenty of dives under my belt and a site and dive plan with which I was comfortable and familiar — it included additional decompression time to be extra safe — there are other factors you might not consider enough. Your environment, stress, and temperature can contribute to your DCS risk. I will be more cautious and judicious with my use of heat in the future. This incident reinforced the importance of always checking all your gear.

If I had tested the second heat pack before the dive, I would have known it wasn't working. Without a backup pack, I would have never used the first one early, assuming the second one would work for the later part of the dive and the final decompression.

I am a safer diver after learning several valuable lessons from a dive we should have cancelled — including paying better attention to the full impact of the conditions. The most important lesson is that I should have sought medical care as soon as my shoulder became painful. Waiting could have made it worse. I was fortunate that my DCS remained mild. On future dives, I will take all symptoms seriously.

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# Discovering the Deep side of the World

The life in the deep oceans was always a mystery for me. I had always been attracted to the deep oceans and that is why I think I started technical diving.



I have been to 500 feet on a scuba dive, but now it was time to test my limits and go double that depth to 1000 feet. I wanted to go and see what it's like where the water is not blue anymore.

On my last trip to Coco's Islands I was very surprised to see a submarine on the liveaboard.

The island of Coco's are located in the famous Coco's Island Marine Park in the Eastern Tropical Pacific, 550km southwest of Cabo Blanco (Central America) off the coast of Costa Rica.

I was very lucky to be on the Argo, the luxurious liveaboard that was a rare combination of work ship and luxury yacht.

She was designed from the keel up in 2008, to pamper up to 16 discriminating passengers in seven spacious, well-appointed staterooms.

She is a 40m vessel with a full global reach. But on the back of the Argo was a submarine which immediately drew my attention.

I was informed that guests could go to 300m and spend two hours there with no decompression – this was one of the best things that anyone could have told me and I was again like a small kid with a new toy! I was excited to explore the depths of the ocean with no risk in this submarine known as the DeepSee.

The DeepSee is a custom built one-atmosphere submarine, capable of carrying one pilot and two passengers down to depth of 1 500 feet.

It is the first submersible designed and developed from its keel up with the ocean enthusiast, scientist and explorer in mind.

DeepSee was professionally built by SeaMagine USA to exact specification



under the rigorous testing and classification of the ABS (American Bureau Of Shipping).

Unlike most other submarines which require a support vessel to launch and retrieve the sub for each dive, DeepSee was designed to allow its passengers to safely board and disembark the sub while it floats alongside the mother ship.

DeepSee is equipped with 11 HID 150 Watt and 70 Watt lights, and a High Definition Video camera that will document all the DeepSee dives.

DeepSee utilises the most advanced underwater navigation system, the USBL system, as well as Doppler navigation and forward looking sonar.

This allows the pilot navigating great accuracy when returning to the same dive sites when needed. Passengers can use their video cameras from inside the

acrylic sphere, taking advantage of the sub's powerful lights.

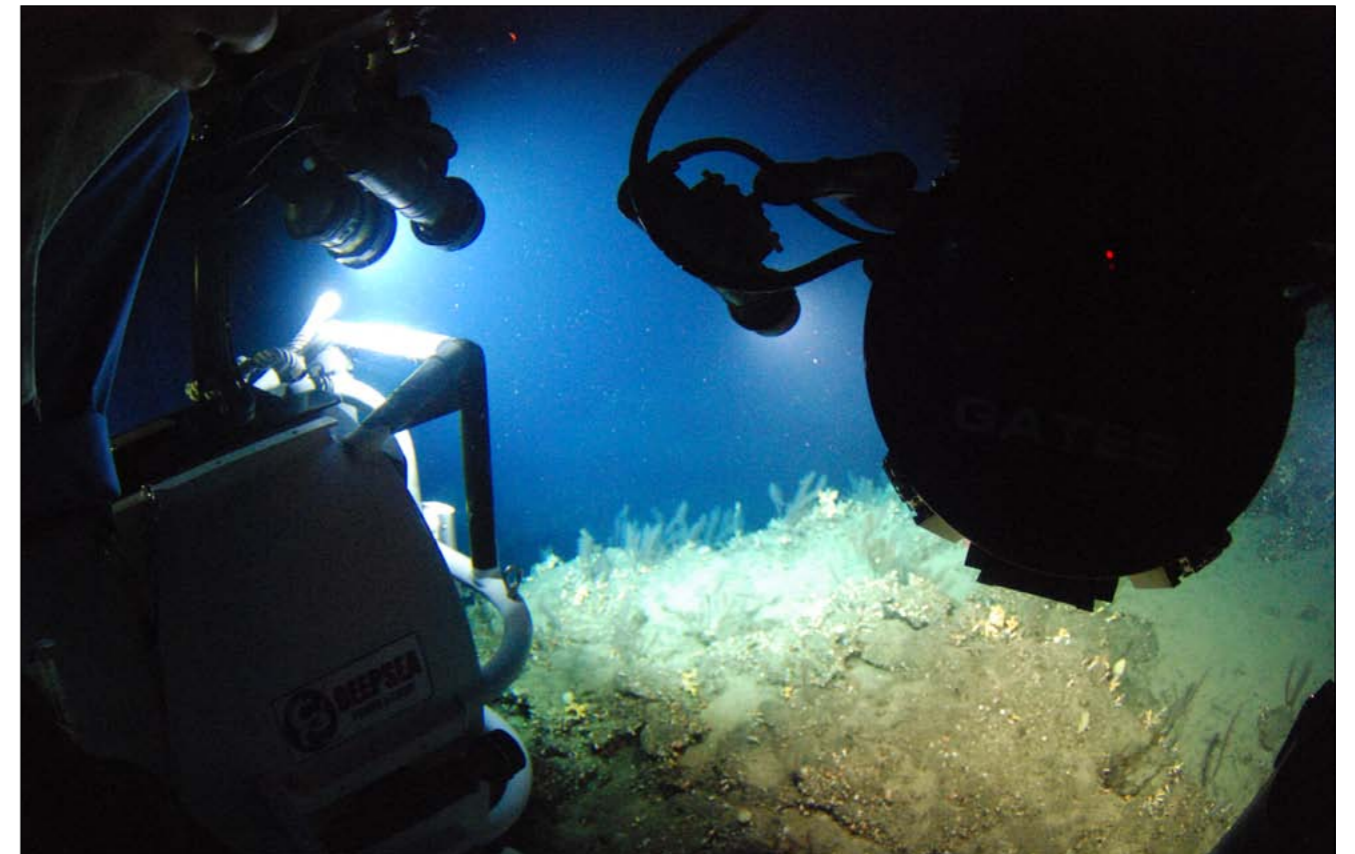
The perfectly clear 3,3 inch thick sphere literally disappears when submerged and offers the viewers an unparalleled and unobstructed 360° view of the undersea world. DeepSee has a six hour operational time and can reach 1,5 knots.

DeepSee has been operating around Coco's Island since March 2006.

During our exploration around the island, they have discovered numerous different habitats and species varying in depth from 100m-450m.

Now I was the luckiest person in this world because I got to do two dives with the submarine – the one to 100m and then the next to over 300m.

And as I said, I would be able to spend hours at that depth with no problems.



## Exploration

### The Deep

The first dive I went to was a place known as Everest that lies at 100m - unique sea mountains teeming with marine life.

The base of Everest descends to 100m (300 feet) and rises to 50m (150 feet).

Everest is still fed by sunlight, hence it is very rich with corals, reef fish, rays and sharks.

The dive starts on the foothills of the seamount, climbing slowly along the face of the wall towards the pick.

During the dive, you are likely to observe schooling hammerheads sharks, mobula rays, silky sharks and big tuna fish cruising around the seamount.

One of the local residents of Everest is a family of groupers that normally

comes to and have a closer look. This dive has a duration of around one and a half hours.

The second dive was the big one where we went beyond 300m. As we got to just over 215m we saw a ledge which they call The Edge it is a sheer break off the island plate dropping to the abyss in the form of a vertical wall.

The wall stretches for quite a distance from north east to south west and is located 1,2 miles from the island.

On this dive, we explored along the wall where they often encounter mobula rays (never known before to live at these depths) crabs, morays, big groupers, frog fishes and different unique deep-water critters.

For me this looked like the end of the world before we entered the abyss.



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Image © Kyu Furumi

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Diving Kimbe Bay Reefs

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Diving Bismarck Sea and Milne Bay

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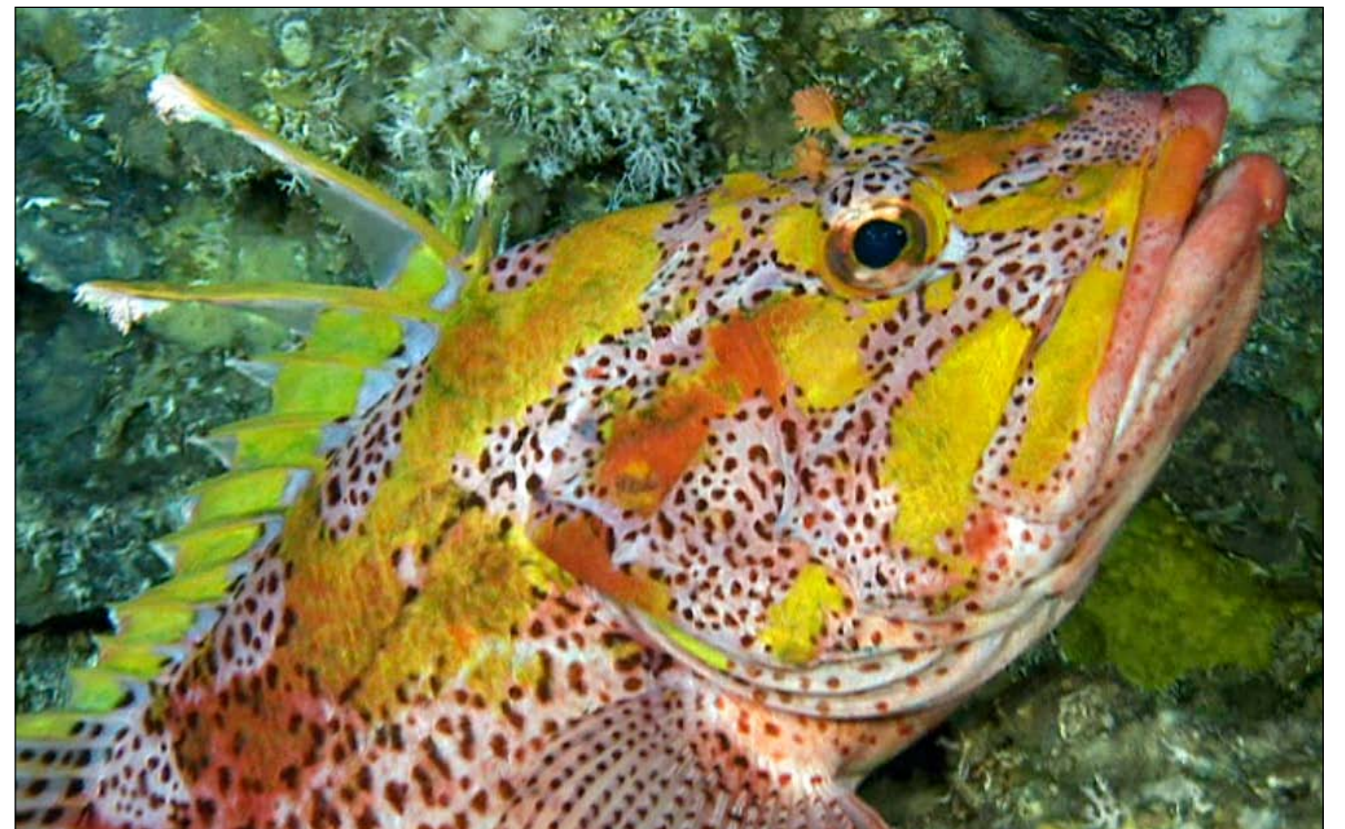
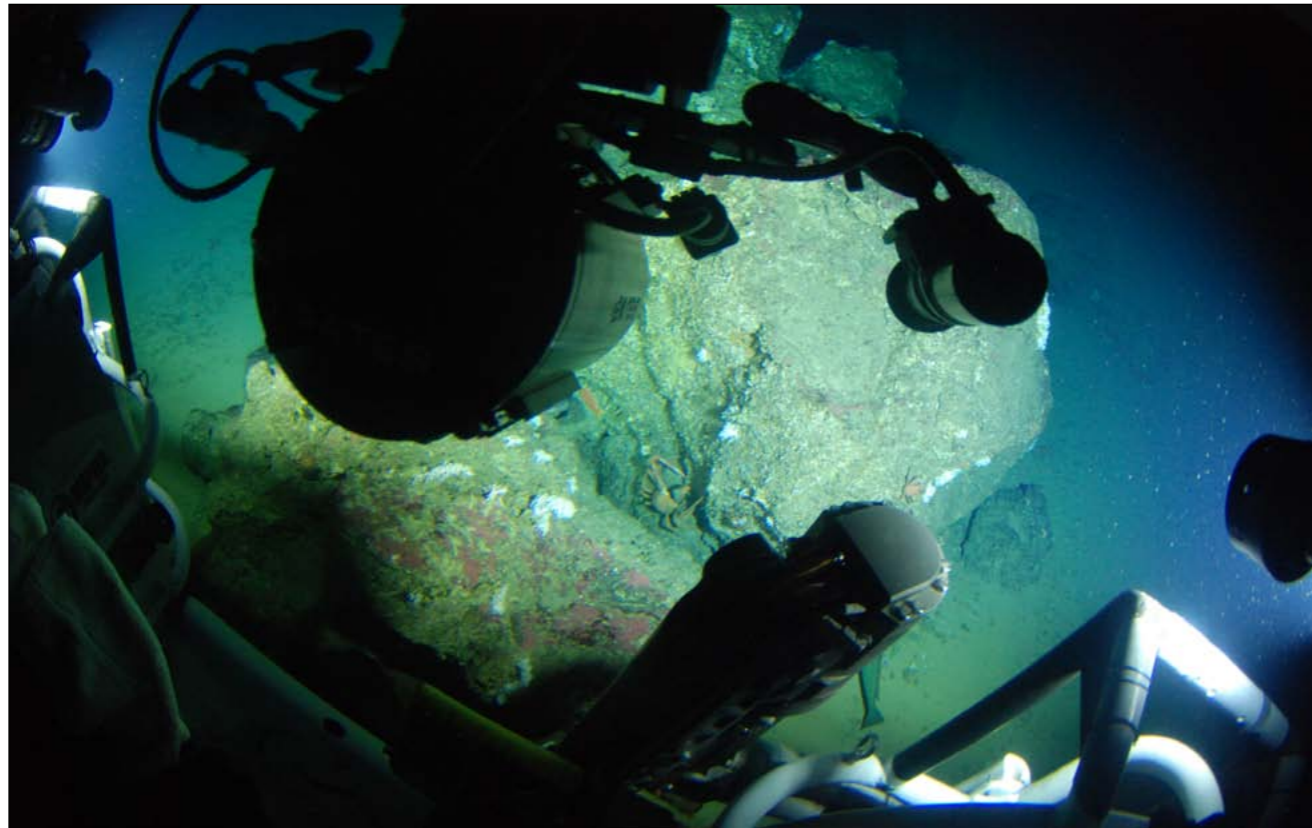
Tropical bungalows in rainforest gardens with waterfront and garden views.

MV Oceania is a 27 metre catamaran catering for up to 16 divers in 8 cabins. Modern comfort with two guest deck levels.

Image © Darek Sepiolo

Image © Franco Banfi

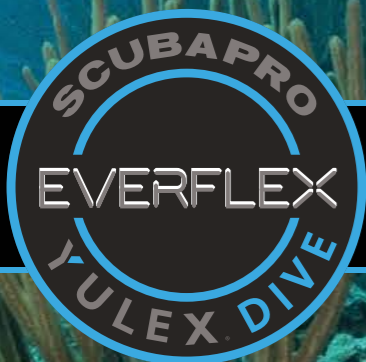
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Just over the edge we left the mobulas rays behind and headed down along the break to deeper water.

We explored the wall, which in some parts is a sheer drop, and on the others is a ledge of rock formations and sandy sloops.


In those depths, there is no penetration of sunliight. The fish, corals and fauna are unique and adapted to life in complete darkness.

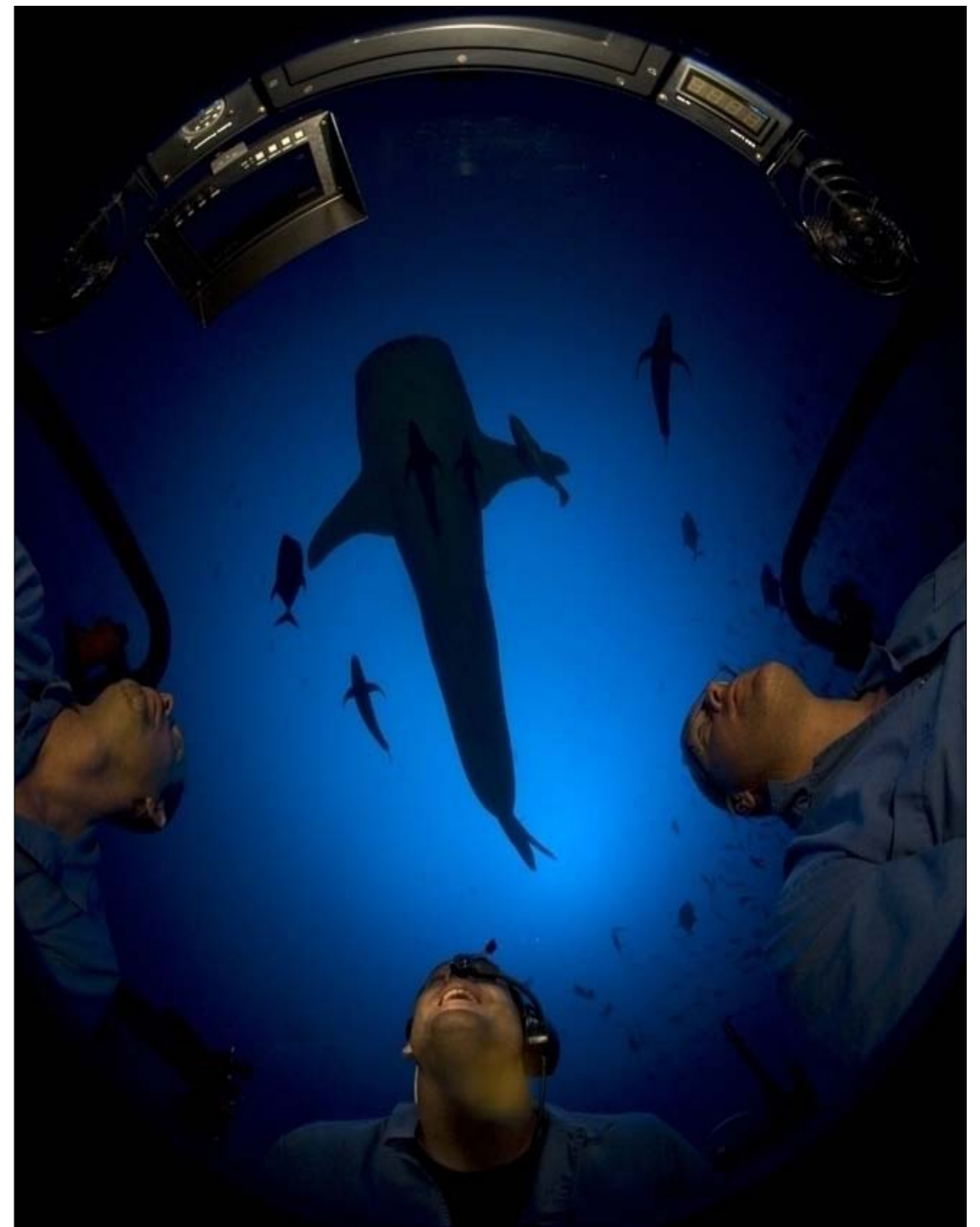
We found exiting species of fishes such as the ancient looking Jello-nosefish (guentherus altivela), the goosefish and a few unidentified species.

The highlight of our exploration around Coco's depths was a deep-water shark better known as the prickly shark (achinorhinus cookie).

There have been a few encounters with this shark at depths of 800-1 200 feet.

On the way back to the surface our pilot decided that we still had a lot of time left and we began to explore the rocks and boulders between 165-180m.

Here we saw some of the deep species that most of us will never see in our life time. The dive duration was between two and a half and three hours – three hours that I will never forget. 



# Photo School

## Expose it Right Underwater

In this article we are going to look at macro photography, a technique which brings out incredible colours and detail at tremendous rates of magnification.

The great thing about macro photography is that it is one of the easiest forms of underwater photography.

It works in almost all water conditions and is the only successful technique during a night dive.

You can photograph a large percentage of the marine life on the reef just using macro.

One of the hardest parts about macro photography is finding those really small subjects.

There is so much to learn when doing macro photography because you need to know about the behaviour of the subject you want to photograph.

The purpose of macro photography is to capture the subject at actual or larger than life size. You will of course need to place the lens very close to the subject to fill the whole frame.

This produces unmatched colour richness, and using a small aperture will deliver amazing sharpness of detail.

The most important rule for macro photography is to choose your subject with care. Avoid taking photographs from a top viewpoint.

Always try having your subject facing the lens –you want to create perspective and depth in the photograph.

It is important to keep your own movement down to a minimum, so avoid rapid movement and be patient. You also don't want to stir up any sediment, as this will ruin your opportunity.

With macro photography you are going to be challenged by a very narrow depth

of field so consider the plane of the subject in relation to the orientation of the film plane.

If these planes are kept parallel, you attain maximum sharpness otherwise you are going to have to rethink your composition and decide where the in-focus area is going to be.

When focus cannot simultaneously be sharp on the mouth and eyes of a subject facing the camera, you must compromise.

While keeping depth of field in mind, place sharp focus somewhere between the eyes and mouth, so that an acceptable photograph can be composed.

With macro photography, you will have to approach your subjects very carefully


as some will shy away or retract from the light.

Always wait for and capture action, or a sense of it.

If you are fortunate enough and your subject remain still to be photographed, savour the moment and compose as many different photographs as you possibly can.

Always be mindful of when is it enough and be considerate to the marine life you intend photographing.

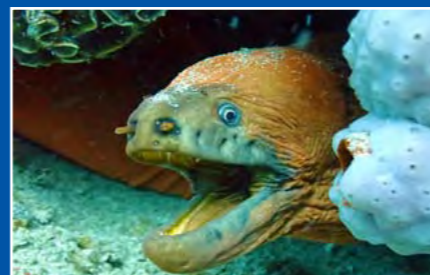
Always be sure of your physical position in relation to the reef and make sure your buoyancy is perfect.

Then there are also those unfortunate times when you just have to let the opportunity go. 



# Mathew Kempton

A journey through the Lens



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! p.s. I hope you find some of the photos of interest. ☑

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Port Jackson Sharks, Blue Fish Point Sydney, July 2016, Olympus TG2, f/2.8, 1/80 sec, ISO 200



Green Bumphead Parrotfish, Sipadan, Dec 2017, Olympus TG4, f/2.8, 1/800 sec, ISO 100



Common Stingaree, Shelly Beach Sydney, Jan 2017, Olympus TG4, f/2.8, 1/400 sec, ISO 100



Grey Nurse Shark, Bushranger's Bay, Mar 2020, Olympus TG6, f/2.8, 1/200 sec, ISO 100



Australian Fur Seal, Jervis Bay, Mar 2020, Olympus TG6, f/2.8, 1/640 sec, ISO 100



Green Bumphead Parrotfish, Sipadan, Dec 2017, Olympus TG4, f/2.8, 1/800 sec, ISO 100

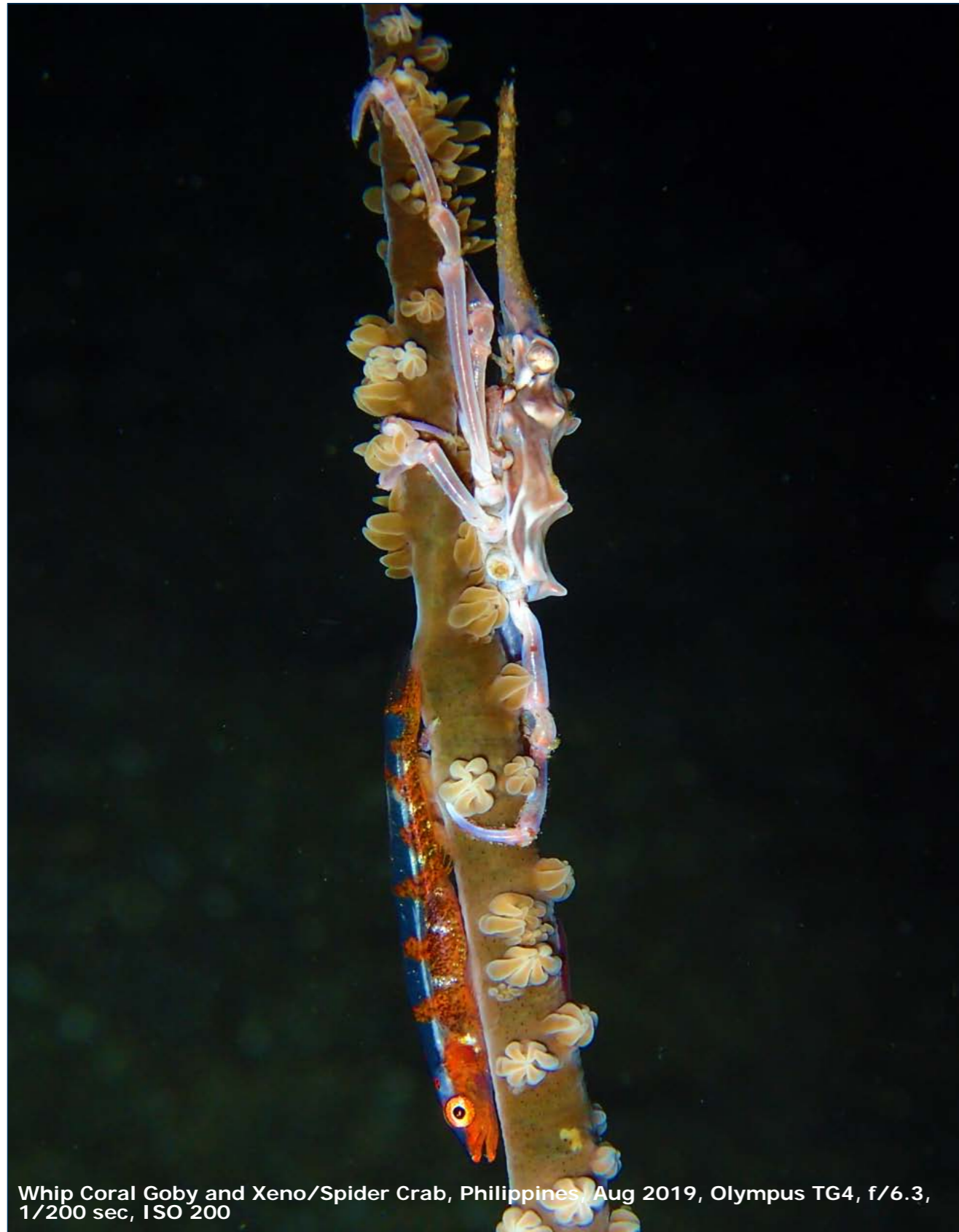


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Whip Coral Goby and Xeno/Spider Crab, Philippines, Aug 2019, Olympus TG4, f/6.3, 1/200 sec, ISO 200

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# Beqa

## Bull Shark Frenzy

What a buzz! The shark dives at Beqa in Fiji...you simply have to do. It is very much worth making the trip over to do them...even if you don't do anything else!

PART II

MOVE OVER NAT GEO

# NATURAL SEA ROVERS

SCOURING THE OCEANS  
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Aqua-Trek are also very solid custodians of sharks and the environment having set up one of the earliest shark conservation and sustainable tourist programs in Fiji.

Like the team at BAD they pass on a levy from each diver to the local village at Wainiyabia and most of their team come from that village.

You can find Aqua Trek's story here <https://www.aquatrek.com/our-mission>

So, by now you've figured out it is a pretty amazing shark dive so we might have a look at what types of sharks make an appearance.

By far the most common are Bull Sharks (*Carcharhinus leucas*), also known as the Zambezi Shark in Africa.

These sharks thrive in both fresh and salt water, but they are happiest moving between salt and fresh water rather than just hanging out in the

fresh water. The Bulls give birth in the low salinity environments of the river and as the pups age they build a tolerance for increased salinity and head out to sea.

The shark's appearance is responsible for its name. Stocky with a broad flat nose and a somewhat unpredictable nature...the name fits.

The females can get up to 4m in length but somewhere around the 2-3m size is more common.

They seem happy to congregate in quite large groups and they put on a very good show.

Despite their healthy numbers at these dive sites the Bull Shark is considered near threatened.

The Tiger shark (*Galeocerdo cuvier*) is a large shark growing to over 5m in length. Rather as its name suggests it has several dark stripes down its body



which tend to fade with maturity.

This shark is an apex predator and has a reputation for eating almost anything! The Tiger is a solitary, mostly nocturnal hunter and is considered a near threatened species.

Apart from their unique stripes they also have distinctive teeth with a sideways pointing tip.

You are never guaranteed these sharks of the open ocean will turn up, but they are regular visitors.

On the dives I did we were not lucky enough to have a visiting Tiger shark but the previous time I dived in the Shark Corridor, in 2018, a small (3m) Tiger did a fly by.

I just happened to be looking up at that time and took a very poor photograph of it.

These magnificent animals are considered near threatened.

The Whitetip Reef shark (*Triaenodon obesus*) is a relatively small shark that does not usually exceed about 1.6 m.

It is easily recognisable by its slender body and short but broad head, as well as white-tipped fins. During the day the Whitetips spend much of their time resting inside caves and tucked in under overhangs.

Most sharks must keep moving to force water through their gills, but the Whitetip can pump water over its gills and lie still on the bottom.

Night is when the Whitetips tend to hunt, and you can see them forcing their slender bodies into small holes and cracks in search of food.

These sharks are pretty chilled and often shy around divers. The Whitetip is considered critically endangered.

The Blacktip Reef shark (*Carcharhinus melanopterus*) is identified by the prominent black tips on its fins and is



## Giant Stride

Beqa

By: Graham Willis

about the same size as the Whitetip.

It is one of the most common sharks in both the Indian and Pacific Oceans. Rather like the whitetip the blacktip is timid and shy and is considered vulnerable as a species.

The Tawny Nurse shark (*Ginglymostoma cirratum*) is quite a different sort of shark and is an elasmobranch fish rather than a requiem shark.

They can get quite big up to 3.5m and are quite slow moving.

As with many shark species they are assessed as vulnerable. They feed primarily at night on small fish and invertebrates...but will take what they can catch.

They have a small mouth tucked under a broad rounded head and suck their food into their mouths ...but don't let anyone tell you that they don't have real teeth...they do! These sharks are considered vulnerable.

The Sicklefins Lemon shark (*Negaprion*

*acutidens*) look a lot like Australia's Grey Nurse Shark or the American Sand Tiger but is not a direct relative.

This shark can grow to nearly 4 m and they look pretty aggressive because of their dental work but are generally slow moving and cautious.

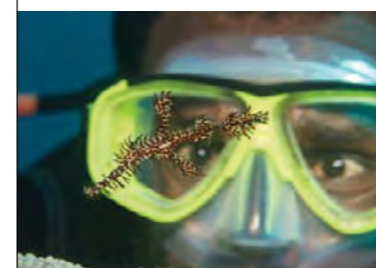
Like all sharks (even Carpet Sharks) they can put on an impressive burst of speed if required.

Unfortunately, this shark is on the endangered list due to a combination of overfishing and its slow reproductive rate.

The Grey Reef shark (*Carcharhinus amblyrhynchos*), is a common shark with a typical "reef shark" shape, with a broad, round snout and large eyes and can grow to around 2m.

It is a fast-swimming, shark that often form groups to hunt during the day whilst at night they tend to hunt on solo.

As sharks go, they tend to be quite



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

inquisitive and are likely to come quite close to divers for a look at what is going on.

Once again humankind has meant this shark has ended up on the endangered list.

The Silvertip shark (*Carcharhinus albimarginatus*) is a larger species of requiem shark and can grow up to 3 m in length.

The silvertip resembles a larger and bulkier Grey Reef shark but can be differentiated by the white borders (hence the Latin name) on its fins.

This shark is a powerful apex predator and feeds on a wide variety of bony fishes, as well as eagle rays, smaller sharks, and cephalopods.

These fish are generally inquisitive and

unafraid and will often swim quite close to divers, to see what is going on.


It should be no surprise that this shark is listed as vulnerable.

As humans we are not doing very well when it comes to sharks, or indeed a whole bunch of other aquatic animals.

As per the IUCN Red List, of the 8 types of shark that show up at Beqa:

- 2 are Near Threatened,
- 3 are Vulnerable,
- 2 are Endangered and
- 1 is Critically Endangered

...the next stop is Extinct in the Wild.

Please add your voice to marine conservation efforts wherever you can and take the opportunity to visit the sharks of Beqa. 



# The Octopus

## Squid, Nautilus & Cuttlefish

Octopus, squid, cuttlefish and nautilus belong to the Phylum Mollusca, which includes animals such as the snail, abalone, clam and mussel. They are different from their cousins because they have a large eye, well developed brain and extensive nerve network, tentacles and are mobile. These distinguishing features group them into the Class Cephalopods.

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The octopus has been the most studied of these, and as our knowledge grows we realise that this a surprisingly intelligent creature. We suspect that the same applies to the squid, cuttlefish and nautilus.

Intelligence is usually associated with use of tools, communication, problem solving, establishing homes, parental care and environmental manipulation. Let me introduce you to the octopus and describe some of the activities that make them one of the brains of the ocean.

**Tool use:** Octopi have been observed, when crossing sandy bottoms, to carry two halves of an empty coconut shells or clam shells. If threatened they will use the shells to hide in.

**Communicate:** By changing colour the octopus tries to communicate their 'feelings'. If you keep an octopus in an aquarium it will greet you with an appropriate colour change. If you catch it trying to escape or dismantling the air pump, it will 'blush'.

If threatened they will also indicate by a colour change their unhappiness. In fact, any external stimulus can make the

octopus change colour, from blue, through purple to brown, red, grey, white and even striped. I wonder what this fellow is saying?

**Hands:** The octopus uses its tentacles to explore objects and will disassemble anything that can be taken apart. Each sucker on an octopus's leg is a complex organ which can be controlled by the octopuses' brain. Scientists have only recently discovered how complex the sucker is and the control that can be given to each sucker.

The outside ring of the sucker forms a watertight seal whilst the inside ring is contracted and so doing applies pressure. The two rings give the octopus the same control that we as primates get from our thumb and fingers. It is like having not only eight legs, but also hundreds of fingers.

**Solving problems and remembering the solution:** An octopus has no problem working out that a lid to a screw-jar has to be unscrewed to reach the food inside.

It will remember that the green bottle, for example, has a left-hand thread whilst the blue bottle is a right-hand thread.



**Homes:** On the reef the octopus establishes a 'home' in a cave. What has amazed researchers is that the octopus knows where home is, even though its route from home has been a complex journey, and will jet its way directly back to home. This ability requires both directional as well as spatial orientation.

**Parental care:** It is in this 'home' that the female octopus cares for the eggs she lays, protecting the eggs from predators and oxygenating the eggs by blowing water over them.

She does not leave her home during this period (around a month). Feeding herself during this time sometimes requires that she consume part of her own leg!

One theory proposed as to why the octopus is intelligent is that living on the reef is a dangerous place for a soft bodied animal which moves relatively slowly. Another is because octopi live for such a short time – between six months to five years – and are solitary animals,

thus they need to be born intelligent to survive. Mothers do not spend time teaching the hatched octopi hunting or other skills.

### Squid

Squid, nautilus and cuttlefish are difficult to keep in captivity and like octopi are short lived. Squid (calamari) inhabit an unusual part of the ocean, living in a vertical column of water.

The Humboldt squid migrates to around a 1 000m deep during the day and returns to the surface at night to feed. If we pause to think what a remarkable feat this is, the deepest a human has dived is 320m and it took many hours. (The Guinness Book of Records has stopped recording deep dives because so many divers have died attempting this record).

At 1 000m the weight of water compressing the body is like having 100kg pressing down on each and every square millimetre of the body. With this amount of pressure every

cavity is squeezed closed. Nitrogen at this pressure is forced into the cells. The excess nitrogen in the cells causes hallucination, and if not slowly released, causes 'the bends' in humans. These changes influence why as recreational divers we only go down to 30m.

So how the squid copes with the increased nitrogen in its cells, remains a mystery, especially if one thinks that the giant squid descends to 3 000m. We are not even thinking about how they deal with temperature differences between the surface at say 16°C and at a 1 000m at say 2°C.

As warm blooded animals we are able to function in hot and cold climates because we keep our cells operating at a constant temperature. This allows the millions of chemical reactions that occur all the time in every cell of our body, to do so at a constant rate.

If this was not the case we would stop when cold and go 'ballistic' when warm. The squid must also have some mechanism to regulate their cell temperatures.

The giant squid is also worth mentioning. It has stamped its mark on history, being first written about by Aristotle and then by Pliny the Elder almost 2 500 years ago. Remember the drawings of squid/octopi enveloping a ship in their arms? Very few giant squids have been found on the surface, either dead or alive.

They generally live in the very deep ocean, down to 3km. Sizes of the specimens found have ranged around 10m, but evidence from sucker teeth marks found on Sperm whales and submarines indicate that some may get to 20m in length with an eye bigger than a ruler.

One wonders what they find down there to eat and how they cope with even more pressure and cold?

### Cuttlefish


Unlike the squid and the octopus, the cuttlefish has an internal 'bone'. The literature gives no reason why this

internal support is required. The cuttlefish is the master of camouflage and it has the ability of being able to change not only its colour, but pattern itself similar to the surface it is trying to hide on.

These photographs show just how remarkable this feat is. On the left we see the cuttlefish assuming the tan colour of its background. Whilst below it has assumed the pattern of the rock it is swimming over and is almost impossible to see.

### Nautilus

The nautilus is the last member of this illustrious family. But unlike its brothers it has an external shell. We know very little about this creature. If you should find a shell, deem yourself lucky – it is scarce, beautiful and to some cultures deemed to have magical properties.

Next time you see calamari or octopus on the menu, do you really want to eat such a clever animal? 



# Dive Planning Expecting the Unexpected

**Inherent in technical diving is the word risk. For some, this translates directly to danger, but not for technical divers.**

Fundamental to technical diving is the understanding that risks, if recognised, can be mitigated and in so doing the danger reduced. As technical divers we need to expect the unexpected.

Dive planning is not only my passion but the reason why I continue to dive deep and in caves, a lethal combination if there ever was one.

Whilst always hard to define, the challenge of technical diving is perhaps contained in this rather innocuous activity

that for most technical divers is so basic it is invisible. Dive planning in its purest form, is about transforming something complicated and risky into something that is elegant, simple and most importantly do'able, not only by me, but by anyone.

Yet for some reason, dive planning is not something we seem to spend a lot of time talking about. Our attention is focused on our definition of what technical diving is, namely dives in excess of 40m, in overhead environments, on gases other than air.

We are missing the point that diving has inherent risk that sport diving take for granted.

We do not seem to understand that technical diving is a stage in the natural evolution of diving. What we call a technical dive today will tomorrow be another aspect of sport diving.

In fact, nitrox is already headed in that direction. If we define technical dives as dives requiring pro-active risk management we can place dive planning in its appropriate place.

Technical diving today is in an uncomfortable space, caught between two definitions. There is the main stream technical dive in which dive practices are well established, having come from a solid base of accidents and deaths.

Then there are the explorers, still pursuing the boundaries of what we know, discovering new risks and learning new

ways of taking the basic skills and making them work for us.

The difference is that the latter community acknowledges the risks involved and are pro-active about understanding and managing them.

But, do the main stream technical divers ?

Are we properly managing the conversion of a sport diver for whom risk is invisible into a technical diver for whom risk is crucial ?

Are we teaching technical divers to think and plan their dives and more importantly, to be able to identify the risks so that they can apply the appropriate mitigation strategies?

Or are we teaching them to apply practices with no understanding of the motivations behind them and therefore no ability to safely do anything other than the dives they were trained for ?



Learning how to plan a technical dive takes time and experience. Firstly all technical dives are not equal.

Therefore it is hard to set down a list of guidelines that apply to all technical dives all the time. Unless of course you understand the fundamental risks and are able to identify them in the many forms they appear in.

Secondly, there is a gradient of complexity is not linear and related only to depth.

As a technical diver, you need to be able to identify the inherent risks that pertain to a specific dive. Then you need to assign the appropriate mitigation strategy to those risks. In reality, dive planning is just a comforting term that describes the process of learning what we do not know without killing yourself finding out.

Nor is dive planning restricted to single dives. It is an attitude and philosophy that applies to all your dives. To safely increase the dive complexity you need to isolate the risks and simulate the planned

dive in an environment that is inherently safer. This approach means I rarely add more than one new thing to a dive.


As I perfect aspects of the main dive I start to combine the skills, slowly increasing the complexity there-of.

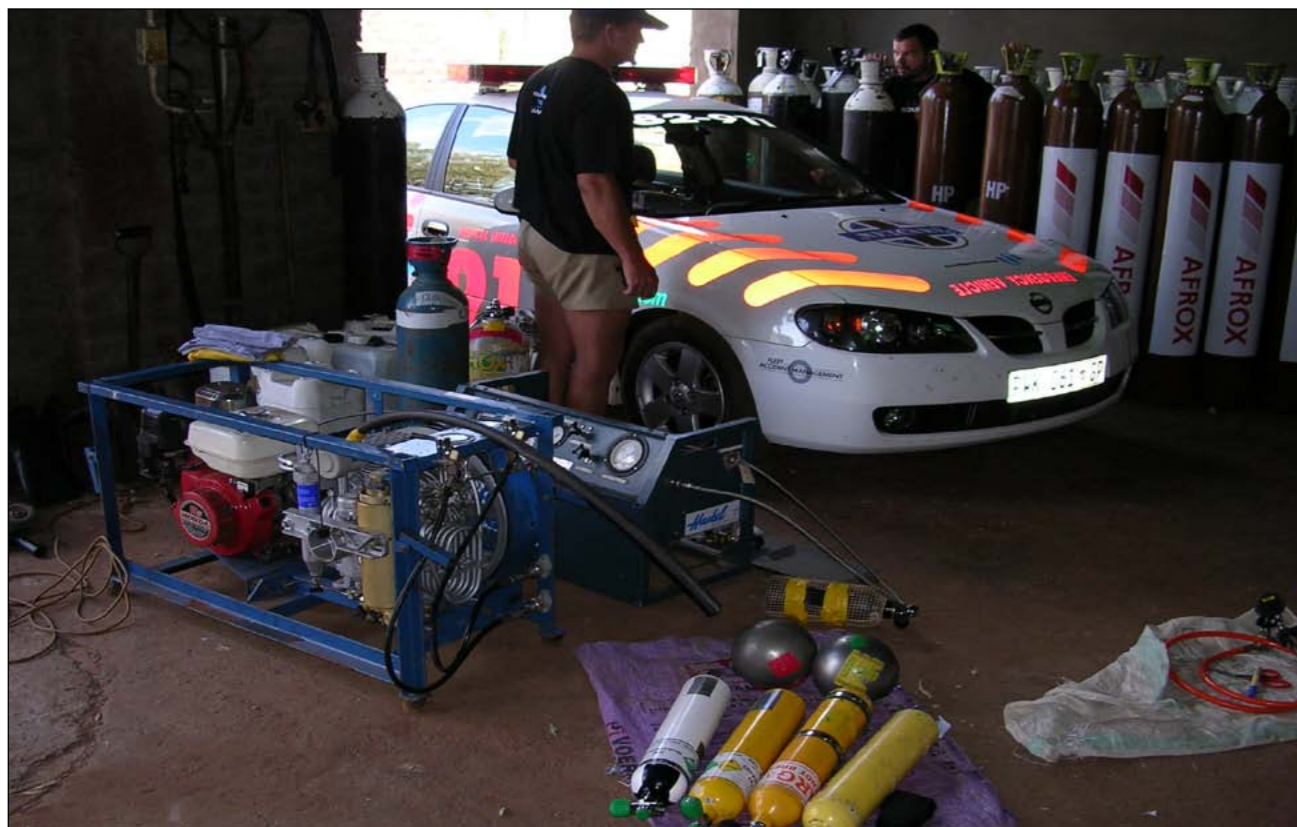
As a technical diver I have a completely risk averse approach to diving, I can never guarantee my safety. All I can do is reduce the risk! I long ago accept the fact that I might die on a dive.

Then again, the one thing I am sure of is that I will die one day. The point of living is to not fear your death, but to live the best life you can.

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

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

But first you need to be able to breathe. 



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## Nuno Gomes



The limit for air (21% oxygen and 79% nitrogen) diving is 50 metres (accepted internationally). Some agencies recommend even shallower!!! At 50 metres narcosis is a definite problem for 99% of all divers.

(The partial pressure of nitrogen is  $6 \times 0.79 = 4.74$  bar)

Also at 50 metres the partial pressure of oxygen is  $6 \times 0.21 = 1.26$  bar (It starts to approach toxic levels at the lower recommended partial pressure of 1.40 bar)

What is the solution?

Well if you want to go deeper than 50 metres, Trimix is the only way!!!

## Barry Coleman

Inert gas (nitrogen) narcosis has been a plague of deep divers since the invention of SCUBA. It is a problem that affects divers the deeper they diver, causing differing responses to nitrogen under pressure.

The responses are associated with that of drinking alcohol, some individuals are more susceptible to affects than others. Like alcohol



everyone is affected, even though they swear blind that they are fine!

However, tests showed that diver training and mental conditioning have a great effect on a diver's susceptibility to narcosis, BUT the human risk (survival) factor from 60msw down, is exponential.

So, to get to all that "stuff" we use "TRIMIX", (Helium, Oxygen and Nitrogen) the use of Helium capitalizes on the non-narcotic proprieties of the gas. However, even this gas has limiting factors.

High-pressure nervous syndrome (HPNS) and this is a major draw back, (Below about 150msw).

Helium produces a rise in the surface tension in the membranes. It is known that NITROGEN causes a fall in the surface tension. So we add Nitrogen to the Heliox (Helium and Oxygen) gas mix to get TRIMIX, thus reducing the risk of HPNS.

For most of the recreational diving market, depths of below 150msw are not on the schedule, although at the moment depths of 120msw are!

So divers can now "dial a High" mix and choose their narcotic depth after they have planed the best Oxygen mix for the bottom. The balance of the gas in the mix will be nitrogen.

Trimix is becoming more popular for Videographers, photographers, rebreathers and any diver who requires precision abilities at depth.

In the recreational diver market Helium is now used for dives between 30msw and 40msw (recreational trimix) using standard SCUBA equipment.

This helps those divers who do not like the effects of Nitrogen at these depths and those divers using CCR (closed circuit rebreathers).

The CCR diver is even recommended to use "Trimix" or Normoxic (21% Oxygen and Helium) gas, as it is referred to. The cost to the CCR diver is negligible and the benefits considerable.

For the open circuit diver, dives below 40msw should be considered and, below 50msw should be required as standard practice.

## Pieter Smith



Simply put, Trimix gets you deep! Safely! In its most boring terms, it is the only way to safely dive deep and avoid the debilitating effects of narcosis and the toxicity of oxygen that come with the depth. But it is more than that. Somehow, moving over to Trimix is a graduation.

This is the moment when you decide to take diving seriously. It is as if Trimix is where it all comes together. You have no choice but to acknowledge the risks that have always been present, but, because of how easy it is to dive air, deep, with no or little training, but have always been ignored.

Or perhaps it is more about freedom. Without Trimix the choices you make as to where you dive, never mind how you dive, are seriously limited by the fact that you are forced to be on air. Everything is about managing the extreme risk that deep air presents.

BT (before Trimix), there was always that nagging fear, that I was out of my depth, out

of control. If something went wrong, that was it. My ability to manage the situation was seriously restricted.

The true secret is that technical divers are seriously risk averse. Instinctively we seem to know that the more risks we identify and manage, the better the chance of getting out when something unexpected happens. I no longer had to rely on other people to keep me safe.

I could keep myself safe. What was more, I now had the ability to be independent and go where I wanted to go.

Why Trimix ? Why not ? Why not be able to search for the Coelacanth or glide elegantly through crystal clear water exploring a wreck that has never been visited before ? Why not explore ?

## Pieter Venter



Air is good to breathe and Nitrox even better. BUT up to what depth? Let's take air first. Air consists of approximately 21 % Oxygen and 79 % Nitrogen. Nitrox is where you increase the Oxygen and lower the Nitrogen. Each of these gases has their advantages and disadvantages.

With normal air you can dive safely up to 56 meters. But at certain depths the two gases that you breath can become dangerous.

At 33 meters the Nitrogen can start to give you Nitrogen Narcosis and at 66 meters the Oxygen can start giving you Oxygen poisoning.

But what if you want to go deeper? You can't suck out any of the gasses in your cylinder but you can replace them with something else (Helium).

Trimix, a mixture of Three (Tri) gasses, Oxygen, Nitrogen and Helium So on a deep dive we can mix our gasses in our cylinders to a 10/40 mix which means 10 % Oxygen 40 % Nitrogen and 50 % Helium.

Helium also has its disadvantages, like the price. It can give you HPNS on approximately 150 meters, and you can't breathe this mix on the surface so you need another mix to take you to the depth that it is safe to use the Trimix mix.

# Solomon Is. Diving

A scuba diver is seen from above, swimming horizontally in clear blue water. The diver is wearing a white shirt, dark shorts, a mask, and a regulator. They are surrounded by a diverse and colorful coral reef. To the left, there are large, branching white corals. To the right, there are large, fan-shaped red corals. The background is a deep blue, suggesting a clear, deep dive site.

*Photo: Gerald Rambert*

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# Learning to Dive After Retirement



If you are coming to the end of your working life, you might be starting to think about what to do with all the extra free time you are going to have.

If scuba diving is something you always wanted to try but never got around to, retirement could be the perfect opportunity to pick up this new hobby.

But have you waited too long to start? ...Heck no! Scuba diving is suitable for all ages and abilities, and it is a hobby that many people still indulge in later in life.

We are going to ease some of the worries you might have about scuba diving after retirement. After all, 60 is the new 20!

## Worries you might have

### 1. "I am out of shape"

So you are not twenty any more, maybe you suffer with some back pain or cracking knees. You might be

wondering if your physical fitness is good enough to take up scuba diving now? ...Those tanks look heavy!

Why this should not put you off.

Scuba diving does not actually require much strength and fitness to enjoy. The equipment is a little heavy on land, but once you are in the water, you feel completely weightless.

If you are worried about the equipment weighing too much for you to carry, most instructors would be happy to carry it for you, or help you in any way that you need.

Before going scuba diving you will be asked to sign a medical questionnaire that states you are fit for diving.

You can ask to see this questionnaire before the dive day, and if you feel you have a medical issue that might affect you while scuba diving you can go to see a doctor beforehand to get their professional opinion.

### 2. "I am not a confident swimmer"

Diving takes place in the water so you might be thinking that you have to be an Olympic level swimmer to go scuba diving.

Why this should not put you off.

Yes, you will be in the water for scuba diving, however, the equipment that you will use for diving will allow you to float with ease. Other than some very light kicking to keep you moving on the dive (for which you will be wearing fins), not much swimming is involved in scuba diving.

Having said that, you should be able to swim a short distance and be comfortable floating on the surface without panicking before signing up for a scuba diving course. But you absolutely do not have to be an advanced swimmer.

### 3. "I am worried about feeling out of place"

You might be worried that everyone else on the course or on dive trips will be young and uninterested in talking to anyone out of their age group.

Why this should not put you off.

When scuba diving began it was a sport exclusively for young and fit men. But we have come a long way since then; Equipment became easier to carry and people of all ages, genders, and backgrounds began taking up the sport.

You would probably be surprised at the diversity of people you can find on a dive boat.

Not only that, but all of those people have one very cool thing in common... a love of scuba diving! So there is always something to talk about.



The diving community is generally very open and welcoming, and people love to share their dive stories and underwater photos.

#### 4. "There must be so much to learn and remember"

There is a lot to learn and a lot to remember in scuba diving to stay safe and to dive efficiently. You might feel put off by the idea of all that theory and homework.

Why this should not put you off. Scuba diving courses are purposely laid out in a way that makes the information easy to learn and remember.

It has been designed that way so that it is suitable for everyone (children as young as ten can take the Open Water Diver course).

There is a lot to learn about diving physiology, safety, skills, and equipment etc, but most people

actually find it all very interesting and just want to keep learning more and more.

A scuba course does not feel like going back to school, it is a fun few days of working together, taking on new information, and putting into practice what you have learned.

Your dive instructor will be happy to explain things in different ways, or practice things multiple times for you if you need them to.

Once you have completed the course, you can take refresher courses to refresh your memory if you take a long break between dives, so there is no pressure to remember every little thing.

If you find you have a thirst for diving knowledge, there is always more to learn and more courses to take, you can go on to do the Advanced Adventurer course, or choose from a multitude of specialties.



#### Extra tips for enjoyable scuba diving over 60.

Here are a few extra tips to make scuba diving as enjoyable as possible.

**Stay warm:** Staying warm on a dive and in between dives can make a huge difference in how enjoyable a diving day is. We recommend purchasing your own wetsuit that fits you well and is a suitable thickness for where you will be diving.

**For in between dives,** have a flask of hot tea or soup at hand, as well as a thick towel, sweater, or Dry Robe to throw over you while you are on the surface. Make sure to have snacks and water, too.


**Do some yoga/stretching:** You do not need to partake in any in-depth gym workouts, but regular stretching or yoga classes can keep you flexible and increase your strength. It is easy on the body and good for day-to-day life too.

**Buy your own equipment:** If you plan to dive regularly it is worth investing

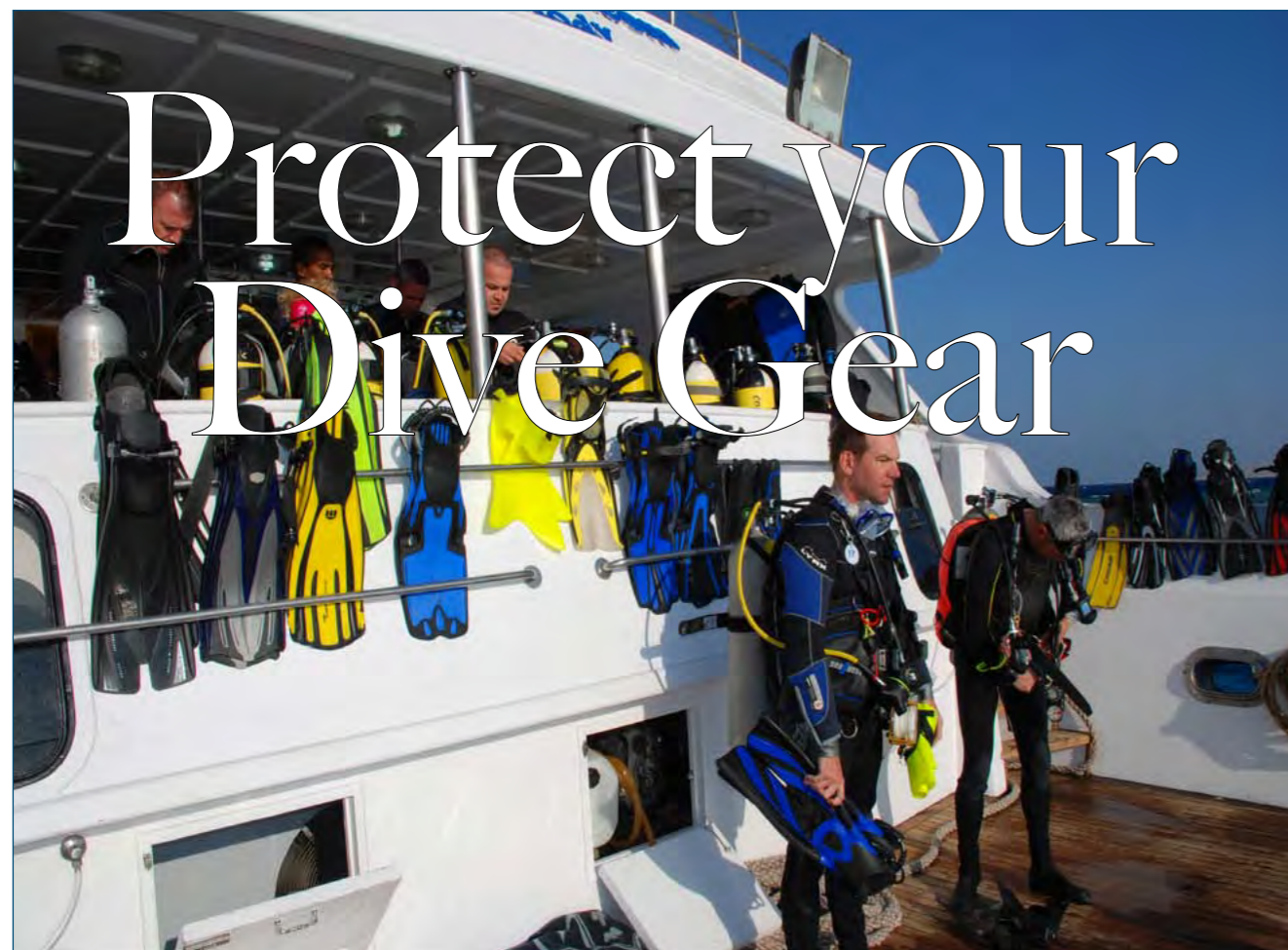
in your own equipment. To start with, having your own wetsuit and mask can make diving much more comfortable, and then you can move on to other equipment if you wish.

**Brush up on marine life:** If you are a little nervous about sharks or other "scary" marine life, it helps to research them before diving into the water. You will find that most sea creatures just want to go about their lives in peace and have no desire to hurt you, and it can be helpful to know what to expect in the area in which you will be diving.

**Choose easy dive sites:** If you get sea sick easily, you might prefer to choose land-entry dive sites if they are available to you. If you are nervous to try scuba diving, pick an area to take the course that is not prone to strong currents or large waves.

We hope that we have eased any worries you might have had about scuba diving after retirement, and convinced you to sign up for your first course! 





I don't think anyone can claim that they enjoy buying insurance.

Unlike buying a new BCD or TV, insurance is one of those grudge purchases that we get don't excited about, but that we are nervous to be without.

I think it is safe to say that only the rich or foolhardy don't insure their cars or houses, given how much it would cost to replace them if something happened.

The same cannot be said of dive gear though. Most people, it would seem, do not insure their dive gear.

At an average cost of \$2500 for a complete set of soft and hard gear, I ask myself, can most people afford to buy replacement gear if something happens, or is there another reason why people don't insure their gear?

Well, when considered, it appears that there are a number of reasons why people do not insure their dive gear;

- "It is already covered in my household insurance" – This may be true, but the cover is restricted to only cover you if something happens to your gear in your house, and usually only for things such as fire and theft.
- "I have specified it on my household contents cover" – Yes, this means that the gear is covered outside of the house as well. But make sure that you read the fine print as there are often severe exclusions that effectively result in you getting no real protection at all, such as excluded while in use!
- "It is too expensive" – This is true when you insure the gear as a specified item on your household policy (which is the only real option up until now).

You will pay rates anywhere from 3% to 11%, which in some cases will be higher than you pay for your car or your precious jewellery.

- "I only use my gear a few times a year so it's not worth insuring" – Limited use of your gear does not mean that there is no risk, it just means that there is less risk than using your gear everyday like your car.

This means that your premium should be lower. It is no wonder, given the perceptions and most relevantly the 'high' cost of insurance, that most

people have chosen not to insure their dive gear. But is this clever?

If you love to scuba, can you afford to have you ability to scuba interrupted by the loss of some or all of your gear?

If you consider how much is spent on dive gear, the importance of this gear when diving and the time you will spend out of the water should something happen to your gear, rather than "can I afford to insure my dive gear", shouldn't the real question be, "can I really afford not to insure my dive gear?" ■



# OZ DIVER



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

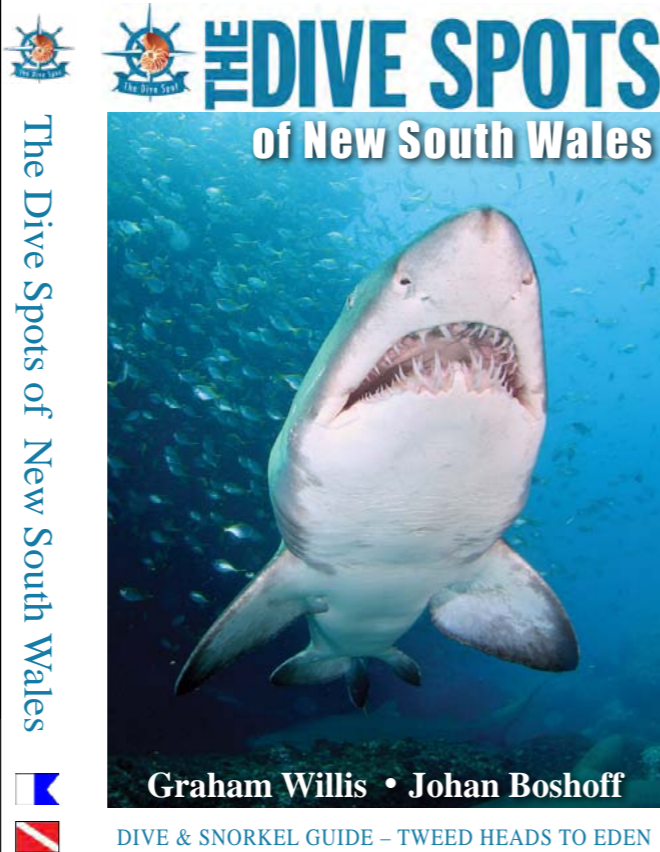
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The Dive Spots of New South Wales is an indispensable guide for all levels of divers and snorkeler, broadening their horizons on places to visit and dive/snorkel in New South Wales. Through extensive travel and diving, Johan Boshoff and Graham Willis bring you valuable information on more than 250 dive spots in New South Wales. Important guidelines on each coastal dive destination include accommodation, facilities, travelling tips and dive conditions. Complete with photographs and more than 100 illustrated maps of each dive site. All spots are star rated to cover depths, marine life and other essential information for the diving and snorkelling community.

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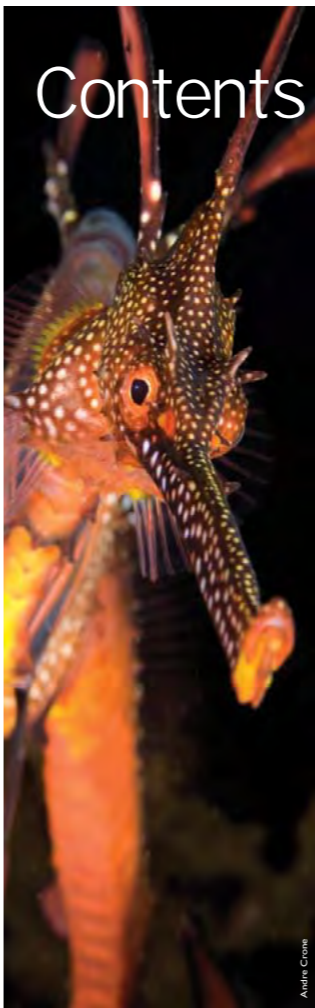
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**THE DIVE SPOTS**  
of New South Wales

Graham Willis • Johan Boshoff

DIVE & SNORKEL GUIDE – TWEED HEADS TO EDEN



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The Dive Spots of New South Wales

3

## 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

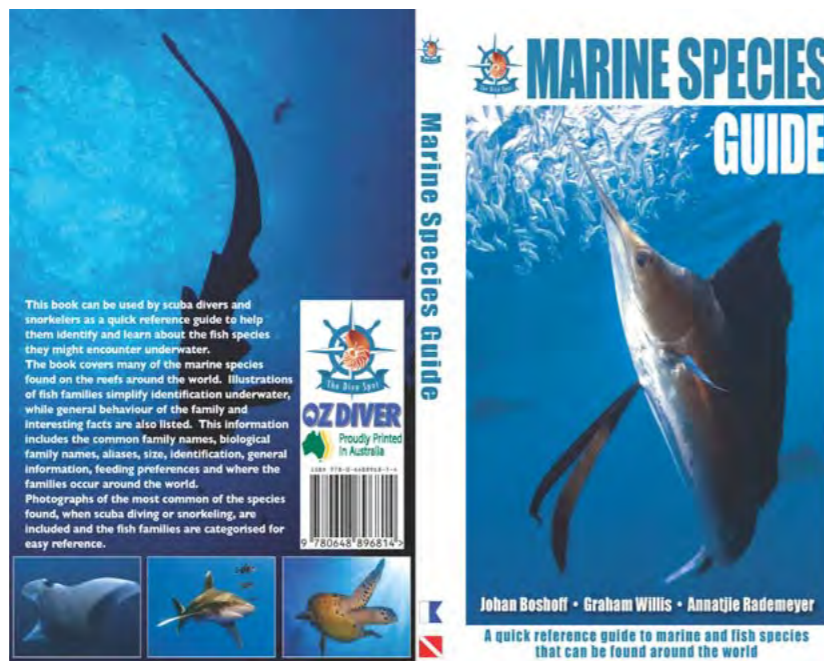
This book can be used by scuba divers and snorkelers as a quick reference guide to help them identify and learn about the fish species they might encounter underwater.

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.

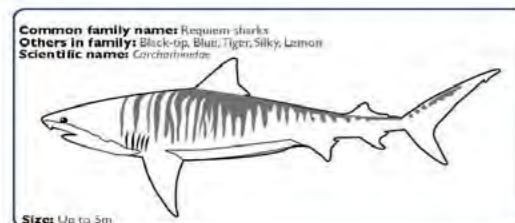
This information includes the common family names, biological family names, aliases, size, identification, general information, feeding preferences and where the families occur around the world.

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:** *Carcharhinidae*

**Size:** Up to 3m

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

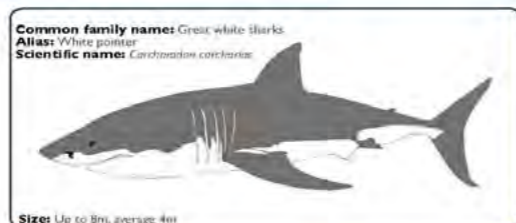


Tiger shark  
*Galeocerdo cuvier*

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* - *Megilodon* 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*

# The Frontier Below

The Past, Present and Future of the Quest to Go Deeper Underwater

The Frontier Below recounts the 2,000 year history of the human quest to go deeper underwater. Starting in antiquity, with pearl divers and sponge divers, it reveals many of the myths surrounding early diving, then explains how, during the Renaissance, people got serious about finding ways of breathing underwater. Maynard details the improvements to diving bells as they evolved over 400 years, again revealing many misconceptions which have been held about pioneers such as astronomer Sir Edmond Halley.

Diving helmets and diving suits were around for well over a century before English brothers John and Charles Deane developed the iconic copper diving helmet and 'standard diving dress' which transformed the way people worked underwater at a time in history when it was needed—the Industrial Revolution.

With people working deeper new problems arose and we entered the 20th century with scientists trying to discover ways to overcome the crippling 'bends', and inventors attempting protect divers with iron 'atmospheric diving suits'.

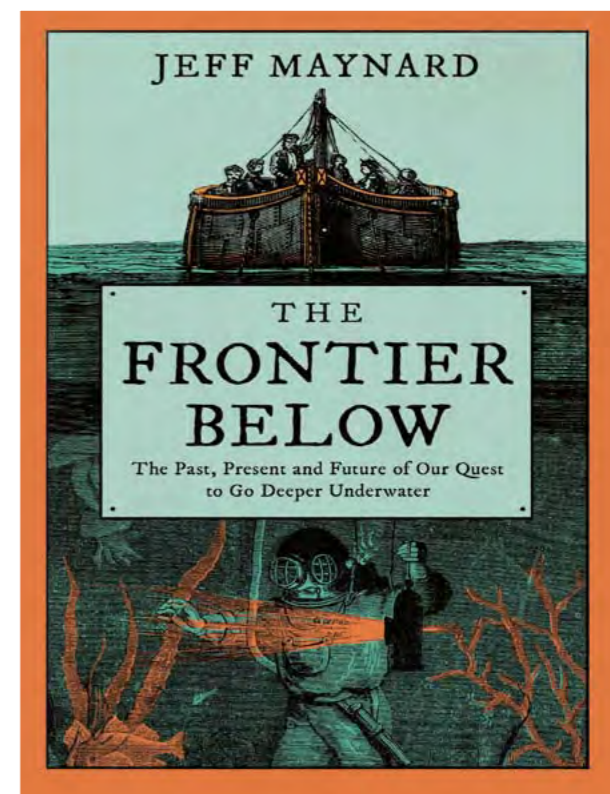
In terms of the distance from the surface to the deepest point of the ocean, by the 1920s humans had travelled less than two percent of the way, but all that was about to change.

While explaining the science behind the inventions and technology, Maynard concentrates on telling the stories of the people who instigated the breakthroughs that opened up the underwater world. Jacques Cousteau helped invent the Aqualung scuba system during World War II. Soon after he became involved with Auguste Piccard, a Swiss inventor who had built an 'underwater balloon' meant to take people straight down and up, much like a hot air balloon but in reverse. The disagreements between Piccard and Cousteau led to a rivalry that resulted in competing French and Italian bathyscaphes reaching depths of the two, three and four kilometres in the 1950s. When the Americans became involved, they sponsored one of the bathyscaphes in an effort to study deep sea sound channels for their nuclear submarines. This led to the deepest point of the ocean being reached nine years before people walked on the moon.

We now have the technology to exploit the seabed and mine the rare earth minerals and other resources found there. The Frontier Below uses history to bring awareness to the opportunities and threats we face in the future as a result of our ability to enter a world that was, until recently, an alien one.

Many books have been written about the history of climbing Mount Everest, reaching the North and South Poles, or landing on the moon. In The Frontier Below, Jeff Maynard presents enthralling account of discovery that takes the reader into the history of reaching the bottom of the ocean.

Jeff Maynard is an Australian author and documentary maker. He is a member of the Explorers Club, and a founding member of the Historical Diving Society. His non-fiction books include The Unseen Anzac, Antarctica's Lost Aviator and Niagara's Gold. He can be reached via [jeffmaynard.net](http://jeffmaynard.net) 



## A DIVER'S GUIDE TO THE WORLD

Over the course of 14 months, National Geographic dive travel experts Carrie Miller and Chris Taylor traveled to 50 inspirational locations around the world, spending more than 250 hours underwater, to create their one-of-a-kind guidebook: **A DIVER'S GUIDE TO THE WORLD: Remarkable Dive Travel Destinations Above and Beneath the Surface.**

This book was born from love—a love of travel and a love of the ocean, the phantasmagorical blue expanse that covers more than 70 percent of our planet's surface, unexplored and unprotected, mysterious and magical.

Although the land and sea are wonderfully and inextricably interconnected, travelers tend to visit one or the other. Scuba divers seek out underwater realms, impatiently counting down surface intervals until their next dive. Land-lovers might venture out for a snorkel or sail, but they're glimpsing only a pixel of the bigger picture. Exploring both underwater and on land is the most holistic way of experiencing a destination and the interconnectedness between the green and blue.

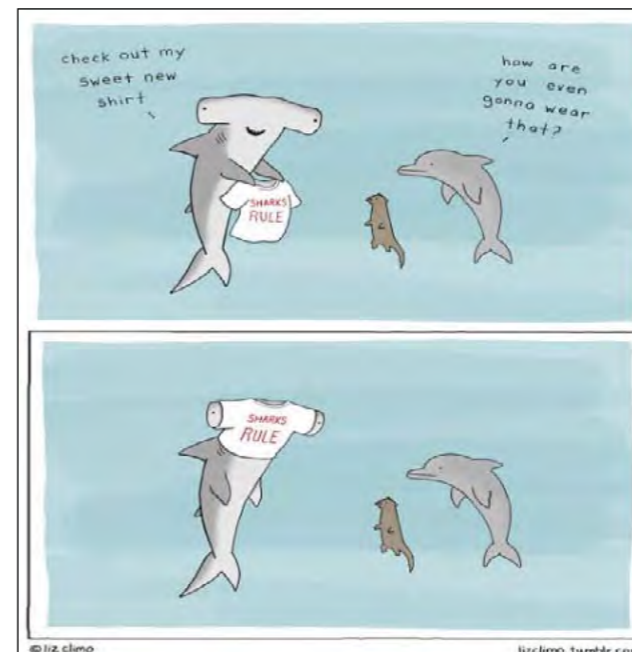
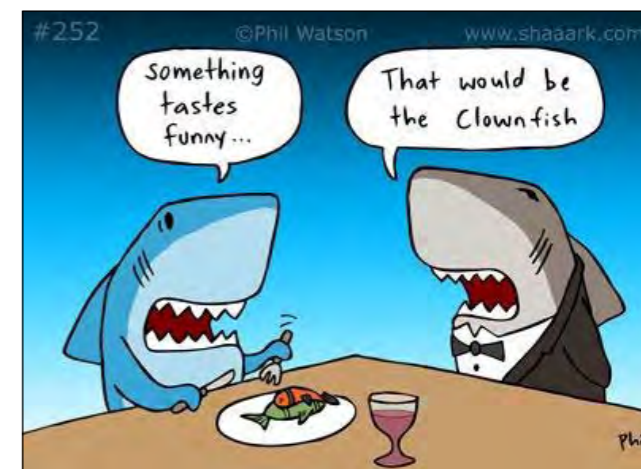
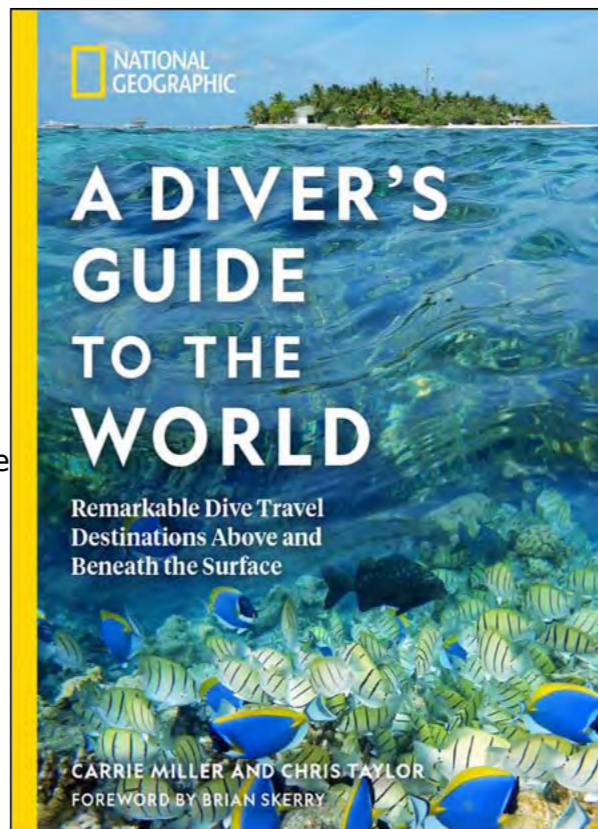
This is a book for those explorations—for ocean travelers. It's a different kind of guidebook, written for divers who like to travel, divers traveling with non-diving companions, and travelers with an interest in the underwater world.

Each of the 50 locations is its own chapter – marvel at manta rays and dragons in Komodo; learn martial arts and go shore-diving in Okinawa; go on a tour of WWII history on land and underwater in the Solomon Islands; linger in the land and sea gardens of Bormes-les-Mimosas, France; and road-trip around the marine reserves and coastal towns of New Zealand's North Island.

Each chapter contains compelling stories, stunning National Geographic photography, and expert advice, including travel tips, dive information, and activity suggestions, from remarkable shared experiences to solo excursions if divers and travelers choose to go their own ways for an afternoon.

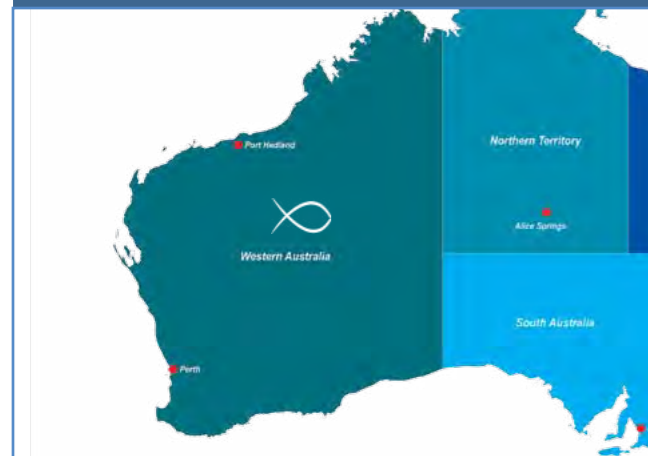
Miller and Taylor believe in conservation through exploration, so each location also highlights a global issue such as the necessity of protecting remarkable ecosystems like coral reefs and mangroves, to sea turtle and shark conservation. They feature scientists and organizations that are striving to make a difference and suggest ways you can learn more and get involved. Whether you're dreaming of your next dive holiday or looking to travel the world a little differently, this book will inspire you to get out and explore—above and beneath the surface!

**A DIVER'S GUIDE TO THE WORLD**  
By Carrie Miller and Chris Taylor ([www.beneaththesurface.media](http://www.beneaththesurface.media))  
Publisher: National Geographic Books  
Release Date: December 6, 2022  
The book is available from Amazon or <https://books.disney.com>



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