April / June 2023

OZDIVER

AUSTRALIA'S PREMIER DIVE MAGAZINE

SOGOD BAY

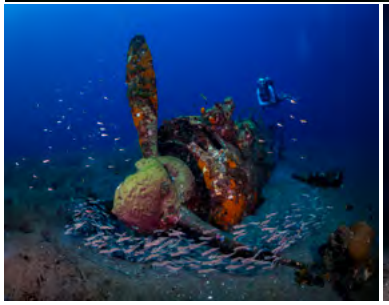
NUTTLAR SLATE MINE

BEST DIVE BUDDY

BEQA

THE APARTMENTS

THE SOLOMON'S




April / June 2023 Edition

Editor's Deco

Remember to visit OZDiver's website and make sure that you download your free copy for some of my dive books that I have published, as all the hardcopies are sold out;

I decided to give a free digital version for my readers to download.

This magazine I full of interesting stories and articles. With marine and ocean facts and we travel from Eastern Australia to The Solomon Islands. We look at how to take better photos and if you can't how to edit it so it will look better.

Like every other magazine this one is full of articles for the beginner diver to the more technical diver and I hope that you enjoy this edition of OZDiver.

If you want to publish your articles or photos in OZDiver magazine do not hesitate to contact me.

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Johan Boshoff

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

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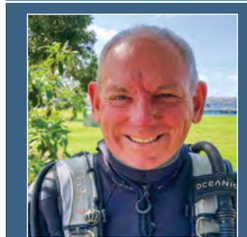
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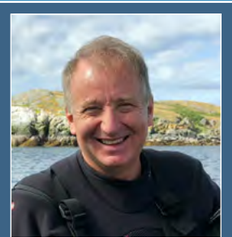
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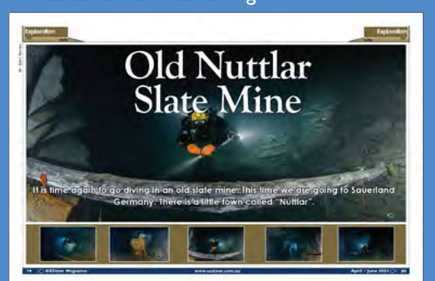

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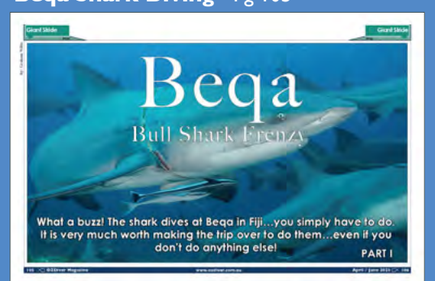


By: Linda Stickells Photos Christopher Bartlett

It is often said that the more experienced one gets, the more careless one tends to become about proper pre-dive briefings, dive planning, buddy checks and other safety precautions. This certainly was the case on this particular occasion.

The aim of the dive was to clock one hour of bottom time, and after loosely agreeing to a general threesome buddy plan, we entered the water.

We descended together at the entrance to the cave, but after a while we drifted away from one another and became engrossed in doing our own thing.

I was playing with a small fish which was taking great delight in peering at me through my mask and nibbling a few strands of loose hair. Intuition suddenly made me look around to see what the other two were up to. As I did so, I saw my boyfriend coming towards me, giving me an out of air signal. My initial reaction was one of disbelief, as we had only been down for about 15 minutes. Thank goodness for the good training and experience that made me react immediately and give him my octo.

What is frightening is that at first I had thought that he was doing a routine skills practice and I almost didn't respond to his signals. While sharing air, I checked his pressure gauge and saw that he had plenty of air. I carefully took a breath from his regulator – it appeared to be working perfectly. I was really puzzled.

It was only when I offered him his regulator that I noticed that his mask was off. I signaled him to hold his position while I searched for the mask, which by now had drifted out of the cave and was lying on the sandy bottom. Once I had returned his mask, we decided that it would be a good idea to abort the rest of the dive and return to the surface, much to the surprise of our other dive buddy who had been blissfully unaware of what had just happened!

At the surface my boyfriend had to explain why the dive had come to such an abrupt end and it was only then that we realised how serious the situation had actually been. What happened was that for some silly reason, he had decided to remove his mask.

Unfortunately, though, he had dropped it and in his frantic attempt to retrieve it, his regulator hose had hooked onto something and the regulator was pulled from his mouth.

He was left with no mask, no air and no buddies. Without a mask he could only make out dark shapes and after several futile attempts to retrieve his regulator, he decided to make for the surface.

However, he forgot he was in the cave and consequently only succeeded in hitting his head on its roof. By this stage, air starvation had set off alarm bells in his head and he frantically tried to attract the attention of somebody. Fortunately, it was at that exact moment that I happened to turn around – a very near disaster was thus avoided.

Needless to say, a valuable lesson was learned by all of us. No matter who you are diving with, always remember:

- Accidents can and do happen very easily, even to experienced divers.
- Diving as a threesome is not recommended.

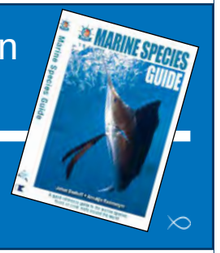
- Always discuss your activity before the dive and stick to the plan.

- Stay close to your buddy. Remember, you are diving solo when you have no reasonable expectation of immediate and useful assistance from another diver.

- Dive with an octo and ensure that you can reach it easily.

- Any emergency situation must be treated with utmost urgency and a cool head.

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



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

OZ NEWS

SCUBAPRO EVERFLEX YULEX® DIVE SUITS – MAXIMUM COMFORT. 100% NEOPRENE-FREE

More than 20 years after the introduction of limestone-based neoprene to replace petroleum-based neoprene, SCUBAPRO has launched a new line of premium Everflex wetsuits made from an innovative and environmentally friendly material.

The award-winning comfort, features and thermal protection that made Everflex SCUBAPRO's best-selling wetsuit is now built with YULEX® dive plant-based foam extracted from Forest Stewardship Council (FSC) certified renewable rubber tree farms.

The FSC is an international organization that was established as a response to global deforestation. FSC certification ensures that the natural rubber for Everflex YULEX® dive wetsuits comes from responsibly managed forests that provide environmental, social and economic benefits.

Made from 85% YULEX® natural rubber, 15% synthetic rubber and 100% neoprene-free, YULEX® dive foam is specifically formulated to resist wetsuit compression, making it the ideal material choice for diving suits.

Everflex YULEX® dive wetsuits are super comfortable and provide first-class thermal


PHOTO COURTESY OF TIM DAVIS

protection. This, of course, is no accident. SCUBAPRO's exclusive "Pure Design Concept" in wetsuit manufacturing is well-known for its use of fewer seams and panels for maximum range of motion, plus it incorporates multi-thickness panels to maximize flexibility and warmth where it's needed most.

Wetsuit outer seams are double blind-stitched for maximum durability and watertightness, while the single blind-stitched inner seams are comfortable against bare skin. Inside, a Diamond Span lining delivers a plush layer that enhances cold-water thermal protection, plus it drains water quickly after a dive. It is combined with a second lining for improved stretch, making donning and doffing much easier.

Put it all together and you have a premium, environmentally friendly, ultra-comfortable CE Certified wetsuit line rated for water temperatures ranging from 45ºF/7ºC to 75.2ºF/24ºC.

In keeping with SCUBAPRO's environmental focus, YULEX® dive wetsuits are assembled using solvent-free glue, a much better adhesion process. In addition, both the interior and exterior linings of each wetsuit are made from recycled plastic bottles, one more step toward environmental sustainability.

Finally, Everflex YULEX® dive wetsuits use dope-dyed yarn technology in the manufacturing process. Adopting dope-dying uses less water and reduces energy consumption during the dying and coloring process.

SCUBAPRO continues to write the dive industry's story when it comes to environmentalism and sustainability, especially in the field of thermal protection. SCUBAPRO's full line of Everflex wetsuits made with YULEX® dive foam exemplifies SCUBAPRO's leadership in the use of advanced materials and natural rubber in the manufacturing of thermal protection to create a more enjoyable diving experience while delivering on SCUBAPRO's long-standing commitment to help protect our planet.

First whale shark tracked by satellite for twelve months on the Great Barrier Reef

This past weekend marked 12 months of continual satellite tracking of a whale shark tagged in the Far North of the Great Barrier Reef. This was done as part of a study conducted by Biopixel Oceans Foundation to research some of the biggest animals in the most remote part of the reef.

Initial research started five years ago with seed funding from 'Run for the Reef' marathon. Senior researcher Dr Adam Barnett said, "Initially we thought finding an aggregation was like trying to find a needle in a haystack even though we were looking for the largest animals on the reef. However, by looking at historical records and oceanographic information we took a best guess at the timing and location, and it paid off."

Using a combination of spotter planes and drones, the tagging team would speed to the location of the animals on a tender from the charter vessel Argo. The team successfully tagged ten whale sharks.

"Historically whale shark satellite tags only last a few months but upon a shark called 'Ali' we have our first 12 month track. After leaving Wreck Bay, Ali swam out into the Coral Sea, up to New Guinea and now has returned to the location where we first tagged her. We are still hoping for a few more pings from Ali's sat tag."

The team identified that the whale shark aggregation was of mixed sex which is unusual for known aggregations around the world.

The study has also confirmed the presence of another large plankton eater; the Omura's whale. This species, growing to over ten metres long, was only described in 2003.

Using drones under special permits, the team was able to observe these whales feeding on rafts of plankton and swimming with calves. The far north of the Great Barrier Reef is now the second only known aggregation point for these whales in world. The first known location is in Madagascar.

Senior Researcher Richard Fitzpatrick said, "The reason these large plankton feeders are showing up at these locations in the Far North of the Great Barrier Reef in the summer months is to feed on plankton. During these summer months, upwelling events can occur bringing up cooler water from the depths and the associated plankton. It is really important for us to know when and where these events occur as it can identify areas of the reef that may be more resilient to climate change. We are using Whale sharks, Omura's whale and even

Manta rays to teach us about these upwellings."

"This is just the beginning of the research on these animals – now we know where to find them, we can start deploying more advanced technology and bring in other researchers from other disciplines such as oceanography and plankton specialists to learn more about these upwellings," said Dr Adam Barnett.

It is hoped that further funding from corporates and NGOs and support from Traditional Owner groups and state and federal government departments will allow this research to expand.

This latest expedition, conducted by Biopixel Oceans Foundation, was funded by Swiss watch maker Blancpain and the Slattery Family Trust. The research was conducted in collaboration with Marine Mega Fauna Foundation, Ecocean, Project Manta and Citizens of the Great Barrier Reef.

Adam Barnett and Richard Fitzpatrick are both available for interview at the Biopixel Oceans Office at James Cook University, Smithfield Cairns

Ali's 12 month track https://citizensgbr.org/explore/reef-tracks/biopixel-ali
Footage of Whale shark tagging https://vimeo.com/376048977
Footage of Omura's Whale https://vimeo.com/24999341

Dive Schools / Operators / Organisers / Instructors

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

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

Please send to info@ozdiver.com.au

Solomon Is. Diving

Photo by Matt Smith

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Dive the Continent
Dive OZ

By: Graham Willis

The Apartments

On its day the Apartments at Long Reef is one of the best dives in Sydney and gets its names from large stacks of boulders on the North-eastern edge of the Long Reef shelf.

Page 162 in the Dive Spots of New South Wales

By: Graham Willis

This site is always teeming with fish with 100's, if not 1,000's, of Pomfret, Yellow Tail, Sweep and Sea Pike.

A major attraction of this site is the number of Grey Nurse Sharks that call it home. They are there all year, but April or May seems to be peak season for them.

You are going to access the site by boat BUT there is a marine reserve that you can pootle around from the shore. It's not really the same dive but sometimes goes by the same name.

If you are snorkeling or want an easy access shallow shore dive, then you can snorkel in the Aquatic Reserve on the Eastern end of Fisherman's Beach and head to the East around the headland.

Head into the water just past the toilet block which is, in turn, just past the Warringah Surf Rescue Radio Base.

Long Reef Aquatic Reserve is the oldest aquatic reserve in NSW and stretches from the South end of Collaroy Beach to the Southern end of Long Reef Beach.

The main game is the Reef further out from the shore…and no you cannot head out to it from the shore…it is too far. At the Apartments and Long Reef, it is common to see Grey Nurse Sharks in healthy numbers, in fact you should feel a little unlucky if you don't see them.

They are almost always swimming amongst large shoals of Pomfret.

This site consists of a gully that runs roughly North to South and is about 8

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By: Graham Willis

metres deep on each side of the gully which then drops to around 14 metres. The Sharks parade up and down the middle at a very leisurely pace.

If you have not dived with Grey Nurse Sharks, it is quite an experience…even if you have dived with them, it is quite an experience.

The Sharks look like the classic shark that anyone might draw with fearsome teeth often with tufts of algae or seaweed hanging out of their mouths.

Unfortunately, they also quite often have hooks and trailing lines hanging out of their mouths as well.

The sharks normally move very slowly and are quite happy coming to within a metre or two of you…providing you are calm, not flapping around and stay put.

If you get down into the gully, rather than to the side of it, you will cause the sharks to turn around and everyone will miss out…so don't be that diver!

As I said the sharks normally move at a very leisurely pace BUT if the get spooked you will most likely hear a 'crack' and they will be gone.

The 'crack' is the shark whipping its tail around which creates and instant burst of speed…just to remind you that they can move very rapidly when they wish to.

Another couple of behaviours to be aware of are the Grey Nurse 'yawn' when they their bottom jaw stays put but their nose pulls back as their top jaw is pushed forward…it's quite a site.

No one is quite sure why they do this, but it is not an aggressive action, nor is it a result of stress…maybe the are just tired!

The other behaviour to watch for

Dive the Continent
Dive OZ

By: Graham Willis

is when they head down to a more gravelly or coarse sandy bottom and give themselves a vigorous scratch, most likely to remove parasites.

Please make sure you are familiar with the Grey Nurse Shark Code of Conduct (Page 290 in Dive Spots of New South Wales) which in summary says don't touch or harass the sharks in any way.

That way you can enjoy the experience, not wreck it for your fellow divers and the Sharks do not get spooked into the bargain.

The Apartments has plenty of swim throughs and the largest and most spectacular of them is called the Cathedral.

It is made up of two large slabs of rock that form a pyramid and, with the right weather, the light streams through some of the openings and creates an

By: Graham Willis

ethereal effect.

The front of the Cathedral is often blanketed in Pomfret to the South ...which is quite often how you find it...swim through the fish!

It is quite a roomy swim through, with a turn to the right as you come to end of the 'Nave' just where the 'altar' is, if you will.

There is also another good swim through, which is a little squeezy if you have a bigger camera, and a little hard to find but it's where the Giant Cuttlefish tend to hang out.

Given you have a lot of nooks and crannies you can also find Eastern Blue Devil fish here …always spectacular colours on display.

The entrance is of medium size and then the roof remains quite low for four to five metres before opening into a longer 'cave'.

There are a couple of exits to this 'cave' at the end of the long cave which are to your right and up a sort of chimney.

This can be tricky to find, but if you are going with people that know the site you should be fine.

In addition to the sharks and the shoaling fish you often find Giant Cuttlefish in and around the overhangs and swim throughs, in addition to Wobbegongs, Port Jackson Sharks, Kingfish, Bull Rays, plenty of Red Morwongs, Old Wives and Stripeys as well as the resident Blue Gropers.

If you are more Macro oriented there are also a fair range of Nudibranchs to be found at this site as well…but I would suggest that this is not the main game.

It is a top-quality dive site with a maximum depth of 24 metres and an average depth around the 16-metre mark, so you should get a decent length of dive out of your tank.

By: Graham Willis

Dive the Continent
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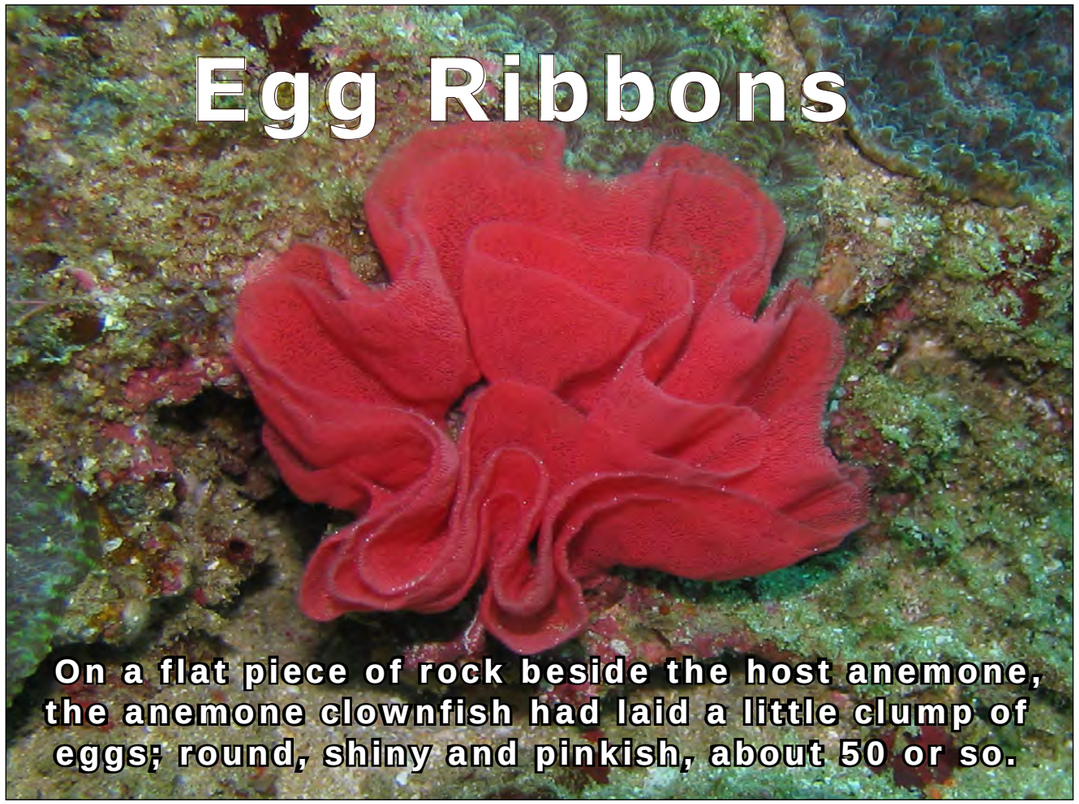
By: Jill Holloway

Egg Ribbons



On a flat piece of rock beside the host anemone, the anemone clownfish had laid a little clump of eggs; round, shiny and pinkish, about 50 or so.

These were brushed by the anemone tentacles as the current moved them. Anemone fish have the perfect place to lay their eggs – safe from predators, the eggs are already being impregnated with the poisonous protein from the anemone that will protect the young; this was an ideal brooding place.

Once hatched the young are protected from predation not only by their fiercely protective parents, but also by the stinging cells in the anemone.

Anemone clownfish are all born male, and only once they are ready to breed or the female dies, does the largest male convert to female, and she then mates with the sexually mature male and lays her eggs.

These are reared in the anemone by the parents, but judging from the number of eggs laid and the sparseness of the brood, it seems that the clownfish young are not always safe against predation.

Fiercely territorial, the clownfish take care of their host with dedicated ferocity, driving off threats and cleaning it of dead tentacles and rotting food while its own droppings form a rich source of food for the anemone.

Further along, we found a patch of leather coral looking very tattered, with two eggshell cowries, each covered by a black and gold starred mantle, and beside them, a patch of bone white eggs, again some 50 or so.

These had no cover, were fully visible, and I wondered what protected them from predation. I soon found out.

Cowries, unlike nudibranchs, come in separate sexes, with the female larger than the male. They mate and the female lays her clutch of eggs on a good source of food. Then she sits on them until they hatch, much like a mother hen. The young larvae disperse into the currents, and only pupate after a very long larval stage.

We have all been the subjects of the importunate wrasses as they try to entice divers closer to the nesting hollows in the reefs to drive off the hapless sergeant majors during breeding season. Their eggs are again in full view, not concealed or camouflaged and their only protection is the vigilance of the parents.

The largest and most fascinating of the egg layers is the oceanic sunfish or Mola Mola, who lays up to 300 million eggs, and obliviously allows them to drift on the currents and hatch untended. So few survive that these huge animals are becoming increasingly rare.

But the most fascinating eggs of all were the egg ribbons laid by the least active and smallest of the undersea creatures – the nudibranches. Olivia Anderson spent hours stalking and filming, and was eventually rewarded with some absolutely amazing pics of the nudibranchs laying egg ribbons.

Their eggs look for all the world like rosettes; they make no attempt to

Weird and Wonders
Marine Life Facts

protect them, and the egg ribbons consume so much material you wonder how the very small nudibranchs can extrude so much material without losing their lives.

Nudibranchs mate by nuzzling up close to each other and then each extends a penile structure which penetrates the mate, a mutually beneficial arrangement which ensure maximum benefit for minimum effort.

Once mating is over, they lay the egg ribbons which hatch into hundreds of minute larvae, which are then dispersed by currents. Few survive.

Continental Shelves

By: Neville Ayliffe

Ancient mariners used to sound the depths of the waters.....

Ancient mariners used to sound the depths of the waters by using a lead weight with wax on it (to sample the bottom), attached to a marked hemp rope. The marks were set at about 2m apart (1 fathom).

This method had limitations as the “leadsman” had to ensure the rope was taut and dropped in a perfectly vertical line.

This was fine for shallow seas, but to sound the deeper regions, the weight was attached to roll of steel piano wire.

This wire was less prone to bowing in the current or error due to the ship drifting in the wind.

This age-old problem has been overcome with the invention of echo-sounders. These instruments measure the time taken for the echo of a sound pulse to return from the ocean bed, thereby indicating the depth with great accuracy.

o sound a depth of 4500m takes only 6 seconds with the echo-sounders, instead of two hours it took during the 1800’s.

During the early days, it was noted that the continents are surrounded by a relatively shallow shelf, slowly shelving off to a depth of 150 - 200m, before dropping into the depths. This zone was termed the ‘Continental Shelf’.

Early navigational charts were only marked in 10, 100 and 1 000 fathoms, so the depth contour for the continental shelf was marked at 100 fathoms (about 200m).

Over the last 300 000 years, the earth has been through four glacial periods (ice ages), the last of which took place only 12 000 – 15 000 years ago.

During this period, such a large quantity of water was held up in the glacial areas that sea levels were 120m lower than present.

Scientists believe that the other ice ages held even more water, thus exposing the entire continental shelf and the shore-lines of some areas would have moved up to 150km further out in places.

On the other hand, there were also times when the earth was warmer than present. Melting ice would have raised sea levels by up to 50m.

In simple terms, the continental shelf is the extended perimeter of each continent which is covered by shallow seas during interglacial periods (like the one being experienced at present).

The shelf usually ends at a point of increasing slope known as the shelf break, below which is the continental slope. This continues to the continental rise before hitting the abyssal plain, or ocean floor.

Continental shelves range in length, from the coast of Chile where it is almost non-existent, to the Siberian shelf where the shelf extends out for 1 500km.

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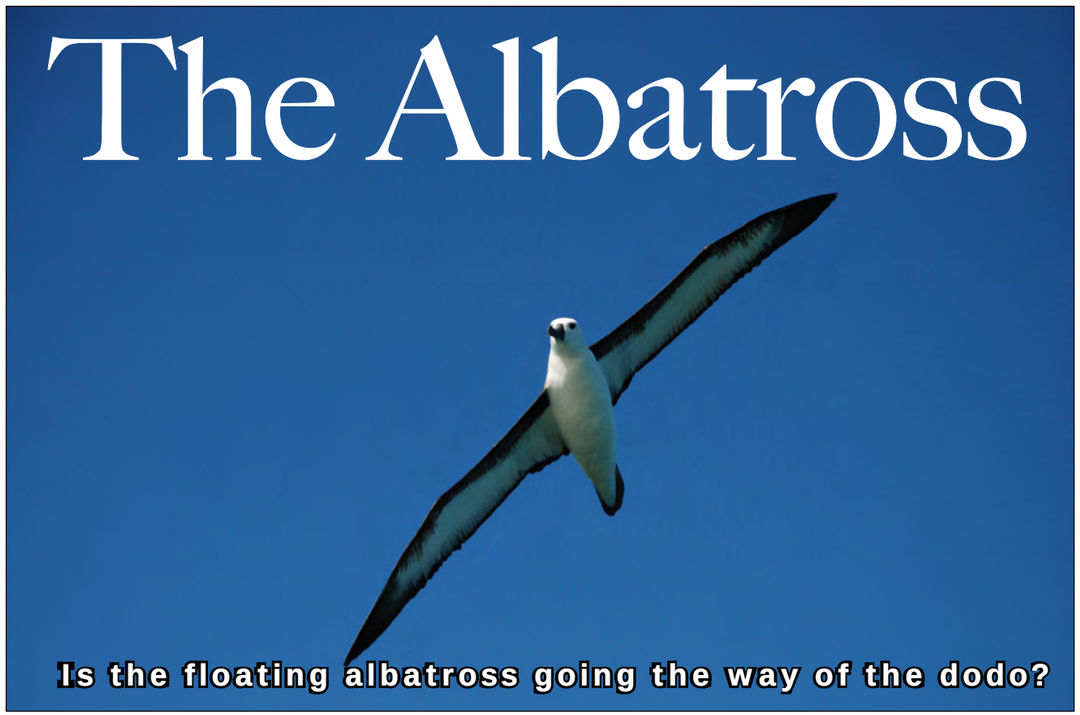
The Albatross

By: Eric van Gils



Is the floating albatross going the way of the dodo?

The albatross has peacefully roamed our planet's oceans for around 6000 years.

Unfortunately this ancient bird's long existence is now severely threatened.

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

If being hunted for food and sport was not enough, the early 19th century brought the harvesting of entire colonies for their feathers, used as down or in the manufacture of women's hats.

This harvesting lead to the near extinction of the short-tailed albatross.

The 20th century once again presented its own albatross killer in the form of longline fishing.

Longline fishing is a fishing technique where a main line, which can be up to 130km long, is baited with thousands of hooks attached at intervals behind a fishing vessel.

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

We still have much to learn from these amazing flying animals. The flying technique of the albatross, known as dynamic soaring, allows it to fly many thousands of kilometres with less effort than it takes to sit on a nest.

An albatross can soar for hours without beating its wings by gliding across wave fronts, gaining energy from the vertical wind gradient.

They almost appear to float. Some species have been recorded flying over 20 000km in less than six weeks. The albatross has mastered flying to such an extent that many man-made gliders are now based on the albatross.

The International Union for Conservation of Nature (IUCN) recognises 21 species of albatross. 19 of these are under global threat of extinction and the other two are near threatened.

The WWF also classifies the albatross as a priority species, meaning it is one of the most ecologically, economically and/or culturally important species on our planet.

The albatrosses, of which the flying bird with the longest wingspan, the wandering albatross, is family, faces the same threats to its existence as all sea birds.

Longlining, trawling, floating plastic, climate change and the introduction of predators to their habitat all threaten this species with a similar fate to the dodo.

So what makes the Albatross more vulnerable than other sea birds?

Albatrosses take up to 10 years to reach breeding maturity. A pair will produce only one chick per year, and some species of albatross only breed every other year.

This slow breeding bird is unable to reproduce quick enough to guarantee its own survival. Albatrosses and not only stuffed albatrosses standing next to stuffed dodos in museums.

"We are thrilled to be returning in a few months! The reef systems here are the most unspoiled we have seen in our travels around the world and the resort is paradise. We can't wait to see all our friends at Wakatobi." ~ Robert and Barbara Hay

wakatobi

www.wakatobi.com

An experience without equal

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

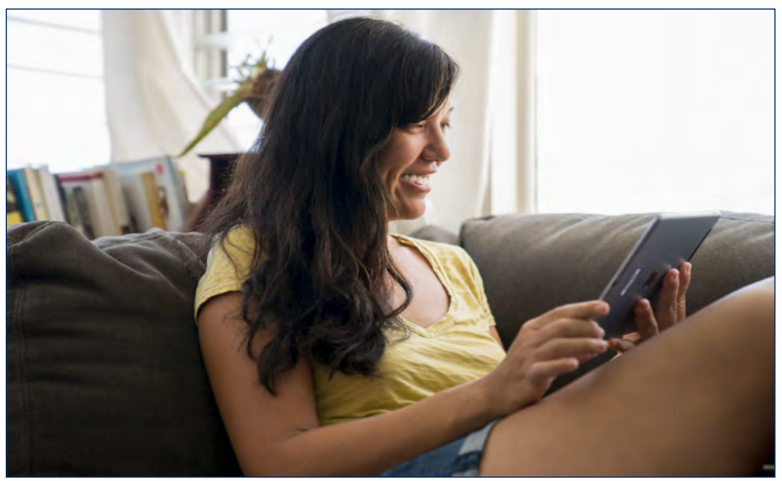
GLOBAL NEWS

Top 5 Specialty Courses Now Available on eLearning

These five PADI Specialty Courses – now all available on eLearning – each offer unique new skill sets that are sure to benefit any diver. If you're looking to enhance your underwater explorations, and grow your diving knowledge, you'll definitely want to consider one of these top courses.

With the option of eLearning, you can first complete the online portion of the course at your own pace through our easy-to-use interactive program. Then, use our dive shop locator to connect with a PADI Dive Center or Resort near you to complete your in-water training. With the added flexibility that eLearning offers, and the cool diving opportunities probably available in your local area right now, these specialty courses allow you to seek adventure in your own way.

Enriched Air Diver
As divers, we love slipping beneath the surface to experience the underwater world. So it's no surprise that so many divers jump at the opportunity to stay underwater for longer – with enriched air. In fact, it's the most popular PADI Specialty Course for certified divers, because who doesn't want more bottom time?



Commonly called Nitrox, enriched air is a form of breathing gas that has higher oxygen content and lower nitrogen content. During this course, you'll learn about managing oxygen exposure, how to analyze oxygen content in a scuba tank, and how to set your dive computer to enriched air nitrox settings.

While the entire course can be completed via eLearning, divers can choose to complete two optional open water dives with a PADI Dive Center or Resort to put their new skills to use.

With the skills learned from the PADI Enriched Air Diver Specialty Course, you'll typically be able to dive longer, enjoy a shorter surface interval, and get back in the water sooner – an ocean-lovers dream.

Dry Suit Diver
In a wet suit, you get wet. In a dry suit, you stay dry. While they both do keep a diver warmer, a dry suit will ensure that you'll stay toasty warm throughout your entire dive in cold water conditions. Since water draws heat away from the body about twenty times faster than air, a dry suit diver can stay warmer for longer. With so much incredible diving to be done in cooler regions, becoming a dry suit diver will expand your opportunities to explore the underwater world. A dry suit might even enable you to dive in your local area year-round – and who doesn't want to explore their own backyard?

During the online portion of this course, you'll learn about different dry suit styles, best practices for maintaining a dry suit, dive safety procedures when using a dry suit, and the fundamentals of how to control buoyancy when dry suit diving. Then, you'll do one confined water dive and two open water dives with a PADI Dive Center or Resort to complete the full certification – putting your knowledge into action. With the skills learned during the PADI Dry Suit Diver Specialty Course, you'll be better suited (pun intended) for cool and cold water diving.

Search and Recovery Diver
Whether you need to locate and recover a piece of equipment that was dropped during a dive or fell overboard, or you're working to remove large marine debris objects during a Dive Against Debris mission – the ability

to skillfully search for and successfully recover things from the underwater world is an ideal skill set for most divers to add to their repertoire. Plus, you're helping to keep the ocean clean!

During the online portion of this course, you'll learn effective search patterns using a compass and natural navigation techniques, the dynamics of using a lift bag to bring heavy items to the surface, and how to plan a search and recovery operation based on what information is available. Then, you'll do four dives with a PADI Dive Center or Resort to complete the full certification – putting your knowledge into action. With the skills learned during the PADI Search and Recovery Diver Specialty Course, you'll be able to help our global community of torchbearers to seek adventure and save the ocean by removing items from the ocean floor that don't belong there.

Drift Diver
Ready to go with the flow? Drift diving is when divers utilize ocean currents or the flow of a river to glide through the underwater world. While drift diving can be one of the most enjoyable and relaxing ways to dive, familiarity with drift diving procedures is essential to ensure safety.

During the online portion of this course, you'll learn the basics about currents and tides, how to plan a drift dive, the mechanics of equipment like floats and flags, and the importance of continually being aware of your surroundings as you drift along. Then, you'll do two open water dives with a PADI Dive Center or Resort to complete the full certification – putting what you learned into action. The skills learned during the PADI Drift Diver Specialty Course will make safely going with the flow an absolute breeze.

Peak Performance Buoyancy Diver
Maintaining near-perfect buoyancy allows you to dive in style, optimize air consumption, and respect the surrounding marine environment – it's a win-win-win! In addition, divers with excellent buoyancy control tend to have a much more relaxing experience underwater. With the ability to focus their attention on the unique underwater sights, there's no need to be continuously assessing where they are in the water column.

During the online portion of this course, you'll learn about techniques like gliding and hovering, how to ensure that you'll be properly weighted on a dive, and how buoyancy control improves air use. Then, you'll do two open water dives with a PADI Dive Center or Resort to complete the full certification – putting what you learned into action. The skills learned during the PADI Peak Performance Buoyancy Diver Specialty Course are sure to make you a better, more advanced scuba diver that's not going to bump the reef.

10 Reasons Why You Must Visit Solomon Islands

1. Cultural / Multicultural
Journey through an era where headhunters collected trophy skulls. Witness cultural performances and art that remains very much alive and intact. Prevalent and unchanging pristine village life.

Dugout canoes that still serve as the main mode of transportation and our economics are still based on sustenance sea and agro lifestyles. Welcome to a place where the past and present is connected and where Mela, Poly, Micro, Asian and Euro influences all share their lives together.

2. Natural
Who doesn't love a good ole' traditional sand and sun vacation? Wiggle your feet in remote white sandy beaches and bask in the Solomon sun. We invite you to relish in our bounties of nature.

3. Pictorial
Beauty is EVERYWHERE and at every turn. Painted sunsets and magnificent waters are just some of the troves waiting to be adored.

4. Explorable
Excellent adventure options are right at your fingertips. Come with us and we'll trek to grand waterfalls. Hop around some of our 900 islands. Hike up beautiful mountains. Explore our lands. Explore our home. Together.

5. Historical
Our nation was home to some of the fiercest and bloodiest WW2 battle in the fight for freedom. Visit museums that house remnants of this heroic quest and relive the moments where people bravely sacrificed their lives. Our museum will also take you back through 10,000 years of Solomon civilisation.

6. Loveable
Make romance an adventure with your beloved. Travel to a secluded island and enjoy the isolation. Live as our ancestors lived. It's a world of your own.

7. Immersible
Descend into our unparalleled underwater universe. Snorkel amongst colourful corals and WW2 wrecks. Dive alongside diverse sea life. Fish for your next meal. The options are just limitless.

8. Hospitable
Now there's one thing we absolutely want to boast about. We just love to smile and share and there is nothing like a Solomon Smile. Our home is as bountiful as God's gifts to us, and we just can't keep it all to ourselves. Please visit us and we'll share our blessings with you.

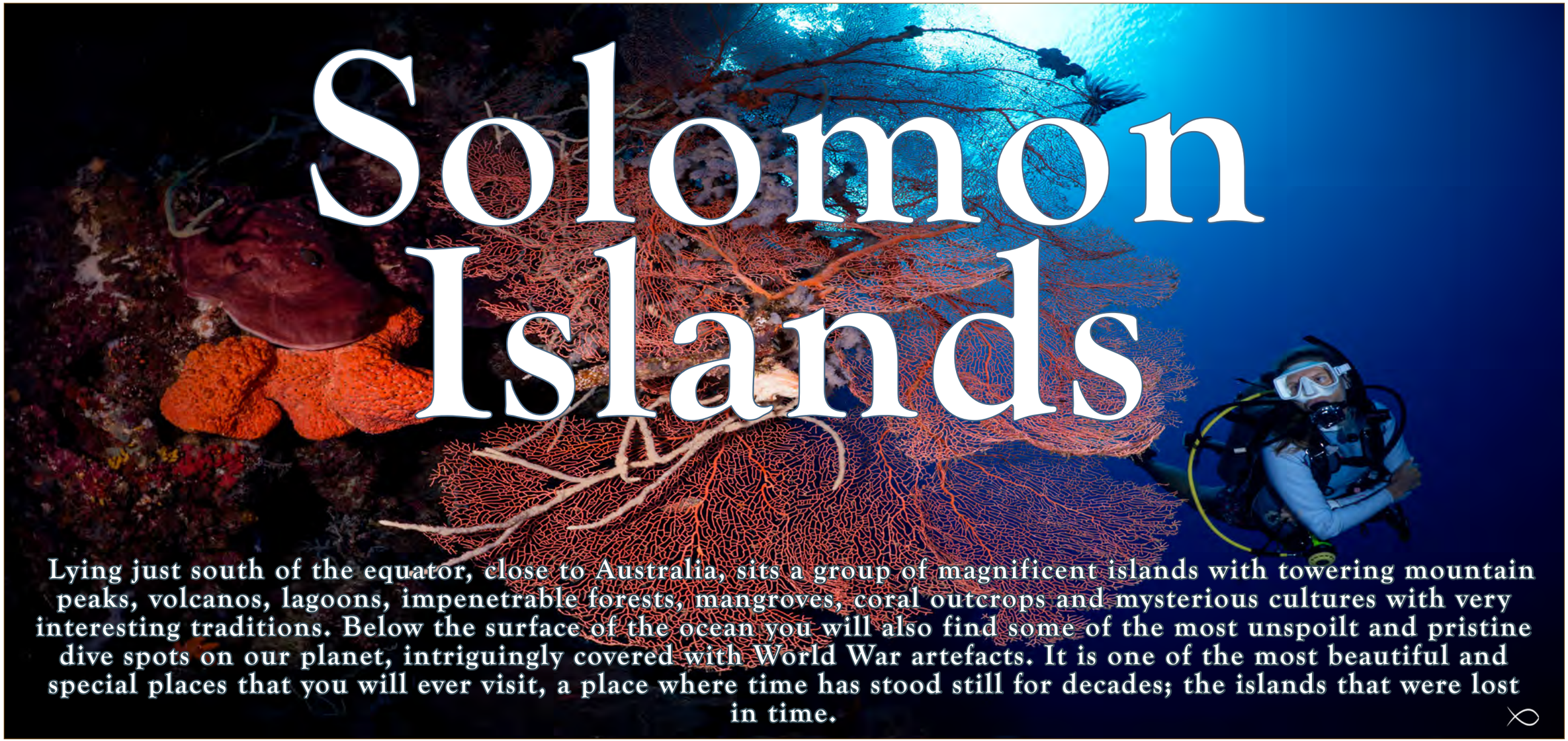
9. Delectable
When you're in the South Pacific, nothing can compare to the incredible seafood just pulled from bay you're gazing across. Indulge in all the freshness of the Pacific Ocean and local cuisines.

10. Unforgettable & Incomparable
When the time comes for you to leave us, we hope that you'll always keep us in your hearts as you remember the smiles, the laughs, the adventures, the incredible memories… But most of all… as you remember that now 'Solomon Is. You' too.

Dive the World
Solomon Islands

By: Johan Boshoff

Solomon Islands



Lying just south of the equator, close to Australia, sits a group of magnificent islands with towering mountain peaks, volcanos, lagoons, impenetrable forests, mangroves, coral outcrops and mysterious cultures with very interesting traditions. Below the surface of the ocean you will also find some of the most unspoilt and pristine dive spots on our planet, intriguingly covered with World War artefacts. It is one of the most beautiful and special places that you will ever visit, a place where time has stood still for decades; the islands that were lost in time.

By: Johan Boshoff

The 992 islands of the Solomon's form the third largest archipelago in the Pacific Ocean and are fashioned in a double chain with neighbours Papua New Guinea to the east, Vanuatu in the south and Bougainville in the north.

The Solomon Islands are divided into nine provinces, and New Georgia Island, which is located in the Western Province, is one of the best diving destinations that the Solomon Islands has to offer.

Solomon's is a diver's and a traveller's dream destination and it can be daunting to know where to begin to experience what this boundless country has to offer.

The best way to explore the area is to choose an island and then start to do some island hopping to explore and dive its neighbouring islands. Why not start this adventure from Munda or Gizo, which are situated around New Georgia Island, which is itself surrounded by the largest saltwater lagoon in the world?

The Marovo Lagoon is a World Heritage site that is approximately 157 km long with two inactive volcanoes and over 300 islands of which only 20 are inhabited by 50 odd villages. The islands are surrounded by white sandy beaches and tropical blue water with coral reef structures as far as you can see.

All around the Solomon Islands you will find mysterious cultures, rich in local traditions and World War 2 history due to the fact that the Pacific was the biggest battleground in the Second World War. Naval battles raged from Pearl Harbour down to the Solomon Islands up through the Philippines and ultimately culminated at Iwo Jima in Japan.

The distances covered were immense. Thousands of tons of ships and aircraft were lost in the Pacific by the

By: Johan Boshoff

Americans, Australian's and Japanese. Six decades of corrosion and human expansion have taken its and today very few remnants of the artefacts remain on land.

Underwater, however, the Pacific is littered with wrecks. Most of them are in deep water out of view or not yet even discovered, but a few of them lie within reach of divers.

Solomon Airlines offers direct flights from Brisbane to Munda where you will land at one of the smallest international airports in the world.

Arriving at the airport, the locals welcome you with traditional singing and dancing while you go through customs, and after a short walk to Agnes Gateway Hotel we started our island hopping with Dive Munda, a well-known dive operator in the Solomon's that offers fantastic service and even better staff.

Situated on the edge of the Marovo Lagoon with spectacular views over the ocean, especially at sunset, it is a place where you can just sit back and relax and enjoy what this special place has to offer.

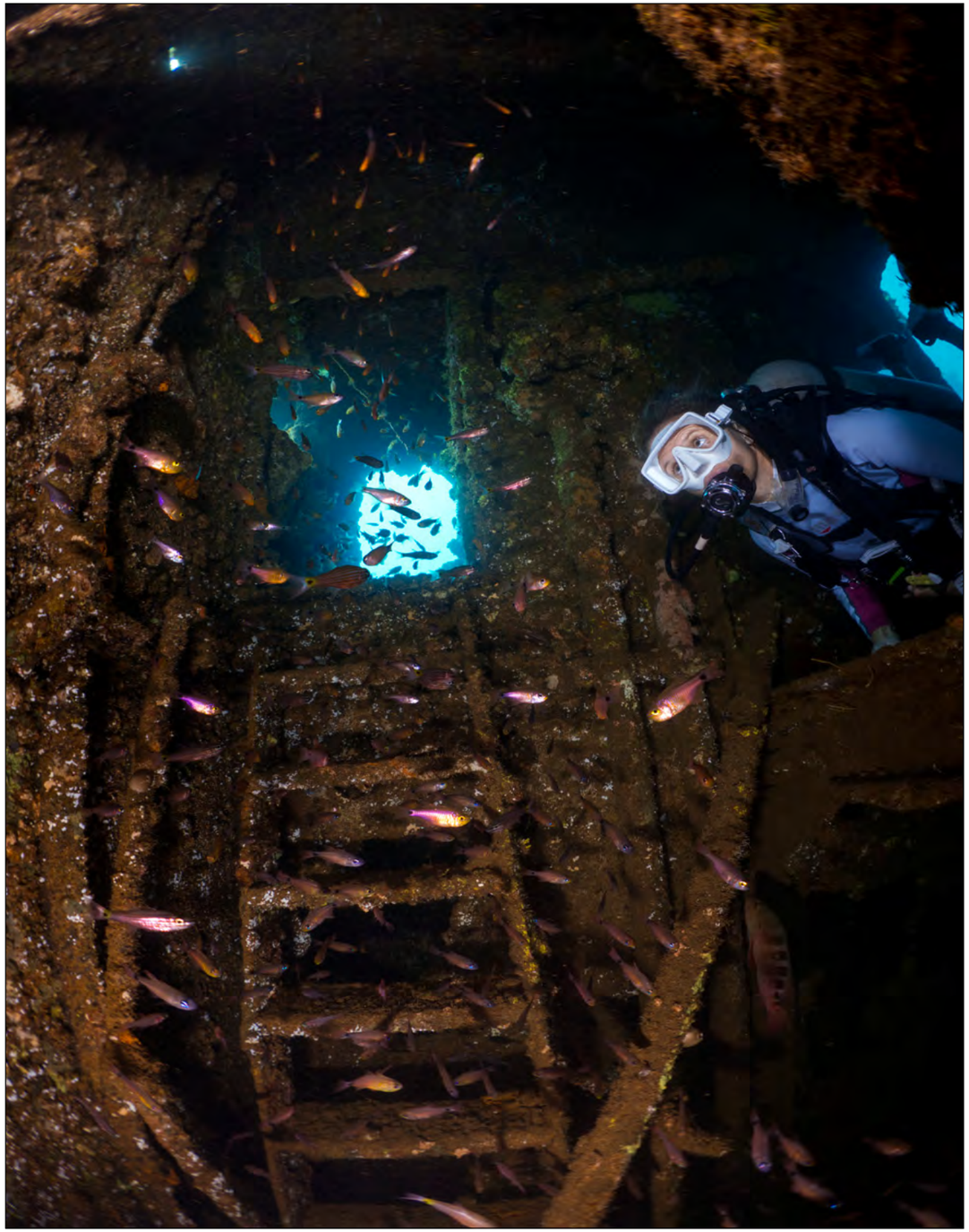
Diving around the Munda and Gizo area, you will find spectacular reef systems where Mother Nature and the ocean currents shaped the landscape and the underwater world.

With deep trenches and channels around the lagoon and islands, the tidal flows and diverse underwater topography contribute to the biodiversity and its treasure below.

Today it offers you some of the most unspoilt dive spots on our planet and this is why the Solomon's are part of the Coral Triangle of the world.

The Coral Triangle is composed of Indonesia, Malaysia, Philippines, Papua

Dive the World
Solomon Islands



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By: Johan Boshoff

New Guinea, Solomon Islands, and East Timor and is the heart of the world's coral reef biodiversity.

The area got its name for the staggering number of corals (nearly 600 different species of reef-building corals alone), and the region nurtures six of the world's seven marine turtle species and more than 2000 species of reef fish.

Wall dives on the outside reefs can drop off to 2000 metres, while channel dives between the islands on an incoming current yield rich pelagic sea life.

Reef dives range from hard coral cities to soft coral gardens and to top this of, you also have the wrecks.

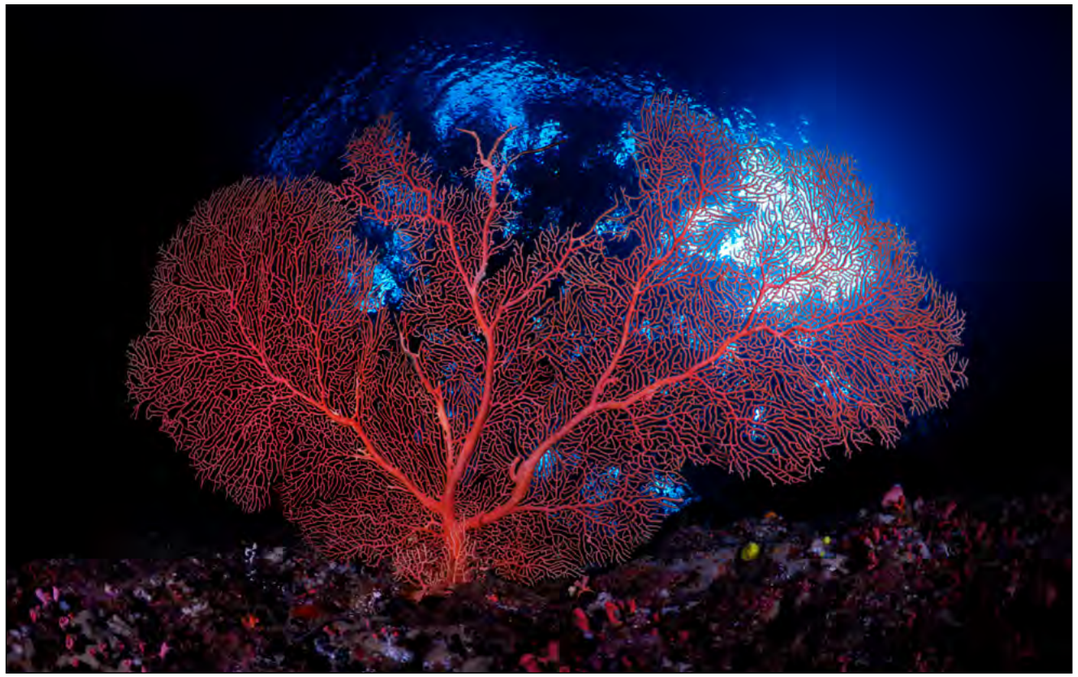
The lagoon was the ideal place to hide Japanese ships amongst the hundreds of islands until they were detected by the Allied Forces and made their final journey to the bottom of the ocean floor. Still today you can dive war ships, cargo ships and a variety of planes from World War 2.

All around this area you can see Sharks, Eagle rays and Devil Rays, and if you are lucky, some Manta Rays or Hammerhead sharks if you are there in the right season. Schools of barracuda, Oceanic trigger fish, Potato groupers, Dogtooth tuna, Jacks, schooling King fish and Turtles are commonly seen around the dive spots.

As you are driving to your next dive spot or island through the turquoise waters in one of Solomon's traditional Banana boats, you realise how beautiful this chain of islands is.

Every island, no matter how big or small, has its own story to tell. So make sure that you visit some of the more interesting islands during your surface intervals or overnight if you want.

Dive the World
Solomon Islands



By: Johan Boshoff

One that you simply have to visit is Tetepare Island, which is a two hour boat ride from Munda. It is a great place to escape from the real world to stay in an eco-resort which is situated on the largest uninhabited island in the South Pacific.

The island was well known in the region where tribes still preformed the tradition of head hunting – it became uninhabited when a disease broke out and the local tribes believed that it was their ancestors who put a curse on the island.

Thus, everyone who was living on the island moved to other islands, and today you can still find locals from Tetepare Island all over the Solomon's.

Visiting the eco lodge on this mysterious island, which only allows 12 visitors at any time, is an experience that has to be done. Turtle tagging, or as the locals call it, 'turtle rodeo' is an exciting thing to watch, but for me it was the coconut crab which was the highlight. The coconut crab is a species of hermit crab, also known as the robber crab or palm thief.

It is the largest land-living arthropod in the world. If birds or reptiles are your thing, then this island is the only place you can find White eyed pitta bird and two blind snakes that were only discovered a couple of months ago.

Other islands in the area not to be missed include PT109/Lumbaria or JF Kennedy Island, which was where JF Kennedy was stationed during the war (artefacts from the war can still be seen around these islands).

To meet the locals and see their traditions, a day visit to Rendowa Island is brilliant where the locals take you from Titiru to Ugele for a village and culture tour. Fat Boys and Lola Island offer some outstanding places

Dive the World
Solomon Islands

By: Johan Boshoff

too; there are so many to choose from but also make sure that you stop at Skull Island where you can still see the final resting place of numerous skulls which were collected as trophy's when head hunting was still a tradition in the Solomon's.

Yet by far my favourite island was Ndoke Ndoke where the Cave of the custom shark is. Here you can experience a cave dive where you will take a short walk to a small hole on the island and start the cave dive through a narrow crack in the volcanic rock.

As you go through the cave system it will take you back into the ocean where you exit on a wall reef around 20 metres deep.

Exiting the cave on a wall that drops down to the unknown depths, with 100 metres plus visibility is amazing. This is a dive that is totally unique and one that everyone who loves caves has to experience.

There are so may dive spots and islands around Munda and Gizo area to go and explore that it could keep you busy for months! If wrecks attract you then this is also the place for you, with a number of seaplanes and wrecks scattered around the islands.

From spy and surveillance planes to bomber planes and even a plane that the pilot Jim Dougherty was in which crashed in 1943 (interestingly, he came back to dive the wreck on its 50th anniversary).

A well-known shipwreck in the area is the Kashi Maru, a Japanese freighter that was caught by USAF bombers on July 2, 1943 while unloading a cargo of trucks and fuel to nearby troops based on New Georgia Island. She lies in Mboroko Harbour and is easily

By: Johan Boshoff

accessible to all levels of diver.

The wreck is filled with artefacts and is home to one of the best and most preserved engine rooms in the world.

The wreck now hosts abundant corals, clams, Moray Eels, Octopi and masses of juvenile tropical fish and crustaceans. This is a truly spectacular dive for World War 2 enthusiasts and wreck divers.

Solomon Islands is a hidden gem that many travellers overlook, yet fortunately for all of us, over many years the Solomon's has received so little publicity so it is still a relatively secret destination amongst travellers and divers.

There are so many things to say and do in the Solomon's that you can base an entire magazine just on these islands. It is a place where time stood still for decades, the islands lost in time.

Travel Information
Traveling: Solomon Airlines has direct flights from Brisbane to Munda. For more information regarding flights around the Solomon's, visit www.flysolomons.com

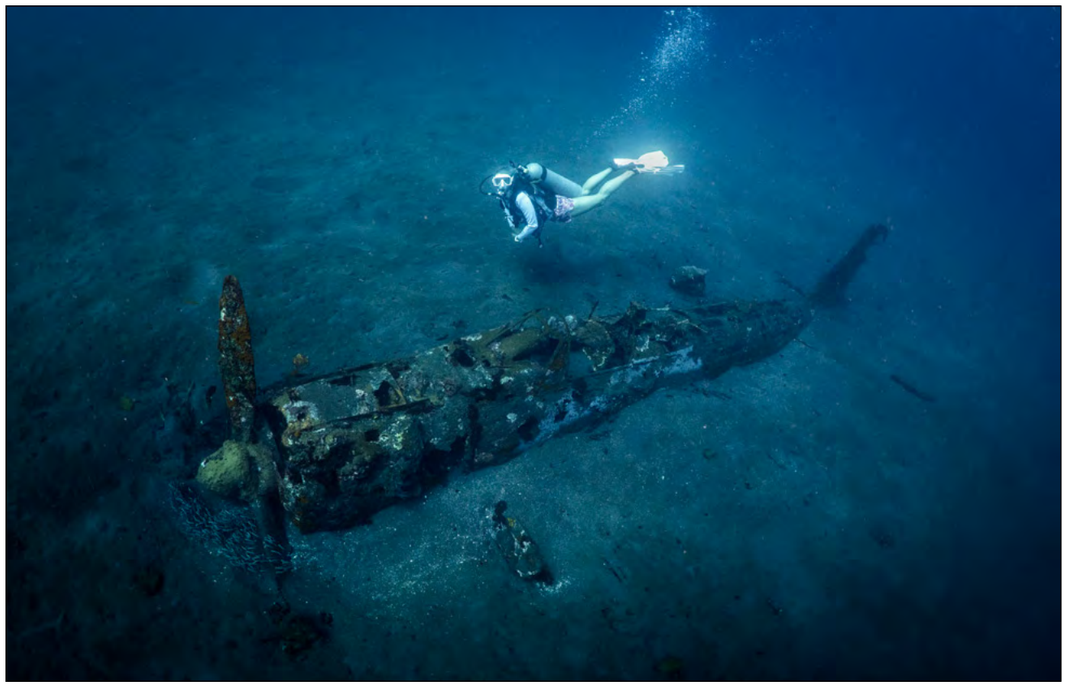
Passport & visas: Everyone visiting the Solomon Islands needs a valid passport with a minimum of six months validity in their passports on the day of travel to enter the country. Yet not everyone needs a visa; most tourists are granted a visitor's permit on arrival.

Voltage: 220V (the same as AU and NZ) – same plug fittings too.

Currency: Solomon Islands dollar (1 Solomon Islands dollar = $0.20)

Water temperature: 28º C-30º C

Contact Details
Solomon Tourism
www.visitsolomons.com.sb



Dive the World
Solomon Islands

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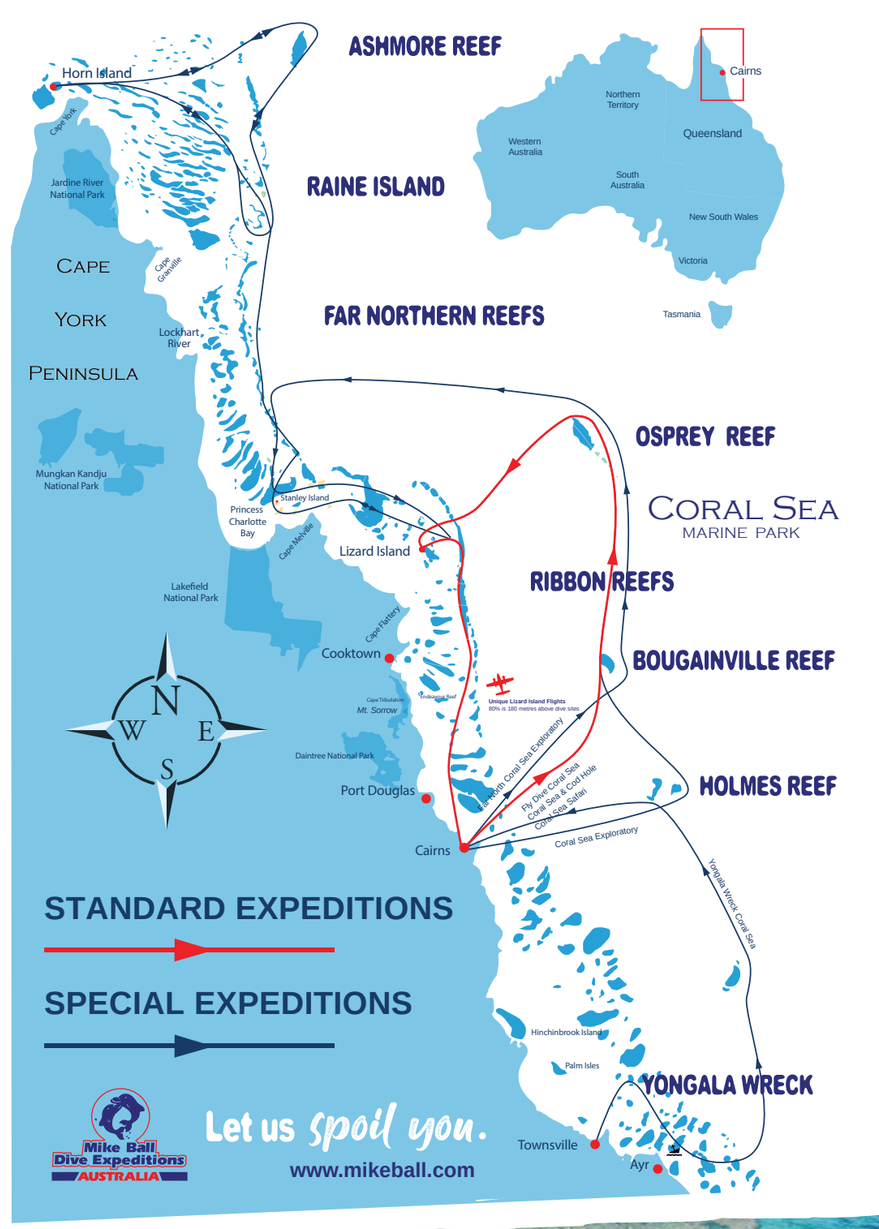

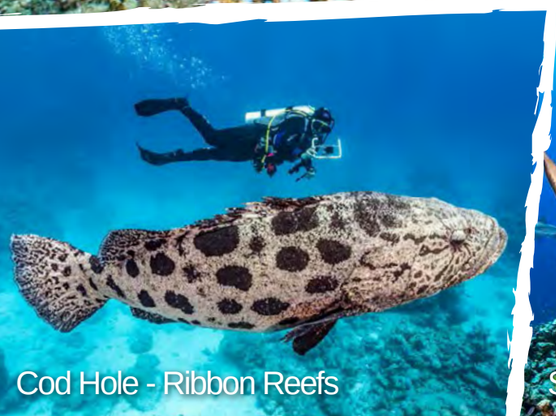
Cod Hole - Ribbon Reefs


Shark Attraction - Osprey Reef


False Entrance - Osprey Reef


Minke Whales - Ribbon Reefs

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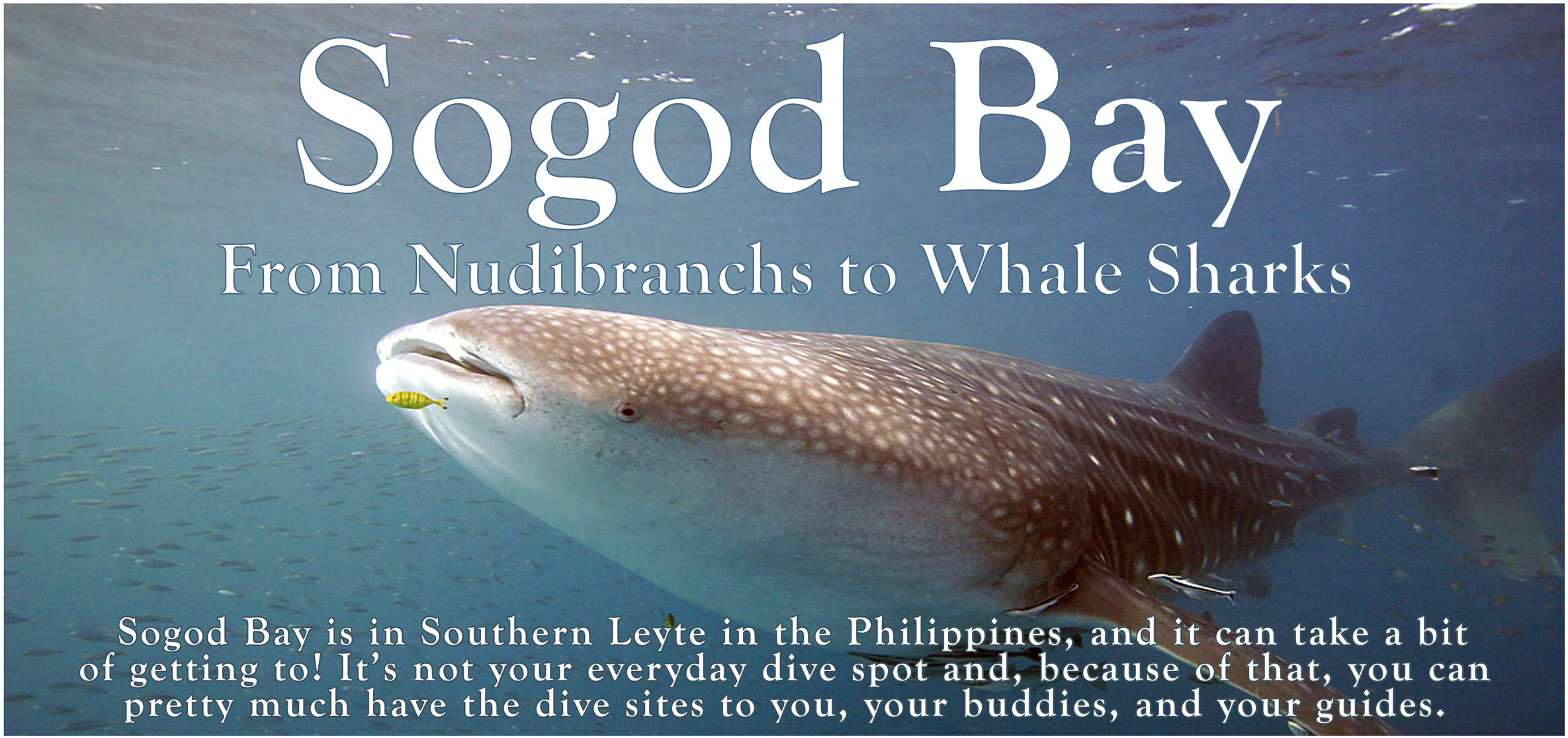
Dive the World
Sogod Bay

By: Graham Willis

Sogod Bay

From Nudibranchs to Whale Sharks



Sogod Bay is in Southern Leyte in the Philippines, and it can take a bit of getting to! It's not your everyday dive spot and, because of that, you can pretty much have the dive sites to you, your buddies, and your guides.





By: Graham Willis

In December last year Mathew, Liz, Will and I headed to Sogod Bay having spent a week in Dumaguete at Atmosphere Resort. There have been a few articles about Dumaguete and Apo Island, so I'll concentrate on Sogod Bay which is a bit more of the road less travelled…which is why we went there.

To get there from Dumaguete we took a flight back to Manila, a flight from Manila to Tacloban and then a vehicle from Tacloban to Padre Burgos, a shade under 3 hours away. All up we left Atmosphere Resort at 7:30am and arrived at the Sogod Bay Scuba Resort around 10pm…big day.

Still, all our gear arrived in one piece … as did we. I believe ferries are another possibility and that might chop between two to three hours off the journey, but feasibility somewhat depends on the time of year.

Sogod Bay Scuba Resort has been running since 2005, is right on the beach and has a great little restaurant to make sure you stay well fed and there is not a whole range of alternatives anyway.

Insert Photo Sogod Bay Phil McGuire is the resort owner and he and his wife Darlene run a good show. Not only do they run a good dive operation but they have put a lot into the marine environment and training up local resources to become dive professionals as well as manage the marine environment.

Their involvement is both impressive and key to increasing the appreciation of the marine environment…well played!

In December 2021 super typhoon Rai smashed into the Philippines and with its winds gusting to over 250 km/h, damaged over 2 million houses (destroying over 400,000) as well as damaging over 8,000 fishing boats.

Southern Leyte was hit hard and just over 120,000 houses were damaged in the region and the island of Limasawa (home to several dive sites) had

By: Graham Willis

90% of its houses destroyed. The impact of the Typhoon can be seen on the roads, where there is still significant reconstruction taking place. Unfortunately, the reefs did not escape undisturbed. When we dived the Bay the top 4-5 metres of the reef were badly knocked about…some shallow dive sites have totally wiped out.

The dive resort did not escape unscathed with roofs ripped off, boats sunk and power and water lost. You would not know that today…the resort is fully functioning but you can still see the impact of such a powerful typhoon on the reef. So let's cover this up front and ask "Is it worth going to Southern Leyte?". In a word … "Absolutely".

One of the major attractions for Sogod Bay is the chance of diving with free-swimming Whale Sharks where nobody is feeding them. From the resort you head out to the other side of the bay, about 26Kms away, so it takes a little time to get there. On the way we dropped into one of the villages where we picked up an 'organiser', as well as four fishermen that we then towed to the Whale Shark spot in their little bangka boats.

Photo When we arrived, there were already two other boats looking for whale sharks. Looking for Whale Sharks consists of the fishermen bending over the side of their bangkas with a mask on and looking for a whale shark, paddling a bit more and doing it all over again…for 4 hours! Now with 25 metres of visibility, on a flat sea in a known Whale Shark spot one would think this was going to be a relatively simple pursuit…not so. For a start even though the Whale Shark is hardly moving they disappear surprisingly quickly.

They are easy to spot if they are feeding on the surface…much harder to spot 10 metres down if they are moving through. Once a fisherman spots a shark there follows some frantic paddle waving and an indication of the direction in which the shark was moving. This in turn was followed by some frenzied movement on the dive boat as everyone readied themselves to peel off and enter the water on a live drop…think parachutists with a green light to go and you would not be far from getting the picture!

So, other than those already chilling in the water, you have a bit of a frenzy of divers in the water who are all trying to, a) see where the whale shark is, b) swim to it without swimming over the top of other people (some were better at this than others) and c) get their camera primed to get a shot.

The first time this happened I think maybe two people even saw a Whale Shark, the second time this happened the shark was moving through at around 10-15m and was not interested in coming any closer.

That caused me to leave my SLR rig and dome housing on the boat and go with the compact camera (Olympus TG-4) from that point onwards. My SLR was having a real problem getting a focus lock on the deeper swimming whale shark and manual focusing is not an option…I guess their patterning and colour really is high quality camouflage! I could have taken the camera out of the housing and, by bumping up the ISO even more and slowing the shutter speed could have selected an aperture to allow a wider depth of field…but didn't.

The ISO was already sitting at 1200 ISO, and I did not want to put the shutter speed below 1/125th … the TG-4 would handle it. The other boats had left by now, so we were on our own…along with our four fishermen in their small craft. Of course, the next (and last) time a shark was spotted it was feeding up at the surface so I could have used my SLR just fine!

Anyway, that was a close encounter and the Whale Shark seemed completely unperturbed by the 10 or so snorkellers jostling for pole position. So, all up around six hours to grab two or three whale shark encounters.

Was it worth it? I think so. There is something about these majestic beasts free swimming and being able to see

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Sogod Bay

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By: Graham Willis

them in that environment. I guess the test is “Would I do it again?”...the answer is a resounding “Yes!”.

So that’s enough about the whale sharks…what about the diving? Within 30 minutes boat ride there are a wide range of top-class dive sites. If you have been there before, or do a little research, then some of the names will be familiar such as like Max Climax, Napantao, Limasawa Island and Padre Bourgos Pier.

We were not blessed with overly clear conditions in any of those sites but the water was a balmy 28/29C and the fish life was invariably good. We were able to visit all of those and more…so let’s dive into those sites.

Max Climax is a very short swim from the resort followed by tracking parallel with the shore. It is a relatively shallow dive down to around 18m with a beach exit and short walk back to the resort after the dive.

Viz was not the best but the dive was mixture of Nudibranch’s, Moray Eels, Anemones, and a range of shrimps. It is in an area that was well smashed by the typhoon so it will continue to recover and get better….but thoroughly enjoyable even today.

Napantao, on the other side of the bay is a marine sanctuary and has some spectacular walls down to 25 metres.

We could tell that it would be an absolutely spectacular dive site with better visibility and more sunshine as well as a bit more time to recover from Typhoon Rai. The site is a Marine Protected Area (MPA) and in 2013 Coral Cay Conservation (CCC) installed three permanent transects there, three inside the MPA and 3 outside.

These transects are surveyed twice per year. All their findings are published (https://www.coralcay.org/our-work/publications) but, in summary they “ have recorded greater fish abundance and hard coral cover inside the boundary in comparison to those recorded outside. Further, we also find the diversity of fishes and substrates, including hard coral, to be greater inside the MPA” , The area is one of the most surveyed in the Philippines with CCC establishing the Southern Leyte Coral Reef Conservation (SLCRC) Project in 2002.

The MPA includes a large no-take zone and was initially set up in 1996 covering 5 hectares. COVID claimed another victim with the decision to shut down the SLCRC in January 2021.
Napantao is full of colourful soft corals and ablaze with Anthias and Fairy Basslets as well as a wide range of Nudibranchs and Frog/Angler fish. The MPA is a is a real success story and I hope that CCC’s exit does not diminish this dive site.

Limasawa Island is at the Southern entrance to Sogod Bay, and some 6,000 people live there.

Dive the World
Sogod Bay

By: Graham Willis

The island holds a special place in Philippine history being the site of Magellan's initial landing in the area in 1521, a stop on his round the world voyage...which his ship completed but he unfortunately did not. Limasawa Island is also the spot where Father Pedro de Valderrama held the first Catholic mass in the Philippines at the same time.

Here we dived Zack's and Adrian's Coves which dropped down to just over 25m with somewhat better visibility than on the Eastern side of the bay. There were Nudibranchs everywhere and the walls themselves are in good shape even if the tops are somewhat bare.

This site was notable, apart from the normal range of soft corals, anemones, fusiliers, sea snakes and anthias, for Comets. We found this publicity shunning fish on both dives…we just had to poke around in the overhangs and small caves to find them.

We also did a night dive at Padre Bourgos pier which presents as a somewhat unpromising site but delivered a top-class night dive. The transport from the resort involved us hanging on the tray of a truck (which was a good way to see the local sites) for 20 minutes or so before arriving at the pier in the middle of town.

The entry, down the sea wall, was a little sloppy and there was a lot of rubbish in the water, hence my view that the dive site did not look that promising. It is a shallow dive (as you might expect under a pier) reaching 11 metres out on the sand and you wind in and out of the legs of the pier for most of the dive.

You will benefit greatly from going slowly and keeping an eye out for the superbly camouflaged critters that live under the pier. It's not a pretty site and has a lot of industrial rubbish such as tyres, pipes, concrete blocks, re-bar and the like but it does house an amazing array of creatures.

There were Frog fishes a plenty, Nudibranchs, a squadron of squid, Sea Snakes (one of the biggest I have seen), Decorator Crabs, Flatworms, Headshield slugs, Pipefish, Lionfish, Stargazers (out on the sand) to name a selection of what we saw.

After 75 minutes or so we had our fill and headed back for a slightly sketchy exit. With the sea coming in from the North East it seemed to concentrate its power in the corner where the pier met the sea wall ad we were exiting. With a helping hand from the crew everyone exited safely and head back for a spot of dinner.

In summary Sogod Bay was a great spot and a new diving location for me. I suspect it will get better and better as it recovers from the ravages of Typhoon Rai, and I am keen to go back in another couple of years and see how the reef is recovering.

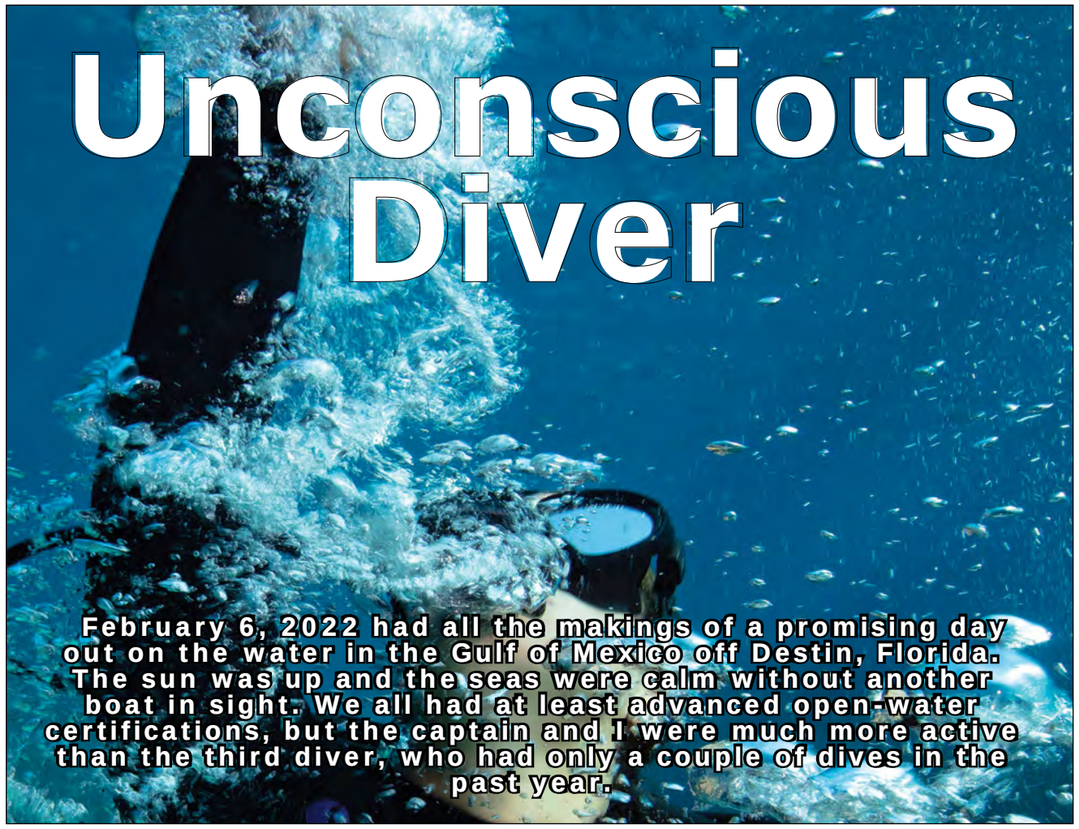
Even now it is well worth the trip and Sogod Bay Scuba Resort is a convenient, friendly, and good value place to stay.

Dive the World
Sogod Bay

Matthew Kerrpton

By: DAN

Unconscious Diver



February 6, 2022 had all the makings of a promising day out on the water in the Gulf of Mexico off Destin, Florida. The sun was up and the seas were calm without another boat in sight. We all had at least advanced open-water certifications, but the captain and I were much more active than the third diver, who had only a couple of dives in the past year.

When we got to our first wreck, we asked him if he wanted to dive with the captain, who had more experience, or me, who had more credentials as an instructor and course director.

I made the first dive with him, and aside from some minor delays on the descent while he equalised, we had an uneventful dive with a short bottom time and conservative safety stops on the ascent.

During our surface interval, we motored about 16 kilometres offshore to a natural bottom reef at about 33 metres. We decided I would stay on the boat for the second dive. Both divers entered the water with no apparent issues.

I watched the two distinct sets of bubbles in the calm sea but had no way to know if the third diver had similar delays to our first descent. Within minutes I saw a huge burst of bubbles from below.

As I was processing the information, I forced myself to slow down as I've taught and demonstrated hundreds of times in rescue courses: I consciously stopped, thought, and prepared to act. The third diver surfaced without the captain. He was splashing around, face down in the water. I first thought he was having spasms but then realised he was still trying to swim upward. I yelled, "Roll over!" again and again. The hose from his regulator was whipping about at the surface, and then he stopped, with the hose the only thing still moving.

Stop and think went out the window, and I acted. I jumped into the water with my damp wetsuit around my waist and swam to the diver, about 6 metres from the boat. My countless rescue exercises came to mind, so I rolled him over, inflated his buoyancy compensator, and turned off his air to stop the whipping hose that had been attached to his second stage. I removed his regulator, which he had kept in his mouth despite no air and let it go, without a hose to stop it from sinking. He likely thought he had run out of air and done an emergency ascent. I looked at his face, and my heart sank — his face was pale, his lips were blue, and he was not breathing. I assessed that it would be best to get him to the steady boat to begin care just as I had practiced and taught in rescue courses.

I kicked for the boat, towing him with a hand under his neck to keep his head up while I swam and talked to him. It was then that I realised I was not wearing my fins and was fighting a current that was pushing me away from the boat. Knowing that this would not be quick anymore, I began rescue breaths. I did the first two incorrectly with his mask on and failing to pinch his nose. I thought he got them anyway, but I did two more proper ones to be sure.

While kicking to the boat, I gave him two more and heard a gurgling sound. I initially thought he was expelling the breaths but realised it was his own raspy, wet breathing. I don't remember exactly how we made it, but we got to the boat's ladder.

I removed his gear, and my first thought was that I would let the adrenaline of the moment help me hoist him on board, but I wasn't able to. Reassessing, I stood at the top of the ladder and hooked my arms under his with him facing away, and I intended to bounce us up and down and fall backward into the boat on the third bounce.

Before I could try, he asked something like, "Where am I?" I've never felt a more sudden relief in my entire life. I asked if he could get himself up the ladder if I removed his fins. He said yes, and we got him back on the boat.

After sitting him down, I went to get the captain, who was surfacing. The third diver appeared fine, but as a precaution we put him on 32 percent enriched air nitrox (we didn't have an oxygen kit), called the Coast Guard, and made great time getting to the Coast Guard station.

Realising we were not out of the woods yet, we kept him on the nitrox and delivered him to the emergency medical service responders who met us at the Coast Guard station. We gave them his dive computer, and they took him to the local hospital.

In case there was no dive medicine doctor, we sent all the DAN® numbers to him via text to give to the medical staff. The following day we called DAN to share the events and find out what we could do better. I learned many lessons from the incident.

The third diver's regulator had come unscrewed from the low-pressure hose at almost 30 metres, so he thought he was suddenly out of air. He did an emergency ascent rather than trying to get deeper to share air, but the secondary regulator would have been the immediate solution to perform a safe ascent.

Fortunately, the result was only minor injuries to the third diver. At dinner the night before, some of our staff and instructors had talked about how it's important to exhale the entire way up during an emergency ascent and keep your regulator in since you may gain a breath. While he didn't get an extra breath, keeping the regulator in his mouth may have prevented some water ingestion, and he prevented lung rupture by exhaling as much as he could on the way up.

This incident is also a reminder of how important it is to ensure all connections are made properly and are snug during a gear check and to always have an oxygen kit on board.

While my in-water work was far from perfect, we train, teach, and repeat so that we remember most of it in times of crisis. I've never had a perfect dive that had nothing to teach. I hope others can learn from what I did and won't have to experience it themselves.
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Exploration
Nuttlar

By: Kurt Storms

Old Nuttlar Slate Mine

It is time again to go diving in an old slate mine. This time we are going to Sauerland Germany. There is a little town called “Nuttlar”.





By: Kurt Storms

Nuttlar is a district of the municipality Bestwig in the northern Hochsauerlandkreis (North Rhine-Westphalia) and has about 1700 inhabitants.

From the middle of the 19th century Nuttlar lived mainly from slate extraction from the local mine.

Five men founded the Gessner company in 1857 and through constant modernisation the business developed favourably, so that in 1878 it was approved for underground mining. This was the beginning of “the Nuttlar slate mine”.

The number of employees rose to about 100 in 1900; children and young people also worked there.

Slate mining did not have any negative effects due to the “First World War”, as the arms industry needed slate for insulating the electric moulds.

But due to competition from cheaper slate from Spain and the use of Eternit, slate mining stopped in 1985.
It is an enormous labyrinth of mile-long tunnels and large spaces.

After the closure, the electricity was turned off, causing the pumps to stop, so the water reached its maximum level after 7 years. Of a total of 5 floors, the 2 lower ones are flooded.

These passages have a length of 12 kilometres and the maximum depth is 14 to 30 metres.

The drive to Nuttlar takes 3:15 hours from my home town. Together with my wife Caroline and my regular buddy Willem Verreycken, we left at 6:30am for our dive site for today.

The drive went smoothly, and once we arrived we were pleasantly received by the owner, we got a briefing, about the operation, where the compressor is to

possibly fill between dives.
They fill here air, Nitrox, Trimix and O2 for the rebreathers.

Once this briefing was given, we went back to the car to take the right road to the entrance of the mine, where there is a large parking for 7 cars.

The entrance to the mine can be easily recognised by the yellow container.
Here we get our second briefing. What we have to pay attention to, where we have to sign in and out.

Once this briefing was over, we could get ready with excitement.
Wim and I put our Bail-out on the waterfront, and here we took our first glimpse in the direction of the water, wow, how clear was my first thought and we continued to get ready. Me and Wim both dived on our Rebreather.

We spent some time getting the Rebreather ready for diving and going over the tests. Today I am diving with the Divesoft Liberty SM.

Once in the water and having done our S-drill, we descend below the surface and our dive begins. The agreement was that we would do a dive of about 2.5.

After a few minutes, we arrived at a junction where several cars were shunted around, not knowing that they would never move from their places.
It is a spacious corridor, but you have to be smart not to touch another wagon to avoid a Silt-out.

We follow the line where we have to place a ‘cookie’ in between, the water is cold at 8 degrees. So I am obliged to put on my heating. The view is extremely clear.

There are pipes and cables everywhere so that light bulbs could be provided with electricity.

By: Kurt Storms

The mainline is clearly visible everywhere between all the stuff we come across. In between, Willem turns to take a photo. We have only just left, and are already as happy as a child. Willem swims in through a small passage and we end up in a beautiful room as big as a house.

The walls that cover this room are beautiful, which makes the link that these were made by sawing and not by blowing up black powder.

It is an enormous labyrinth, in which you can spend hours. The splendour of the past is shown to its best advantage here. The carriages, the rails, this gives you even more respect for the people who once worked here.

When we get back to the top after 2,5 hours, we have only seen the first part, but we are satisfied. Immediately we are making plans to explore the deeper part.

Info Slate mine

The slate mine (Schieferbau Nuttlar) is open from April to mid-November on weekends.

In winter, the mine is closed due to the hibernation of the bats. Reservation is compulsory. A maximum of 12 cave divers can enter per day and a day ticket costs €69.

Going into the mine without a cave diving licence.

Would you like to go further down into the mine but don't have a cave diving licence? Or do you doubt that cave diving is something for you? Here you can have a fantastic experience under supervision.

By: Kurt Storms

Under strict guidance you can go further in a small group where there is no ascent possible. Floating above the rails, you dive along tubes, cables and old materials.

The gas planning is conservative, the experience is great! However, there is a prerequisite for participation. You have to have a preliminary technical basis.

This means that you dive with a double set, long hose and lights, but also that you master all the procedures such as gas sharing and valve turning. So it's not for everyone, but an absolute must if you have the level. So you don't have to go to France or Mexico for your first unforgettable cave diving adventure!

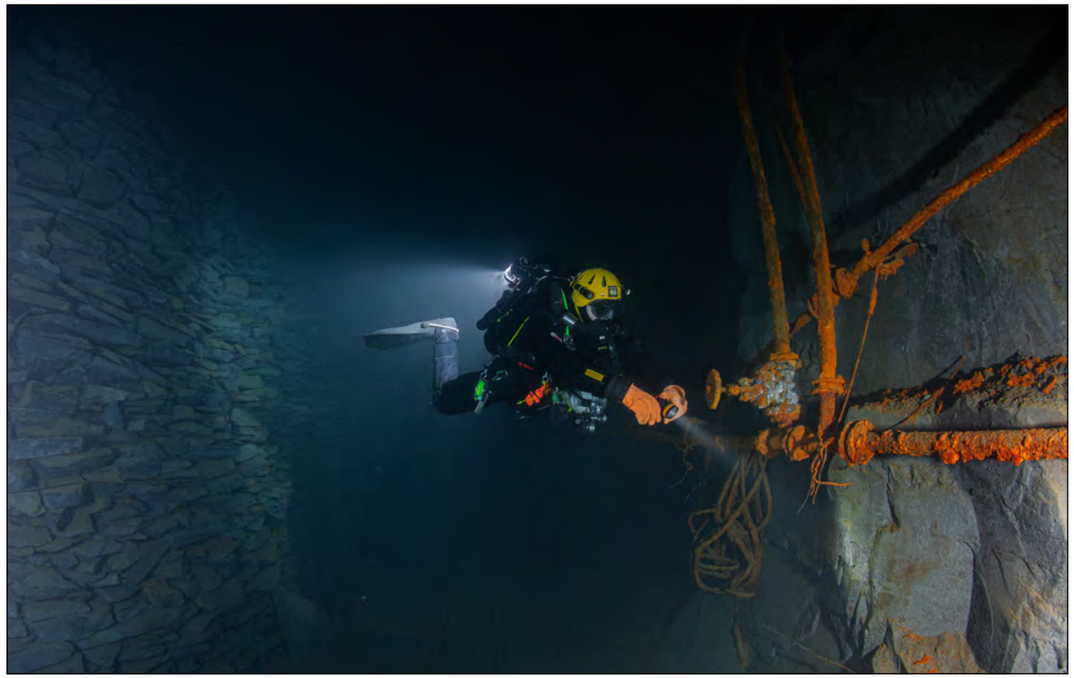
Sport divers without a cave diving licence can also enjoy this underwater world under supervision. You will be accompanied by an experienced cave diver from the Nuttlar. It is compulsory to dive with equipment that is suitable for cold water, i.e. separate breathing systems, a suitable suit and some diving experience.

There is no possibility to rent equipment on site. The cost is 69€ per dive. Don't forget to bring your valid medical certificate, your certification and a valid diving insurance, which will be checked before you dive.

If you already have your certification, and you want to dive with a guide, this can be done in addition to the normal entrance fee for 50€ per person extra.

You get a guide who dives with a maximum of 3 participants.

Exploration
Nuttlar



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This picture is for illustration purposes only. Actual product may vary due to product enhancement of the dive mask paired with the Galileo HUD hands-free dive computer.

By: Kurt Storms

Staying in the area :
There are many possibilities to stay overnight. A good hotel is Gasthof Sauerwald, which is only 3 km away.

Don't want to dive but still want to visit the mine? This is possible in the form of a dry tour in the non-flooded part.

A 2hr tour costs 23€, a 4hr tour costs 33€ and a 7hr special tour for photographers costs 65€. These prices include a small snack and a drink.

Address : Briloner Str. 48a, D-59909 Bestwig, Germany, from Brussels it is a 3:30hr drive.

Website : www.schieferbau-nuttlar.de

Exploration
Nuttlar

Through the Lens
Photo School

By: Karlien Euvrard

In part two of 'Expose it right underwater', I said we would look at 'lens aperture'. The word aperture simply means 'opening'.

The lens aperture is situated inside of the lens and is a mechanical diaphragm. This diaphragm consists of a number of petals or blades that act like an adjustable iris.

Just like your own eye's iris that changes size as light conditions change, so can the aperture of a lens be adjusted. The size of the aperture will then determine how much light it will allow through the lens to the light sensor.

These changes in the aperture have been calibrated into precise steps known as f-stops. These are the makings you will find on your lenses aperture ring: f32, f22, f16, f11, f8, f5.6, f4 and f2.8

On more modern cameras, the aperture ring is controlled electronically. Either way, somewhere on your camera you are going to have to set your aperture to obtain the correct exposure.

What is very important here is that you realise that f2.8 is a much bigger opening that f32.

There are two terms that I want to bring to your attention:

- Stopping down – This is when you reduce the size of the aperture by one stop. By doing this you are halving the amount of light passing through the lens. For example: f16 to f11 is 1 stop, f11 to f8 is another stop and so on.

- Opening up – This is now the reverse and means that you will be doubling the amount of light passing through the lens. For example: f8 to f11 is 1stop, f11 to f16 is 1 stop and so on.

In some cases there are fractional stops and this will come in handy when we want to bracket the photograph. Bracketing is when you are not really sure of the correct exposure, so to play it safe you use the fractional stops and make small adjustments.

The end result will be three photographs with slight differences in exposure. One will be slightly over exposed, one slightly under exposed and one correctly exposed.

This is a very handy function to have on a camera and it often produces very pleasing results. So basically we use apertures to control the intensity of light through the lens.

Another topic that often comes up when we talk about aperture on a lens is depth of field.

Here we are going to have a brief look at the effects on depth of field and get a better understanding of how this affects your results.

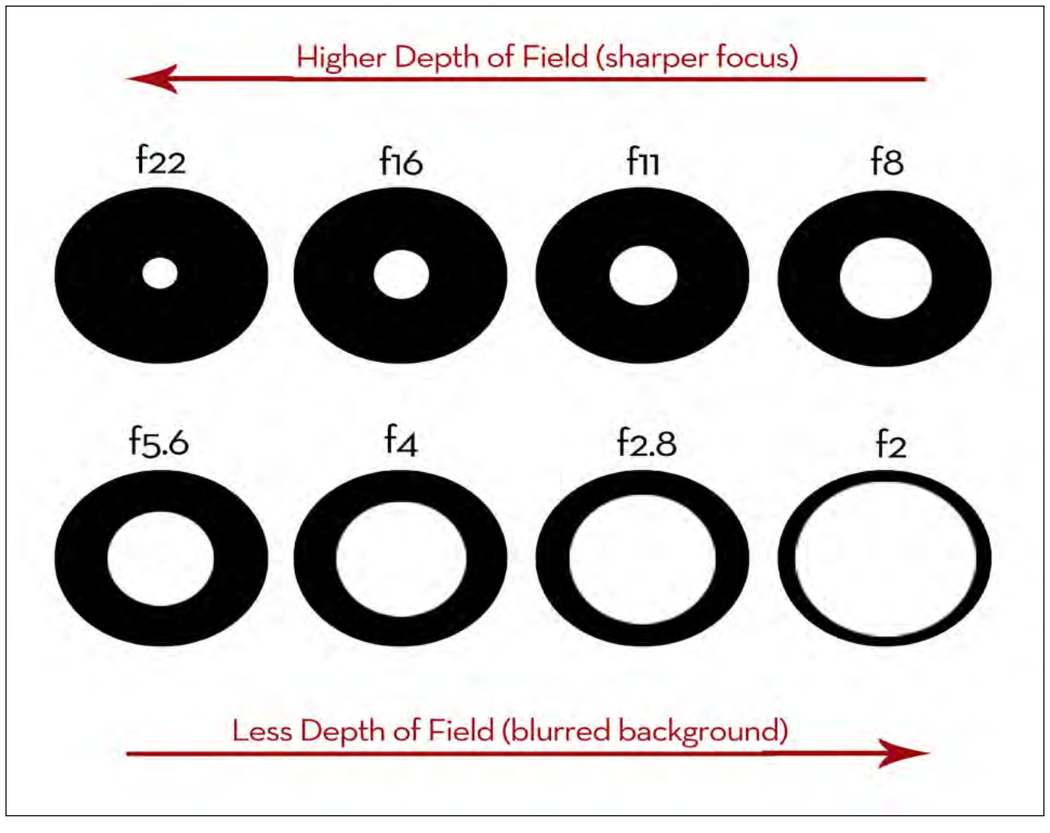
Often you will notice that a part of your photograph is in focus and part is out of focus. This is a result of a couple of factors that are affected by making changes to the aperture setting on your camera.

With the same focal length lens focused at the same distance, this diagram shows how simply adjusting the aperture size can alter the depth of field.

Depth of field usually extends in front of the subject by one third and by two thirds behind. The smaller the aperture the greater the depth of field. An aperture of f2 gives a much smaller depth of field than one of f16.

So remember this next time you are setting up your camera to take that winning shot. How much detail do you want in focus? There are other factors that affect depth of field and we will cover them in greater detail later in the series.

In the next edition I am going to be talking about 'shutter speed' and how this plays a role in getting the correct exposure.



Through the Lens
Photographer

By: Kamil Jureczko

Kamil Jureczko

A journey through the Lens

By: Kamil Jureczko

My name's Kamil and I'm so happy to be showing you some of my pictures. They were all taken at a few different spots in Sydney.

If I'm given a chance to showcase some of my images again, I'll select some different locations in Australia and overseas.

The first few dives I ever did were introductory ones in Egypt, on holidays in 2010 and 2011. When I think of the most colourful reef I've seen to date, I recall the one I saw in the Red Sea.

Then in 2012 I dived at Tulamben in Bali. I remember my mask got foggy almost immediately and I couldn't see much on the wreck from afar...

But the real adventure with scuba started for me when I moved to Australia, and got certified at the turn of 2014 in Cairns, at the Great Barrier Reef.

Back then I didn't even consider taking underwater pictures, there was so much to absorb under the water, so much to capture that the only reasonable solution seemed to be shooting videos with my GoPro.

After moving down to Sydney, I continued to video-record my dives, because I had to share everything I'd seen with my friends, family and the world!

I quickly realised, however, that for a non-diver watching such videos not exactly knowing what they are looking at, was rather boring... So in order to keep my audience engaged I decided to add an educational layer to the videos I shot.

This is how Planet Ocean, a fish identification series, was born. Between March 2016 and October 2017, I created 10 episodes featuring a total of 92 species of NSW fish, cephalopods, crustaceans, snails and marine mammals. Each showcased critter, apart from its name, was given a fun fact or two.

Editing videos was very time consuming though, so I started thinking about transitioning into photography, but having taken some (terrible) pics using GoPro, I knew I would have to invest in a camera.

I was doing the deep diver course on the Ex-HMAS Adelaide at the time, and the instructor suggested an Olympus TG-5.

So I got it, together with a dedicated PT-058 housing. But you can't really take pictures without strobes, can you? I purchased an Olympus UFL-3, which necessitated buying a tray, arms, float arms etc.

And what's better than a picture taken with one strobe? A picture taken with two! So another UFL-3 followed, together with wet macro (Olympus PTMC-01) and wide (Olympus PTWC-01) lenses.

Since then my rig has travelled with me to a number of dive sites along the NSW coast, and in QLD, as well as North Sulawesi (including Lembeh) and Samoa.

When I can, I also combine road trips and camping with scuba diving. It must be a peculiar view to see my dive gear drying up next to my tent.

I now leave you with my pictures, as I continue my conversations with a reputable scuba organisation about introducing a new certification level - the Camper Diver. Enjoy!

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By: Kamil Jureczko

Striate Anglerfish (Antennarius striatus) at Clifton Gardens, Sydney. Olympus TG-5, 1/160, f/5.6, ISO200.

Nudibranch (Dendrodoris denisoni) at Clifton Gardens, Sydney. Olympus TG-5, 1/200, f/6.3, ISO200.

Pineapplefish (Cleidopus gloriamaris), an adult with clearly visible light organ. Picture taken at Shiprock, Sydney. Olympus TG-5, 1/125, f/5.6, ISO200.

Eastern Gobbleguts (Vincentia novaehollandiae), mouthbrooding male. Picture taken at Clifton Gardens, Sydney. Olympus TG-5, 1/200, f/6.3, ISO200.

By: Kamil Jureczko

Wandering Sea Anemone (Phlyctenactis tuberculosa). Usually they're orange, but this one was very bright... pink. Picture taken at Bare Island, Sydney. Olympus TG-5, 1/200, f/6.3, ISO200.

Eastern Frogfish (Batrachomoeus dubius) at Clifton Gardens, Sydney. Olympus TG-5, 1/80, f/4.0, ISO200.

By: Kamil Jureczko

White's Seahorse (Hippocampus whitei) at Clifton Gardens, Sydney. Olympus TG-5, 1/160, f/5.6, ISO200.

Giant Stride
Beqa

By: Graham Willis

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 I

Menjangan Island, Bali

As the winds of international tourism slowly fill our sail and rescue us from the doldrums of the past couple of years. We look to the future and hopefully to your return to our north-western Bali shores.

Each month continues to bring with it more airlines adding more flights. Quarantine requirements are gone for those who chose to be vaccinated. PCR tests are no longer required, and 72 countries are now eligible for visas on arrival. Now is the time to return.

So come me hearties and join our global fraternity of Sea Rovers Brethren, book your Bali Adventure today. Small groups, personal service and cutthroat deals await.

We'd also like to take this opportunity to once again say, thank you. Thank you to all the Sea Rovers Brethren who have helped and continue to help in our efforts to support our crew through what continue to be difficult times.

The Captain, Commodore and Crew, thank you.

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SSI GREEN FINS SDI

By: Graham Willis

Fiji is a very handy 4-hour flight and 2-hour time difference away from the East coast of Australia. It's a somewhat less handy 8 and a half hours and a 4 -hour time difference if you are coming from Perth, but still very doable.

The temperature in the water heading into winter was a very comfortable 28C and the sharks have not been interrupted by divers for the past couple of years. The tourists are slowly coming back to Fiji but on the dives I did there were only three and four divers respectively…and six local guides watching your back…and front…and side.

So, where does all this activity take place? Off the Coral Coast on the Southern side of the main island, Viti Levu, between the mainland and Beqa Island or at Cathedral off Beqa Island. By the way Beqa is pronounced "Benga". The dive boats leave from Pacific Harbour on the Mainland or from Beqa Lagoon resort on Beqa Island. I am aware of three shark dive providers in Pacific Harbour: Aqua-Trek, Beqa Adventure Divers and Coral Coast Divers. What they offer is pretty similar. A 10–15-minute ride to the dive site and then two dives, with a 50-60 minute surface interval, on the same site. They will hand feed the sharks but were not doing so when I visited in May 2022 because there were too many new and 'untrained' Bull Sharks around. On chatting to the dive team from the shops they said that they try and train the sharks to take the food from one side and exit from the other. From what I saw there was a lot of room for improvement!

I dived with both Aqua-Trek and Beqa Adventure Divers (BAD) and can recommend them both. This is not a reflection on any other provider…just that I have no firsthand experience of their dive operation. Both organisations were professional in their approach to the diver's safety and had thorough briefings before heading down to where

By: Graham Willis

the action was. Both operations had decent sized boats to get out to the dive sites with plenty of room to move around the boat. They are diving in slightly different spots about 1-1.5 Kms apart.

The Aqua-Trek operation was slightly closer to their base and probably took 5-10 minutes less time to get to the dive site given their shop is closer to the river mouth at Pacific Harbour and they also have a closer dive site. The Aqua-Trek site was also shallower with a max depth of 22m while the BAD operation had you down at 30m.

Both of the operators then bring you up to a second feeding station at a shallower depth to give you more bottom time. It also means you get different sharks at the shallower feeding station, the Bull sharks preferring to hang out at the deeper stop. The 5m stop with BAD was a better stop than Aqua-Trek's because of the constant buzzing back and forth of the Black and White Tip Reef Sharks over the coral bommie.

It is the Bull Sharks and the possibility of a Tiger Shark that really make this dive. The Bulls are everywhere, and the guides are on watch for the whole dive keeping an eye out for over-inquisitive sharks wanting to nudge a diver. I felt perfectly safe on all four dives but, having said that, my SAC rate that normally sits around) 0.9-1.1 shot up to 1.5!! I was enjoying the experience, marvelling at it really, but clearly my respiration rate was up a touch!

I can tell you that there were a lot of Bulls dropping in for a bit of Tuna on the four dives I completed...in fact in one photo I can count 22 of them! Other visitors when I was there included Whitetip Reef Sharks, Blacktip Reef Sharks and Sicklefin Lemon Sharks.

The Black and White Tips, given their size difference to the Bull Sharks, tended to hang around at 5-10 metres

Giant Stride
Beqa

By: Graham Willis

rather than the 20-30 metres where the Bulls were roaming.

I can appreciate that there are two sides to the whole issue of feeding any form of marine life and both views are worth considering in more detail.

Firstly let's consider why feeding any marine life might not be a good thing.
• Once you start feeding sharks on a regular basis it is quite possible that they associate food with boats and scuba divers…which is fine if you want to dive with sharks and a little more worrying if you do not.
• Sharks don't normally feed in packs and the 'frenzy' that results at most feeds is unnatural. Sharks by their nature are not usually great 'sharers' and they can take it out on other sharks that they see as competing for 'their' food.
• Regular feeds could modify the sharks natural hunting behaviour and they might become reliant on the shark feeds for a meal.

…and the other side of the coin?
• Divers interacting with sharks, and the photographs that find their way into the media, help shift people's perception of sharks as mindless killing machines just looking for their next human meal.
• The Sharks are getting, at best, a snack and it is most unlikely to modify their normal hunting and eating behaviour.
• For a local community, or National Government, to protect sharks it must be worthwhile socially and financially. Sharks are worth so much more money to both the local community, and Government, alive rather than dead.

Dead sharks are only worth money… once. Live sharks are worth more, in terms of tourism, year on year for as long as they are around.

A 2011 study by the Australian Institute of Marine Science calculated the lifetime value of each shark in Palau at just under $2m!! That was over 10 years ago and, even if you are skeptical about the precise number, the 'returns' to all parties are so much greater than selling a shark, or its fins, at the local market.

By: Graham Willis

In Fiji, the shape shifting Shark God, Dakuwaqa), is an integral part of many legends, offering protection to the local communities in what is a symbiotic relationship. The Sharks protect the people, the people protect the sharks as well as the environment in which they live…everybody wins…but it wasn't always like that.

The Fishing grounds off the coast are owned by the local tribes and, as such, they can grant fishing licences to whoever applies. That is worth money… maybe $350 FJ per year and with the granting of three or four licences those fishers could effectively clean out an area. Now when every diver chips in $25 FJ per trip (the current contribution) it is worth so much more…but initially people took some convincing.

Now there is no doubt that the current arrangement is much better for all the stakeholders, marine and land based. In addition to divers from around the world contributing to the local economies the dive operations employ a large number of local guides, Divemasters, Instructors and Skippers; again, everyone wins…including the sharks.

Apart from the immediate impact in the towns and villages that lie along the Coral Coast there is the broader impact of highlighting the negative impact of shark finning and bottom trawling. To that end the Fijian Government have taken a number of steps to protect a range of marine species over the past 30 years.

It started in 1992 when they ratified the Convention on Biodiversity and continued through to 2016 when Fiji become the first Pacific Island country to propose global trade restrictions on sharks and rays.

In 2020 Fiji, as part of the Western and Central Fisheries Commission, adopted a binding Conservation and Management Measure (CMM) for sharks which included a ban on taking white-tip and silky sharks as well as a "fins-naturally attached" policy to eliminate the practice of Shark Finning. Fair to say there is still plenty of work to do in this area and eternal vigilance is required to stop longline fishing interest groups modifying these bans.

Despite these initiatives the impact of mankind is visible on some of the sharks. Hooks in their mouths are quite common, there was one shark with a plastic 'noose' around it and a further one with a badly broken jaw. Apparently the one with the broken jaw had been a regular for at leas the past 4 years and is managing to survive.

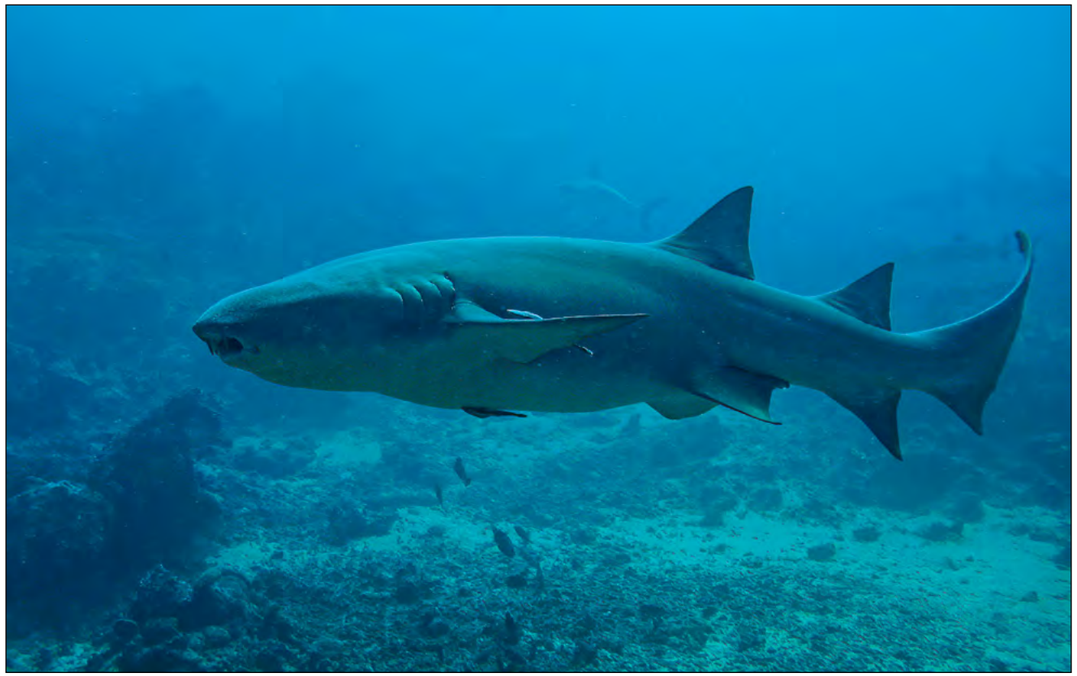
For me it is the point about the value of sharks that is the most compelling for those more sympathetic to economic outcomes rather than conservation outcomes. Much of the initial credit for establishing the Fiji Shark Corridor and Fiji's first National Marine Park needs to go to the team at Beqa Adventure Divers (BAD).

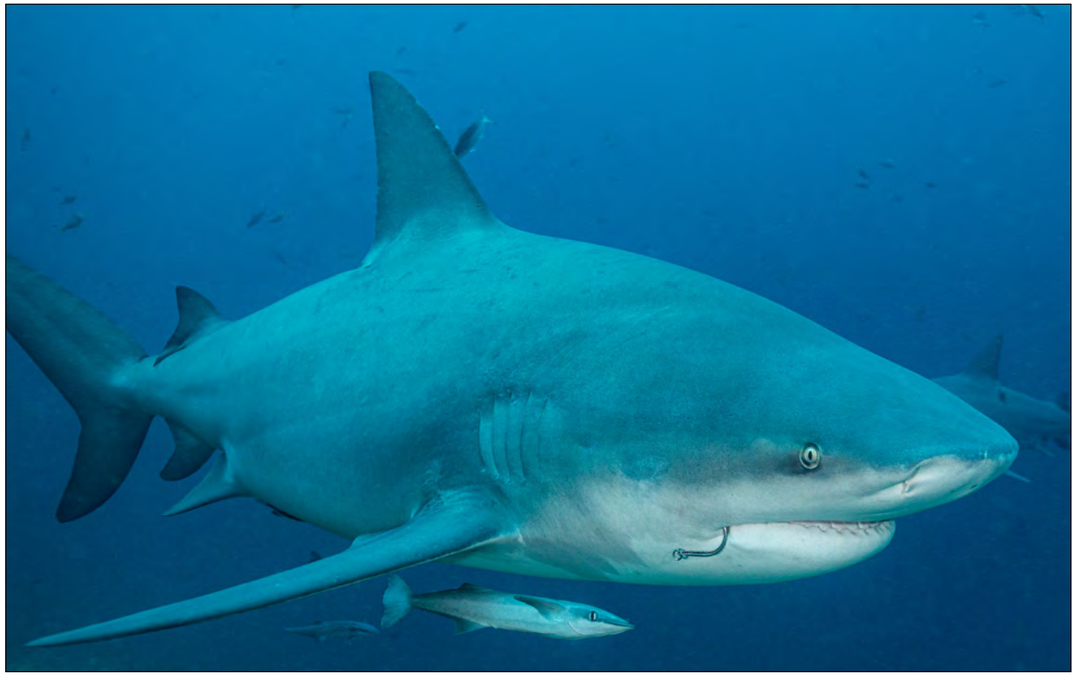
They have been deeply committed to conservation, local empowerment and education to provide a win-win-win to their business, the local community and the sharks.

BAD began their conservation and sustainability work in 2003 with The Fiji Shark Project.
This project resulted in the establishment of Shark Reef Marine Reserve (SRMR), a full no-take Marine Protected Area, or MPA, in 2004. The SRMR was Fiji's first MPA dedicated to researching and preserving local shark populations and was created in collaboration with the village of Galoa, about 7 kilometres west of the Dive centre who own the traditional fishing rights and the then Ministry of Fisheries.

To compensate Galoa Village for the loss of fishing opportunity, a daily Marine Park Levy was instituted. BAD also helped negotiate a shark (only) fishing ban for the entire fishing grounds of five villages on the southern coast of Viti Levu so establishing the Fiji Shark Corridor.

Giant Stride
Beqa



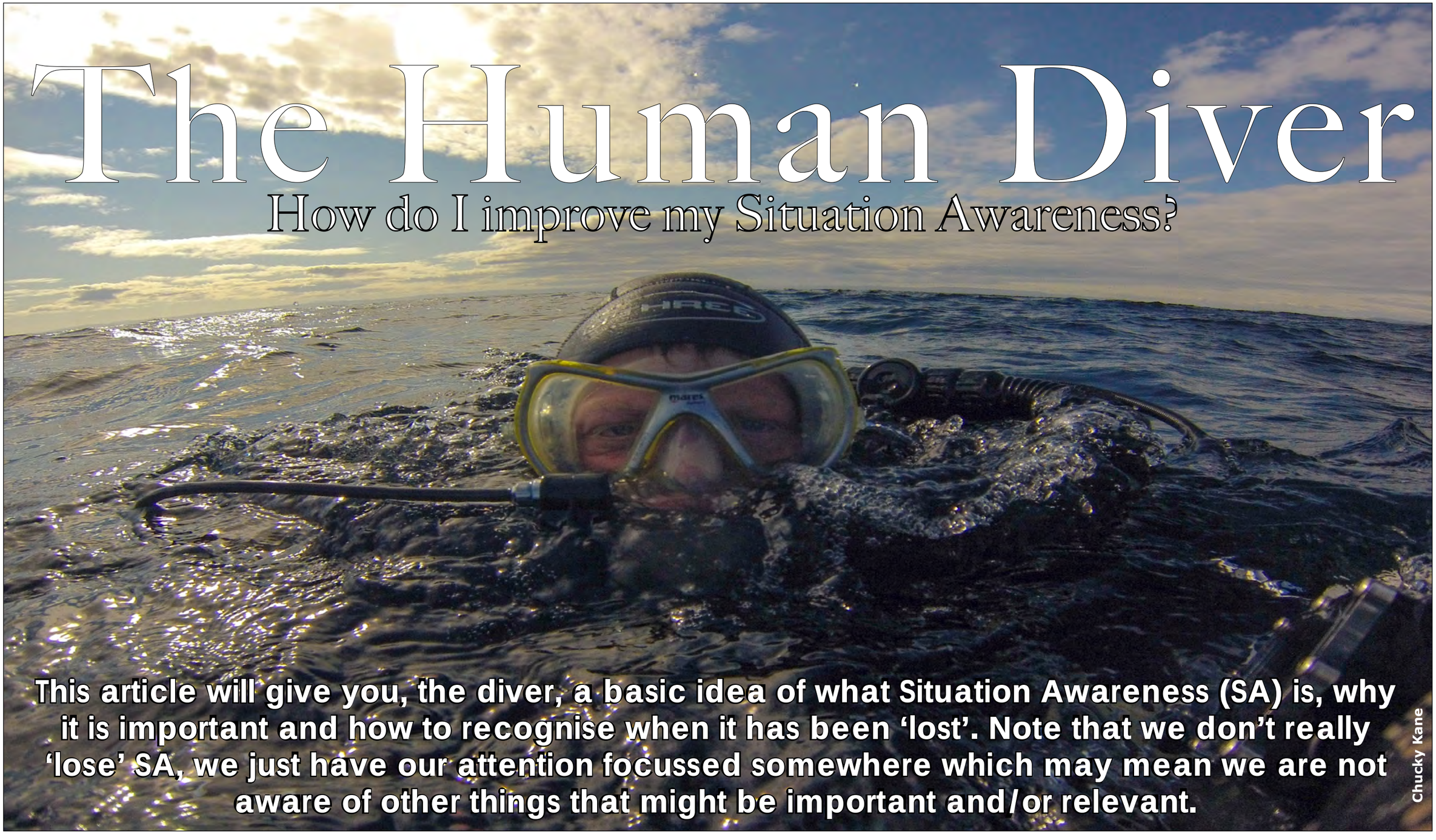


Giant Stride
Human Diver

By: Michael Mason

The Human Diver

How do I improve my Situation Awareness?



This article will give you, the diver, a basic idea of what Situation Awareness (SA) is, why it is important and how to recognise when it has been 'lost'. Note that we don't really 'lose' SA, we just have our attention focussed somewhere which may mean we are not aware of other things that might be important and/or relevant.

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By: Michael Mason

The main aim is to give some tools to gain and our improve SA.

What is Situation Awareness?

Mica Endsley, who has done a great deal of research on this subject, produced this simple model for describing SA:

Perception - Comprehension - Projection

Perception: Just raw data coming into our brain via our senses. While this could be things we taste, smell, hear or feel through touch, the majority of data comes in via our eyes. Our eyes see billions of little bits of information and our brain automatically filters it according to what it thinks is relevant.

Comprehension: We make sense of that data to work out what it means right now. This is affected by our previous experience, memories, training and stories we've heard from others.

Projection: What is going to happen next? We've perceived and comprehended something but this final layer of SA is what separates novices from experts.

The more mental models we have that we gain from training and experience (both our own and learning from others), the greater our ability to make better predictions about the future.

Here is an example of this process in action at my local shore site which is in an estuary and only really diveable at slack high water: Occasionally, after we've been in the water for a while, the water upstream will start to look murkier - Perception.

This means that the tide has turned and the relatively dirty water from upstream has started to flow through the estuary to the sea - Comprehension. The more experience and knowledge we have about this situation, the more mental models we have and the better equipped we are to respond - Projection.

How much rain has there been recently? The more rain, the dirtier the water will become due to run off into the rivers upstream. Is it a very high tide?

If so then the current will pick up quickly and the visibility may get worse rapidly. We might need to keep our buddy closer than we normally would.

We might want to take a different route back to the exit that is affected by the tidal change later. Knowledge and experience help our ability to predict what may happen next.

Why is Situation Awareness important?

Research done in the world of aviation during the 1990s found that problems with SA were a leading causal factor of mishaps and accidents

By: Michael Mason

as opposed to problems with decision making or flight skills (Hartel, Smith, & Prince, 1991. Endsley 1995).

While little if any formal research has been done directly on this subject in the world of diving, there is no reason to suspect the findings would be any different.

Therefore if you can improve your own SA and that of your team, you are less likely to have bad outcomes.

How do we know we've 'lost' SA?

1. We are surprised by something or something happens that we weren't anticipating.

• After we look up from spending a minute or so photographing an interesting fish, our buddy, who was right next to us, is nowhere to be seen.

2. Conflicting information

• Navigating a well known site by pilotage, your compass is telling you you're heading north but you're convinced the shelf you're swimming along is orientated east/west.

3. Confusion
• While swimming on a wreck 'towards' the bow in poor visibility, for some reason, we instead find ourselves at the stern.

4. Bad gut feeling

• Something is telling us 'this doesn't feel right' but we're not sure why.

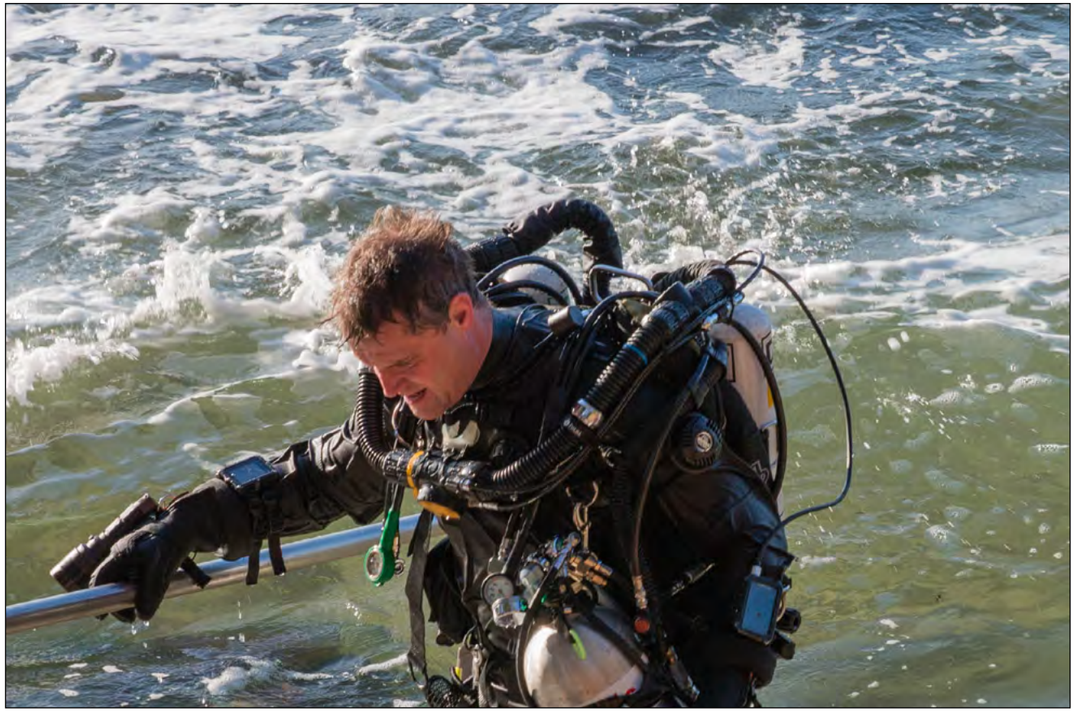
It is worth noting that the first 3 points happen after you've already 'lost' SA, you just don't realise until it's already gone.

Point 4 happens in real time. So if you do find yourself having a 'bad gut feeling', stop and assess before moving on.

What can we do to improve our Situation Awareness?

There is no magic pill to make our brains better at SA. The phrase 'pay more attention' also isn't very helpful as our attention span is limited. What we can do is try and figure out what we should be paying attention to and when.

1. Briefings. Before diving, brief with your team. This helps with SA by sharing



information before the dive about:

• Hand signals - If we talk about likely hand signals before the dive, it won't be confusing when we see those hand signals underwater.

• Gases - If our buddy has less than us at the start, we won't be surprised when they reach their turnaround gas before us if we have similar consumption rates.

Also, if they have a different nitrox blend, we won't be confused when they finish their deco before or after us.

• What people are wanting to get out from the dive - If we know that our buddy wants to photograph an octopus, we won't get confused or even frustrated when we see them looking into every little nook and cranny they can find.

2. Gain experience. Go diving and get some variety! The more experience we have in different environments, different depths, different levels of visibility and current, the better equipped we'll be to deal with novel situations.

We'll have more mental models to use to comprehend what is going on now and more importantly, project what is going to happen next.

3. Keep practising technical skills (DSMB deployment, accurate buoyancy and trim, emergency drills). By perfecting our technical skills, they become second nature and allow us more free capacity to pay attention to other things which may be crucial in an emergency scenario.

4. Debriefings with constructive feedback. We can expand our knowledge base and improve our mental models much quicker if we share our experiences with others. After diving, talk about things that went wrong and how to fix them and also talk about what went well and, importantly, why it went well. Stories are not just stories; they are the best invention ever created for delivering mental models that drive behaviour. These stories and lessons will feed into future briefings and so the cycle continues.

As a final note, as a way of keeping SA during dives, try and get into habits/routines. If we deliberately check our computer every couple of minutes, look at our buddy at regular intervals, read our SPG and work out how much gas we should have when we read it in 5 minutes time, then these routines will start to become automatic and will happen without us thinking about them. This reduces the likelihood of us being surprised or confused. Developing these habits might take effort to start with but will quickly become normal.

Summary

Just because we see or sense something, it doesn't mean we know what it means at the time. More importantly, we may not know what it means for the future. In the context of SA, the main difference between novices and experts is that experts are better able to predict the future and therefore are better able to avoid bad outcomes.

Research from other fields has taught us that problems with SA are often causal factors in accidents and mishaps. Therefore the more we can do to improve our SA, the more likely we are to avoid bad things happening to us and our dive team.

Go diving to keep building experience and keep practising technical skills. By perfecting technical skills, it enables us to have more capacity to absorb information - we can have more SA.

Brief to set the team up for success. Debrief to learn from each other. The more mental models we gain from telling stories in debriefs, the more SA we'll have and the better equipped we'll be in future to make good decisions and avoid bad outcomes.

Let's do all we can to improve our SA. Strive to be experts.

By: Christopher Bartlett

Technical Wreck Diving

Technical wreck diving is hazardous at the best of times, but more so when the environment gets more hostile. Diving to wrecks beyond recreational limits of 40m and generally incurring decompression obligations is great fun, especially when you know that you are perhaps the first person to set eyes on the wreck following the sinking, which may be years later in some cases.

Fun it may be, but if you are not well prepared for such a dive it can easily turn into a life or death situation.

Whole books are written on the subject, but the simple truth is that time underwater building your experience and knowledge, slowly pushing your envelope together with as much background understanding is the only solution.

Penetration is always exciting (did I say that)! But at depth it can be more dangerous than perhaps cave diving.

Sharp, rusting metal must be treated with respect, not forgetting siltation, wire, lines, cables and everything else you may expect to find on a ship which may be useful on the surface but can be a real menace underwater to divers.

The other problem encountered more than once are multiple fishing hooks suspended off the wreck. Whilst one end may be securely snagged on the wreck, and the monofilament line is very difficult to see, the hooks are seriously dangerous, catching you without warning and trapping you within seconds.

Struggling only drives the hooks deeper and without a knife the fishing line cannot be broken.

I know how a fish must feel! I was alerted to hooks once when I noticed a fish struggling in such a situation. Setting it free was not as easy as it sounds!

Most of my diving is where currents is present a formidable challenging. Getting down to them in the first place and back up without getting lost at sea is a concern and worry.

It is not uncommon to have strong surge over the top and around the sides of the wreck, making passing these areas a real interesting experience and not for the faint hearted.

My kit technical diving

An Inspiration Rebreather with side mount BCD and spare bladder/wing; spare mask; primary umbilical torch/light; back-up light; a sailor's tool pouch with pliers, marlin spike/shackle too; primary knife; back-up knife; light stick; signal mirror; underwater notebook and lead pencil; 1,5lt drysuit cylinder; 1,5lt spare oxygen cylinder mounted on the side of the rebreather; bail out open circuit cylinders according to dive plan, and a submerge underwater scooter. (All the inflator hoses are interchangeable).

Two SMB and reels with 150m of line each. I am now also looking at a smoke flare and waterproof cell phone in a case attached to the surface buoy.

Yes, quite busy but then I have a scooter

By: Christopher Bartlett

to pull me along comfortably. Oh, I forgot to mention a HD camera as well mounted on top the scooter.

Some may ask what I do with all that kit penetrating a wreck? That depends on the space I have to work with.

Some divers that I have been with have decided that if they have to bail out to open circuit in these situations then tough luck!

I prefer to keep my options open and have an alternative plan if need be; each to their own.

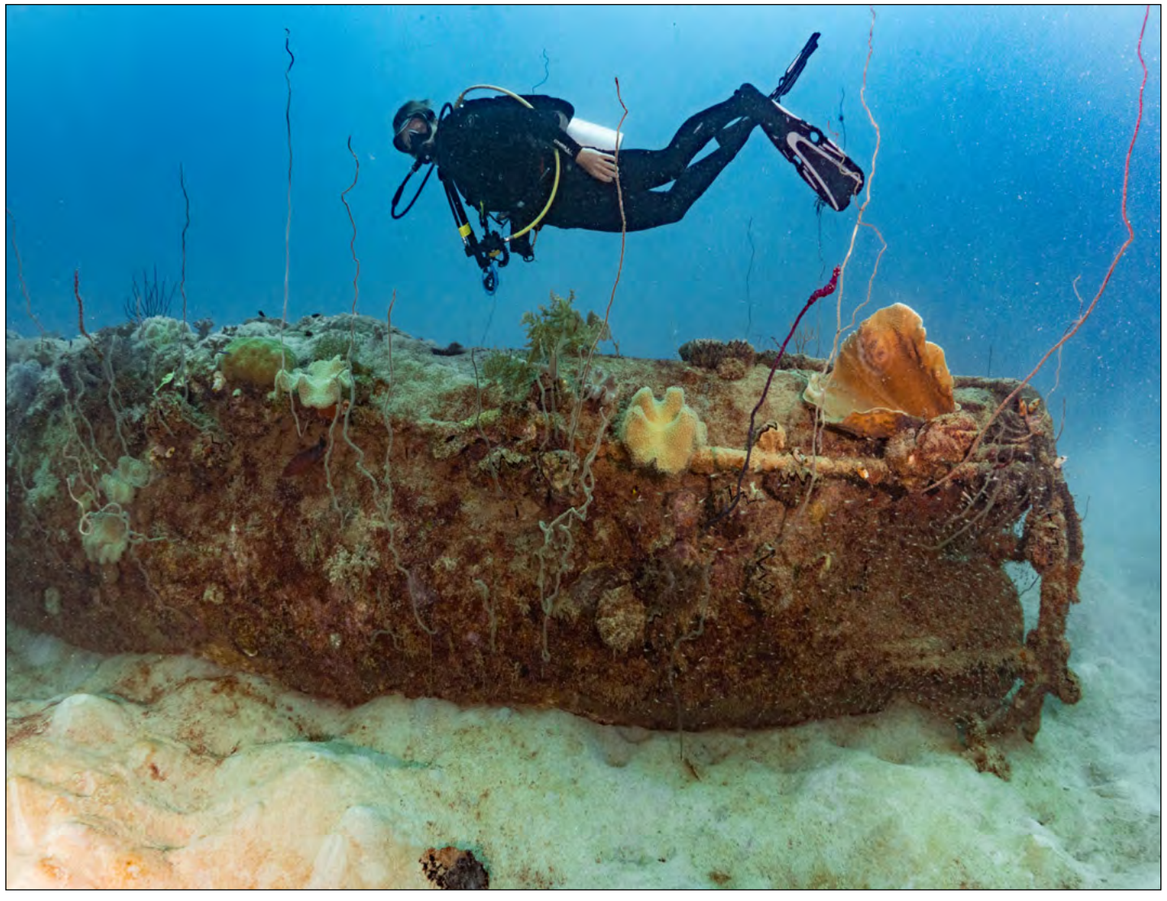
There are no hard and fast rules with this type of diving; pushing any envelope is a risk for each person.

Your limit may be a 20m wreck or a 120m wreck – it makes no difference, only the mental ability and capability make the real difference. Mistakes can be made at any depth with similar results.

Technical wreck diving thrives with a good team, from the skippers to your buddy. Build up the knowledge together and work towards some rewarding dives.

How do you get into this? The correct qualifications are needed and then you start building on that.

With this type of diving, much like cave diving, qualifications are the key to the door and you now begin your journey – slowly!



Technically Speaking
Tech Talk

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Photo By: Nuno Gomes

What is gas mixing and why do it?

Q & A

Nuno Gomes

The main reason is that certain gases are only useable in certain depth ranges because of either hypoxia or hyperoxia (too little or too much oxygen). It also enables a diver to keep the nitrogen partial pressure at reasonable levels and thus avoid severe narcosis (By changing from one gas with more nitrogen to another with less nitrogen). The idea is to optimize the gases for certain depth ranges, this will also decrease decompression times on ascent because a diver is able to maintain high oxygen partial pressures but within the allowable range of 0.16-1.40 (when swimming/diving), basically the closer one is to a partial pressure of 1.4 the less the decompression (because oxygen does not contribute to decompression).

Barry Coleman

1. Allow a P02 (partial pressure of oxygen) that is not threatening to the safety of a diver. By reducing the oxygen percentage of gas in the mix so that, at the diver's Target Depth the partial pressure of oxygen is 1.4 or lower. Example: Air dives below 66msw have a PO2

of above 1.6 which is proven to be the limit of the N.O.A.A. CNS Tables. The oxygen partial limit for open circuit divers is 1.4 and has been accepted by most training agencies.
2. With Trimix (Oxygen, Helium & nitrogen) there is the reduction in the inert gas narcosis. You can also reduce the nitrogen percentage of gas in the mix. Therefore the remainder of gas will be Helium. Example 16% Oxygen, 53% Helium and 31% Nitrogen. For a dive to 80msw with an Equivalent Narcotic depth of 25msw.

3. The use of High PO2 during decompression speeds the elimination of inert gas. One has to remember that the use of Helium in a mix has the benefit of reduced Narcosis but it requires a longer decompression obligation. This is due to the fact that the diver has to also eliminate the Helium.

So a Technical diver Trained to go to a depth of 80msw would most likely use the following procedures. From the surface down, to start with, he will use a "TRAVEL" gas. This could be a Nitrox mix of 30% down to a depth of 40msw where upon the diver would swap to his "BACK GAS" of - 16/53 . The diver would breath this all the way to the bottom and back up to 40msw, where the diver would change over to the "Travel" Gas and then swap again to an 80% or 100% oxygen gas at 9m/6msw and following the required decompression profile. By doing these gas changes the diver is reducing the narcosis effects, staying within the accepted oxygen tolerance levels and speeding the decompression obligation.

Pieter Smith

Multiple Gasses – Control, Control, and CONTROL - It's all about controlling breathing gasses to give the optimal breathing mix at any given time. This gives you maximum dive, minimum decompression, be that a longer no deco dive, or a longer dive with incredibly reduced decompression.
Air: not the best gas to dive with! Use multiple "exotic" gasses to carry out as near perfect decent and ascent profiles as possible. On the bottom we control narcosis level – as you come up, switch from the "bottom mix" to "deco mix" - a higher pressure of Oxygen to aid deco and reduce inert gasses. A 50% Nitrox mix reduces deco time by a third. If you change to 100% you can reduce it by half.

In the 60m plus range you may also use a "travel mix" as the gas in your bottom mix may not be a breathable mixture in terms of oxygen content until you get deeper. Travel mix gives you a physiological advantage on the way down and is a deco gas on the way up. If you dive very deep you even use several trimix gasses as travel and deco mixes.

As an open circuit diver; IF you change gasses enough, you can approach what a fully closed rebreather (CCR) would give you. If you use CCR (my hobby horse!) we have ideal gas on the way down and up. Analyzing what the machines give you, you will see a perfect gas changing. It is as though you have changed gas at every meter of the dive! Sheer poetry!

On deco dives using CCR we carry "bail out" gasses. This gives simple redundancy – if there is a failure of the machine we have OC gasses to do the "decompression obligation" that we have. This varies from one 3L cylinder to multiple 11L cylinders.

Pieter Venter

Air is a wonderful gas, it has just the right mix of gasses that we require to sustain life, it has just enough oxygen to keep us alive. The pressure difference from sea level to higher altitudes is so slight as to not make much of a difference to us unless we start climbing mountains (lowering pressure) or we start diving (increasing pressure) …and as the Bard said…"there's the rub"….

Oxygen, albeit a life sustaining gas, will become toxic at higher "concentrations" (too little will kill you - as well as too much…like Love !) As we dive deeper the pressure on our bodies increases and so does the Partial Pressure of the various gasses in the mix. Each gas has its own unique characteristics under pressure, Oxygen will become toxic, Nitrogen will become Narcotic, Helium will cause uncontrollable tremors and other exotic gasses each have their own surprises !

The Technical diver needs to breathe an optimum mixture of gasses , tailor-made to the maximum depth they are diving to as well as for every depth they will pass on the way there and back. This optimization should take into consideration Helium tremors (High Pressure Nervous Syndrome) by adding Nitrogen,… Nitrogen Narcosis by adding Helium, …and Oxygen Toxicity by adding Nitrogen and Helium. So you don't shake, you don't Narc and you don't die.

This means the diver needs to carry stupid amounts of cylinders to breathe the "best" mix. Not practical…. so you balance the best gas to breathe at various depths with the cylinders you can safely control in the water. This is why divers "hang" tanks, they can't carry them all.

A lot of this can be solved by diving with a Rebreather, as the unit will "mix" the optimal breathing gas for the depth as you go, you will still need to carry open-circuit cylinders as part of your bail-out should something go wrong with your Rebreather.
So, Tekkies need bail-out cylinders (if on Rebreathers) Deco-cylinders (to optimize of-gassing) Travel Gas (to breathe from the surface to where Bottom gas can be breathed) and a Bottom gas (to breathe on the bottom)…all this and you have to look cool !!!

Solomon Is. Diving

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By: SSI

How to be the best dive buddy you can Be

What is the number one rule when scuba diving? …"Never dive alone!" Whether you have ten dives in your log book, or you have been diving for decades, the same rule applies for everyone.

It is so important to know that you have someone close by to help you in the unlikely event that an emergency situation occurs.

A dive buddy is so much more than just emergency support, though! A dive buddy is someone to swap stories with, create memories with, and hopefully become a lifelong friend. Are you a good dive buddy? What exactly makes someone a good dive buddy? How could you become a better one? We are going to help you become the best dive buddy you can be while scuba diving.

What does a dive buddy do?

A dive buddy is another diver who you look out for, and who looks out for you when scuba diving.

Your main job as a buddy is to provide safety. You will provide air to your dive buddy, if they should ever need it. The experience and training you get from your scuba courses provide you with the skills you need to handle an emergency situation. You also learn other ways in which to be a good dive buddy.

A good dive buddy has well maintained equipment, for example regularly serviced regulators and tanks that can be relied on in an emergency.

A good dive buddy is also a role model to those less experienced. This includes following rules, diving within your limits, not touching or chasing marine life, and being kind and helpful to divers who are struggling or nervous. Top tips to be the best dive buddy you can be

1. Be sociable

Not everyone gets to go on dive trips with their close friends, you might sometimes find yourself diving with strangers. But you do have one thing in common with those strangers: Scuba diving!

Once divers start chatting about their favourite fish, their best diving memories, or their top diving location, it does not take them long to become great friends. When you become friends with someone it is easier for them to relax in your company, and trust you as a dive buddy.

So get chummy, and build those important bonds at the dive centre or on the way to the dive site before you dive underwater with them.

2. Practice hand signals

Unfortunately we cannot talk underwater. This is why it is important to know hand signals, and make sure you and your dive buddy understand each other's hand signals before entering the water.
You can also practice hand signals for marine life you are likely to spot so you can point things out to each other along the way.

By: SSI

3. Plan, plan, plan

Having a plan for the dive, and discussing it with your buddy or dive group is an extremely important part of making sure a dive is safe.

Planning a dive should answer questions such as:

- Where will you enter the water?
- How will you enter the water?
- Who is leading the dive?
- Which way are you heading around the dive site?
- Does everyone in the group have a dive buddy?
- When will you turn the dive to head back?
- Where will you exit the dive?
- If you are drifting, where will the boat pick you up?
- What do you do if you lose your buddy or dive group?
- What do you do if you hit strong currents?
- How and where will you do your safety stop?

4. Stay close together

A rough rule for dive buddies is to always be able to touch hands if you were to both reach out. You might choose to stay closer than this in poorer visibility, however. If you were to lose your dive buddy, you would have to surface.

This can ruin a dive trip and make you miss out on exciting underwater treats. It also increases your risk of a serious problem if no one is there to help you in an emergency.

So stay close to your buddy, look over at them regularly, and make sure you are there if they need you.

5. Handle problems with empathy and understanding

If you believe that your dive buddy is doing something wrong, it is important to tell them in a way that will not escalate the situation or trigger aggression.

If you are underwater, gently tap them on the shoulder and use hand signals such as waving your finger to say “do not do that” or shaking your head.

You could signal “stay closer” by bringing your two index fingers together if they are swimming too far away from you or the group.

If you feel the need to discuss the situation afterwards, approach them calmly, and explain nicely, remember, not everyone understands that their behaviour is wrong, and most people appreciate constructive criticism if it is given with respect.

6. Exit the dive safely and together

When the dive is over, stay close to your dive buddy and perform the safety stop together, once it is over, surface together too. You can help your buddy exit the water by holding their fins, supporting their tank, or helping them to take off their BCD. Team work makes the dream work!

7. Stay in touch

Swap email addresses or social media handles to tag each other in photos and posts from your amazing dive experience together. Staying in touch might secure a reliable dive buddy for future adventures!

8. Education is power

A good dive buddy is always open to learning more. Your scuba diving skills can always be improved on.

The more experienced you become, the better dive buddy you will be because you will have confidence in your diving skills.

There are many courses you can sign up for to expand on your diving knowledge.

There are also blogs, books, articles, podcasts, and documentaries out there to learn even more.

By: DAN

Drysuit Difficulty

I've been diving on and off for 20 years, with most of my 70 dives occurring in warm tropical waters. However, living in Seattle, I realised that restricting my diving to warm waters meant diving only on vacations — usually once a year at best. With great Pacific diving spots nearby, I decided to learn cold-water diving.

I got certified for drysuit, nitrox and advanced open water diving last year. During the drysuit course's pool training, another diver got air in the legs of his suit, flipped upside-down and surfaced completely out of control. I practiced flipping and releasing air until I felt confident.

While waiting for my new drysuit and other gear to arrive, I completed two drysuit dives locally using rental gear. With 15 kgs integrated in the buoyancy compensator, I felt a bit too buoyant during those dives, but it was manageable. After I received my new trilaminate drysuit, I went diving with two experienced members of my dive club at a local beach with no current.

It was supposed to be an easy dive to about 18 metres with a shore entry into a flat sea. I geared up with 15 kgs of weight from a local shop, thinking I might be a little heavier with my new suit but not expecting a drastic difference from the rental gear I had used. We entered the water, repeated our buddy checks and started the dive without a buoyancy check.

Before you dive, familiarise yourself with any new gear that you plan to use, try it first in a controlled environment, and be even more diligent with your preparation than usual when diving with it for the first time.

Trouble maintaining buoyancy
Throughout the dive I had trouble maintaining buoyancy and had to nudge air in and out of the drysuit. I also had some trouble keeping my legs down, so I adjusted by releasing air a few times. The buoyancy issues cost me a lot of air; about 15 minutes into the dive I noticed that I was already low on air. I signalled to my buddies that I needed to start going back, so we began following the bottom gradient back toward the beach.

I suddenly felt that I was losing my fins, so I curved to catch the back strap and secure them. That turned me feet-up, and a few seconds later I found myself at the surface from 15 metres. It happened instantly. I was shocked but otherwise felt fine: clear-minded without tingling or pain. As I swam toward the beach, one of the other divers came up and asked if I was OK, so I signalled back that I was fine.

I felt unusually exhausted
On the drive home, I called a professional diver friend who insisted that I immediately call DAN. The DAN medic told me to monitor my condition and to go to the hyperbaric centre at nearby Virginia Mason Hospital if I felt anything unusual.

I was fine until that evening when I felt unusually exhausted and went to bed early. The next day I woke up normally and went to work, but again I felt overly tired in the evening and went to sleep early.

The following day, about 45 hours after the dive, I called the hyperbaric centre. The nurse took a summary of my story, and the consulting physician told me to come in for an assessment.

Treatment recommended
After a full evaluation, blood tests, chest X-ray and interview, everything appeared normal. The doctor was concerned about my dive profile (19 minutes at a maximum depth of 27 metres), the over-exhaustion and a faint muscle soreness in my arms as if I had worked out a few days prior, however, and recommended a U.S. Navy Treatment Table 6 hyperbaric treatment.

I considered declining the treatment since my only problems were persistent exhaustion and pain in both arms, but the doctor told me that even if most of the bubbles were gone, an inflammatory condition in the muscles and nerve tissues could have a long-term effect. With the window for effective treatment closing, I went into the chamber after agreeing that it was better to be safe than sorry.

After completing the treatment, I felt better, and the residual soreness was gone. I've scheduled my 30-day follow-up appointment with the head of the hyperbaric centre to get approval to return to diving, and I plan to dive at the earliest opportunity after I am cleared.

Lessons learned
Next time I will go to a familiar site, stay in shallow waters with a good buddy and some ankle weights, and perfect my buoyancy. When I'm certain that my drysuit skills are at the level of my warm-water dive skills, I will gradually progress to more advanced dives.

Divers who are new to drysuits need to take time to get comfortable with their gear in a safe environment. If you are uncomfortable, stay in the shallows or find a buddy with the same objectives so you don't feel pressured by someone else's dive plan.

Don't overlook any element of the dive: If you suspect you are overweighted or if you are uncertain about any of your gear, make sure you address these issues. Practice how to operate every piece of your equipment, especially if it's new or unfamiliar, and respect the complexity of drysuit diving.

I was not careless or reckless, but I did not sufficiently prepare, and I rushed some details.

Accidents are unintentional and unplanned, but proper diligence can help increase the likelihood of a safe and successful dive.
World.DAN.org

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The Dive Spots of NEW SOUTH WALES

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.

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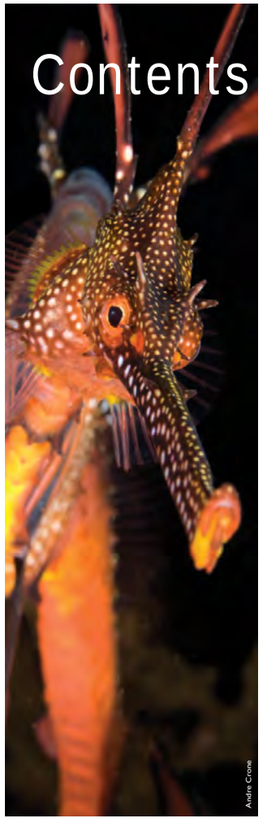

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Gear, books, software, apps and scuba diving gadget reviews.

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

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.

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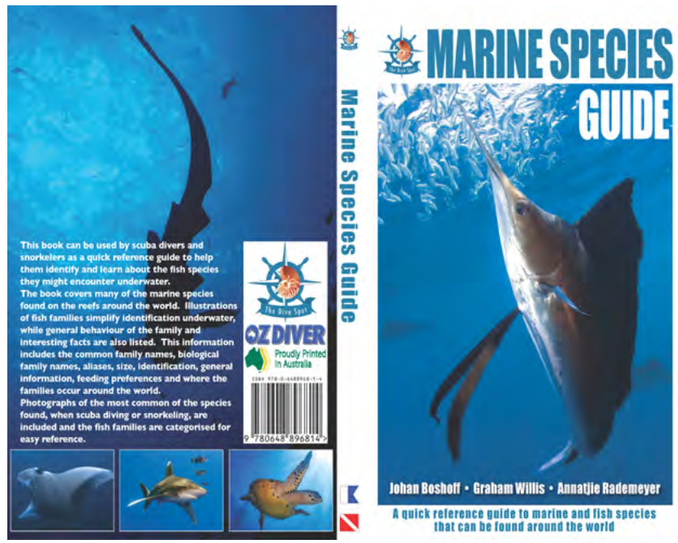
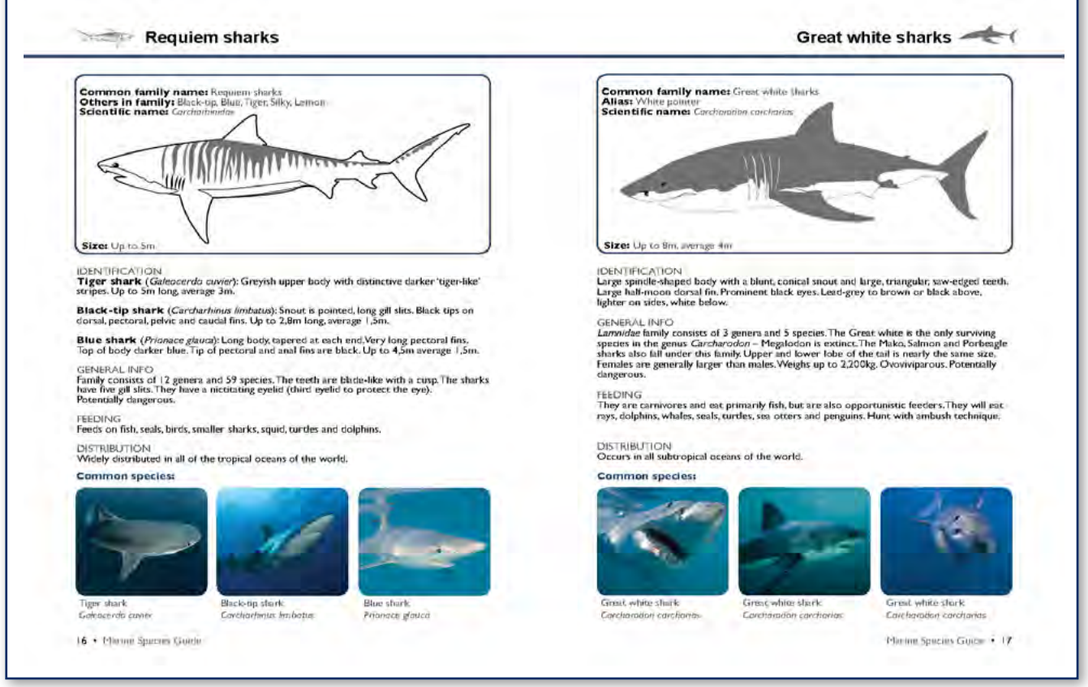




Scubapro A2 Dive Computer

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

By Johan Boshoff

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

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

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

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

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

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.

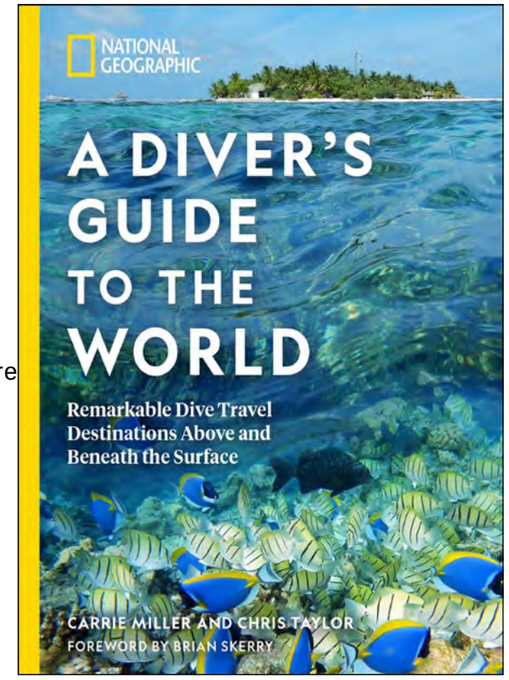
Although the land and sea are wonderfully and inextricably interconnected, travelers tend to visit one or the other. Scuba divers seek out underwater realms, impatiently counting down surface intervals until their next dive. Land-lovers might venture out for a snorkel or sail, but they're glimpsing only 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.

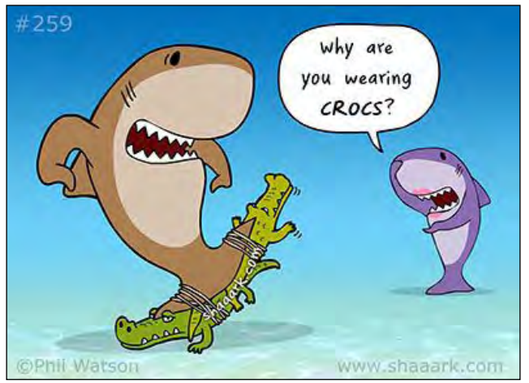
Each of the 50 locations is its own chapter – marvel at manta rays and dragons in Komodo; learn martial arts and go shore-diving in Okinawa; go on a tour of WWII history on land and underwater in the Solomon Islands; linger in the land and sea gardens of Bormes-les-Mimosas, France; and road-trip around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

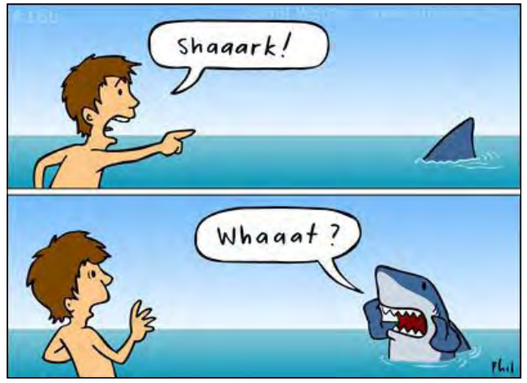
Each chapter contains compelling stories, stunning National Geographic photography, and expert advice, including travel tips, dive information, and activity suggestions, from remarkable shared experiences to solo excursions if divers and travelers choose to go their own ways for an afternoon.

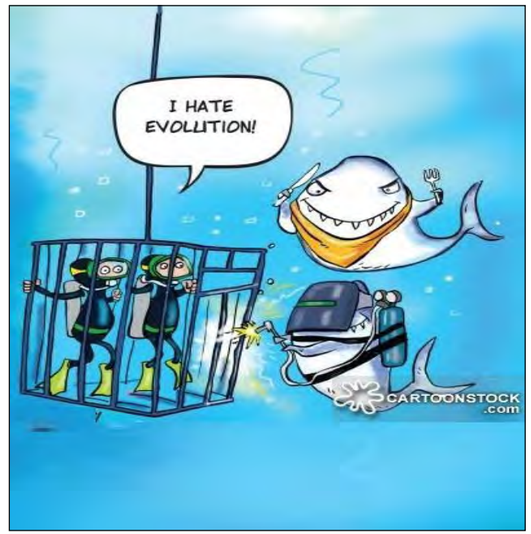
Miller and Taylor believe in conservation through exploration, so each location also highlights a global issue such as the necessity of protecting remarkable ecosystems like coral reefs and mangroves, to sea turtle and shark conservation. They feature scientists and organizations that are striving to 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)
Publisher: National Geographic Books
Release Date: December 6, 2022
The book is available from Amazon or https://books.disney.com







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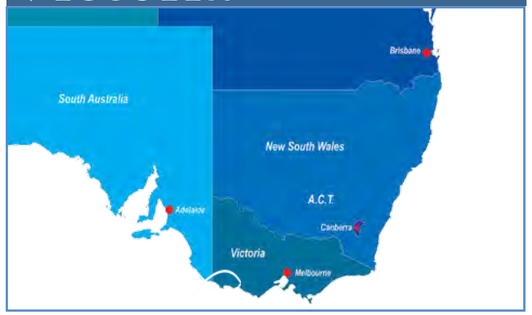

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