January / March 2021

OZ DIVER

AUSTRALIA'S PREMIER DIVE MAGAZINE

THE BEST OF CUBA

ICE DIVING RUSSIA

MAKO SHARKS

ROAD TRIP TO EDEN

LIBERTY WRECK

JARDINES DE LA REINA

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January / March 2021 Edition

Editor's Deco Stop

What a year we had last year!
I really hope 2021 is nothing like the past year where the whole world came to a standstill. Diving tourism stopped, international travel stopped.

It will take years for the diving industry, all over the globe, to recover. Unfortunately, it is very likely that this problem will continue for a few months into this year.

All I can say is, support your local dive industry and when the borders open, start supporting the rest of the world's diving industry as they desperately need your support.

During these tough times, OZDiver Magazine will support those in need and will help where we can.

But for now, as the song says: "The Show must Go On". I hope you enjoy this magazine that is packed full of interesting destinations and articles.

Editor in Chief & Publisher

Johan Boshoff

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

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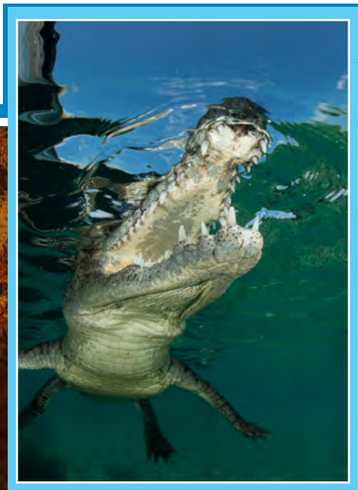

COVER PHOTO
Theresa Guise

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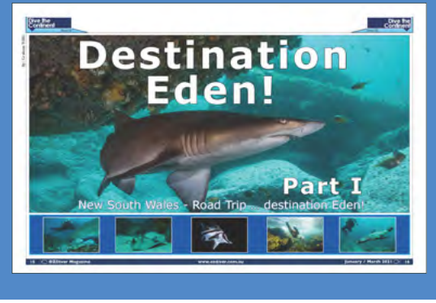

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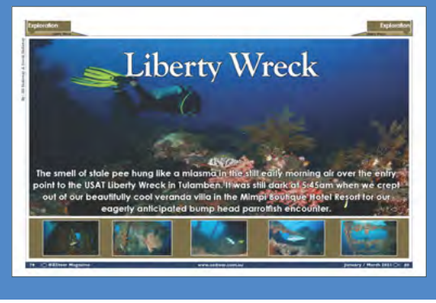

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Beware Complacency

By Anne Owen

By: DAN Member Anne Owen

I was feeling very comfortable on my 13th dive at Anilao in the Russia. The weather was great and the sea flat and calm as my guide and I puttered along a rock face at about 9m looking for macro critters. We had been down about 25 minutes and had the site to ourselves.

As I leaned toward a pretty pair of Coleman shrimp, I felt a sharp and insistent tug on my left elbow. I looked up and saw my guide dramatically sweeping his hand across his throat. Stunned, my mind flipped back to my training 49 years ago and interpreted this as the signal for danger.

I immediately scanned my surroundings, checking the surface for an errant boat, the rock face for some poisonous fish and the deeper water for who knows what.

My guide spun me around and grabbed my spare regulator off my octopus second stage and jammed it into his mouth, breathing rapidly and deeply. We looked at each other with a bit of shock for a good minute before exchanging OK signals and slowly making our way back to our boat. Although we had stayed in shallow water during the entire dive, we made an extended safety stop and then climbed onto the outrigger with no small amount of relief.

We immediately began to analyse the dive. What had gone wrong? How did an experienced local guide run out of air, and why had I totally failed to understand his signal and react accordingly? As is often the case,

several mistakes compounded to lead to a potentially serious situation.

Mistake 1
As is common in many high-end dive operations, the guide and I relied on our boat crew to change the tanks and prepare our kit for each dive. My guide's tank did not get changed after the first dive, so it was likely less than half full at the start of this dive, but nobody noticed.

Mistake 2
My guide dives all day every day and admitted that he had not paid much attention to his own kit. After checking his pressure gauge, we discovered it was faulty and still showed 110 bar even when the tank was empty. It's no wonder there was no warning of the out-of-air situation.

Mistake 3
In our four days of diving together, we had never done a buddy check, so we had never compared hand signals. Shame on me for missing this vital safety step and misunderstanding the situation. No one was hurt in this incident, but it made me realise that complacency has no part in diving. I learned my lesson that on every dive — no matter how familiar, how easy or how shallow — safety is a serious undertaking and deserves the proper attention to equipment and good dive practice.

DANAP.org

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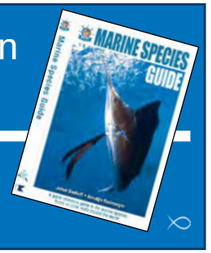
Here is a chance to be heard! If you have anything that you would like to share with OZDiver Magazine and other divers, send an email to Log Book at info@ozdiver.com.au. Remember that letters have more impact when they are short and sweet. We have the right to edit and shorten letters. In every issue,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



OZ NEWS

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. Through extensive travel and diving, Johan Boshoff and Graham Willis bring you valuable information on more than 250 dive spots in New South Wales. Important guidelines on each coastal dive destination include accommodation, facilities, travelling tips and dive conditions. Complete with photographs and more than 100 illustrated maps of each dive site. All spots are star rated to cover depths, marine life and other essential information for the diving and snorkelling community.

Visit your local dive shop or buy your copy form www.ozdiver.com.au

$ 39.95

Contents

How to use this book

The sub-regions

The Dive Spots of New South Wales is divided by regions for easy navigation; the first section is about Australia in its entirety while the rest of the book is dedicated to New South Wales. The book covers the best dive and snorkeling sites and spots from Tweed Heads in the North to Eden in the South, and is split as follows; the North Coast, Northern Beaches, Sydney Harbour, Southern Beaches, and South Coast.
Within each regional subsection, the top dive and snorkeling sites are identified, showing where they are located.
Information is also given on the destination area and on the general diving and snorkeling which you can do.

The maps

The main maps illustrate where and in what regions a dive site is situated. Each dive site has a map to show all the best dive spots at that specific dive site (please note that maps should not be used for navigation).
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www.openstreetmap.org accessed 2020

The dive spot descriptions

Reef
Rocks
Jetty
Submerged Features
Dive Sites
Dive Spots

Each dive and snorkeling spot that is listed is accompanied by a number of icons that will give specific information about the dive and snorkeling spot at a glance.
Icons include information on diving and snorkeling and the rating of each spot.For extensive information on wrecks in NSW visit Michael McFadyen's website.
www.michaelmcfadyenscuba.info

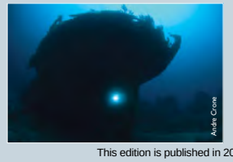
Scuba diving
Snorkeling
Boat entry
Shore entry
Wreck dive

The star rating system

Top dive spot
Highly recommended
Good
Average

Other features of the book

- Each region is colour coded to make searching for dive spots easier – the colours featured on the contents page are used throughout the book.
- General information is also given about the regions that are covered in this book.
- Only the most visited dive and snorkeling spots are listed at every site.
- A section on medical information and what to do in emergencies is also included. Only trained persons must attend to patients and updated information must be obtained before administering any medical assistance. It is the diver's and snorkeler's own responsibility to find out more about any laws, regulations, safety and requirements for each dive and snorkeling site and spot –dive safety is your responsibility.
- The GPS coordinates provided (WGS 84 Datum) are as accurate as we can make them for both dive and snorkeling spots. They should not be used for navigation and we recommend you check with local operators to determine if mooring buoys are still present at offshore locations.



This edition is published in 2020 by TheDiveSpot-OZDiver.

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Tweed Heads & Cook Island

DIVING & SNORKELING SPOTS

Tweed River

Average depth: 6m
Maximum depth: 12m

GPS: (WGS84) **28°10'08.7"S 153°32'58.6"E**

There is a car park off Coral Street (GPS coordinates above) where you can gear up and then just walk down to the entry point. The dive site has easy access, down some stairs, or you can enter off Little Duranbah Beach just to the East. It is a sandy bottom with some outcropping rocks so you never know what you will find.
Turtles sometimes pop in there as do Dolphins but you are more likely to see Flatheads, Stripeys, Stingrays, Fan-bellied leatherjackets , Octopus and the like. Given it is a river you can expect limited visibility after rain and make sure you have a dive flag and are mindful of boat traffic. You can either dive this as a drift dive or as an 'out and back dive' either side of the tide.

Mary's Rock

Average depth: 14m
Maximum depth: 21m

GPS: (WGS84) **28°11'38.1"S 153°34'44.7"E**

Just to the North of Cook Island is a pinnacle of rock surrounded by gutters, walls and caves that reach down to 20m. You can find Grey nurse sharks here in the winter months and Leopard sharks in the summer. You are also likely to see Eagle rays, Black stingrays, Wobbegongs and Turtles. The reef is also covered in a range of hard and soft corals as well as some colourful anemones. This is a dive where you can easily circumnavigate the rock but also explore some of the sand patches that stretch out to the North and South. There are moorings to tie up to however they are exposed, so you will need reasonable conditions. The GPS co-ordinates above are for the Rock itself.

Turtle Bommie / Sanctuary

Average depth: 13m
Maximum depth: 15m

GPS: (WGS84) **28°11'39.7"S 153°34'35.3"E**

If you tie up at Mooring buoy number two and head out on a bearing of 280 degrees you will swim across a sand channel and hit a reef in around 70m or so…hopefully you can see it before that. Lots of reef fish here with shoals of Pomfret and Yellowtails

hanging around the reef. If you don't see them on the front they will be hanging on the other side. Turtles, Wobbegongs, Shovel nose rays, Crays and Stingrays all hang out here. Have a good poke around amongst the boulders and see what you can find. Head back towards Cook Island on a reciprocal bearing and you can explore some of that reef before completing your safety stop at 5m on top of the reef.

Boulder Wall / North Side

Average depth: 9m
Maximum depth: 12m

GPS: (WGS84) **28°11'40.49"S 153°34'36.8"E**

You can tie up at any of the mooring buoys on the North side of the island which are in around 12m of water. If you drop down and turn South, you will see a rocky boulder wall that runs pretty much from North East - South West. The top sits around 5m, a good spot for your safety stop, and the bottom hits the sand at around the 12m mark.
The top of the wall is more characterised by Corals, Anemones and lots of shoaling reef fish. Up and down the wall you can find Turtles, Bull rays, Stingarees, Morays, Wobbegongs, Gropers and Lionfish. This is

Sydney Harbour

Clifton Gardens / Chowder Bay

Average depth: 8m
Maximum depth: 18m

GPS: (WGS84) **33°50'19.82"S 151°15'14.27"E**

This is a very protected dive site which is used a lot for teaching. It is also one of the best macro sites in Sydney. Just because it is accessible and there are normally other divers in the water, do not assume that this Is anything but a very good dive… if you take your time. Like a lot of macro subjects, the life at Clifton Gardens is well hidden, so travel slowly, take your time and come back several times. There are toilets and showers at this site, as well as some shade if you are early enough. There is normally plenty of parking at this site, unless you are a bit later in summer, but it comes at a high cost. You can park up the hill to avoid the parking charge… just remember that someone must go and get the car afterwards! The covered areas at Clifton Gardens are on the site of an old dancing pavilion and, at one stage in the 1950s, this was quite the place to come for a picnic and a dance. The other feature, which dominates the Bay, is the old Submarine Miners Depot, part of the Harbour Trust, where there is now a restaurant and a small café. There really are three separate dives one can do here and they all have slightly different things to offer. Let us call the dives, The Pier Dive, The Wreck Dive and The Chowder Bay Dive. Depending on how good you are on your air you can combine any two of these three dives. As a heads up, the whole area is very silty and rewards good buoyancy if you are to keep the viz at anything over 2-3m. This area can also have a lot of boat traffic, especially in summer. Make sure you pop your SMB if in open water. This is also a good place for a night dive and always has a lot to offer.

The Pier Dive

Average depth: 5m
Maximum depth: 8m

GPS: (WGS84) **33°50'22.79"S 151°15'12.38"E**

The navigation on this one is super simple. You can enter the water either from the beach where there is set of steps that comes down from the grassed area (this is your exit) or you can walk down the pier to where the steps go down to the water on your left and do a deep-water entry. Avoid the bottom two steps unless you want to end up slipping

over. You will notice that there are people fishing all around the pier so you will need to stay under the pier if you are to avoid becoming the catch of the day.
Let us assume you have entered via the beach in which case you would walk out avoiding the patches of seagrass, and head to the pier. When you are in about 2-3m of water descend and travel underneath the pier towards the South East… the nets will be on your right. You will come to a point where there is a net coming in from your right, ignore that for now and keep heading South East. You will notice the pier doubles in width, and this is the area to slowly swim around looking for all sorts of interesting life. You will spot Octopus, Cuttlefish, Seahorses, Angler fish, Nudibranchs, Decorator crabs, Fanbelly leatherjackets, Luderick, Rays, Flatheads and Blennies hanging around in bottles and possibly a Pineapple fish lurking under a piece of timber. You will reach a depth of around 8m on a high tide at the end of the pier. When you have had a good look head back the way you came, and when you come to the junction where the net comes in from your left, head down that way (South-West) staying under the pier. You will often find more Decorator crabs and Seahorses along the netting as well as Octopus and Cuttlefish. When you reach the end of the net turn around and head back.

AUSTRALIA INTERNATIONAL DIVE EXPO (AIDE) 2021

Dates for the Australia International Dive Expo 2021 will be announce early this year.

If you're keen to share any stories, be it technical, scientific, experience and knowledge that contributes to dive education, please contact us.

For exhibitors keen to be part of the expo to showcase your products and services please do contact us too.

Any enquiry, please email us at info@australiadiveexpo.com. Stay tune for more updates. Stay safe, stay healthy and safe diving.

For more information visit www.australiadiveexpo.com

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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

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Dive the Continent
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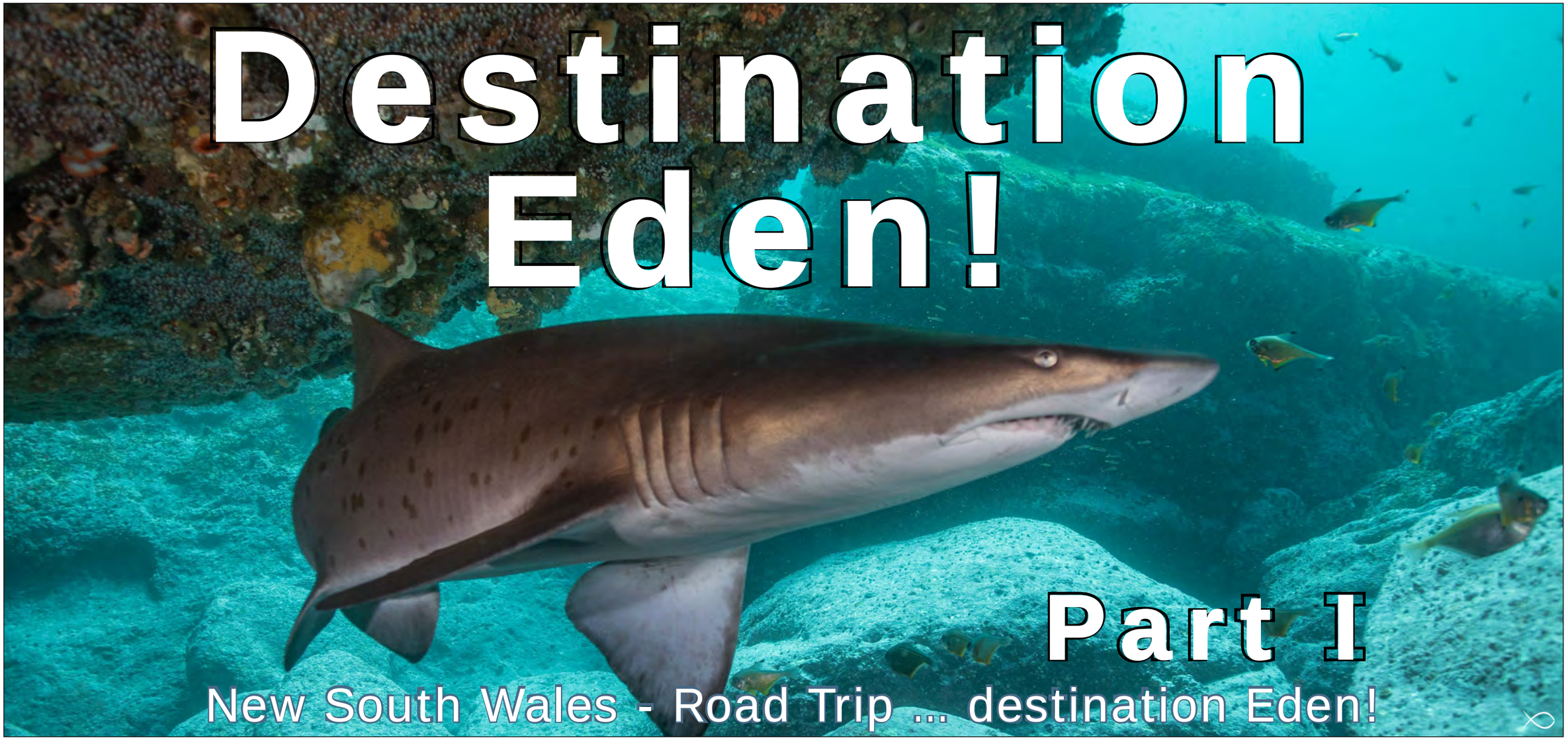
By: Graham Willis

Destination Eden!



Part I

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

By: Graham Willis

We intrepid (?) three (Barb Smith, Mathew Kempton and I) set off on a road trip to add some more first-hand experience to a book I was putting together on The Dive Spots of New South Wales and at the same time… because diving is always fun.

We also thought it would be a good idea to try and inject a bit of money into the local economies given how they had suffered during the bushfires.

We started heading South from Sydney when COVID-19 was still something that was happening to other countries…just. We planned the trip early the year when COVID-19 was not even a blip on the Australian radar and the end of that month saw a grand total of nine cases across Australia.

The cases on a later stage was hardly an explosion and although the Federal Government had just activated the Australian Health Sector Emergency Response Plan there were no restrictions on travel and an extremely low level of community concern.

Things were, of course, to change.

We returned to Sydney 9 days later and there were over 375 cases in Australia, people had started dying from the disease, a $17.6Bn stimulus package had been put in place by the Government, Tom Hanks had the virus and the Australian Grand Prix was cancelled!

To say we were lucky to complete our trip is an understatement but complete it we did.

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By: Graham Willis

Our trip started in Shellharbour, South of Sydney, and meandered through Jervis Bay, Ulladulla, Narooma, Merimbula and Eden before heading back through Jervis Bay. Our first stop was Bushrangers Bay, just over two hours South of Sydney, in the aquatic reserve at Shellharbour.

It is a shore dive where, for the past few years, you have almost been guaranteed to see Grey Nurse sharks…on a shore dive! It is a bit of a hike down from the car park to the Bay…and it seems even longer on the way back up…but well worth it.

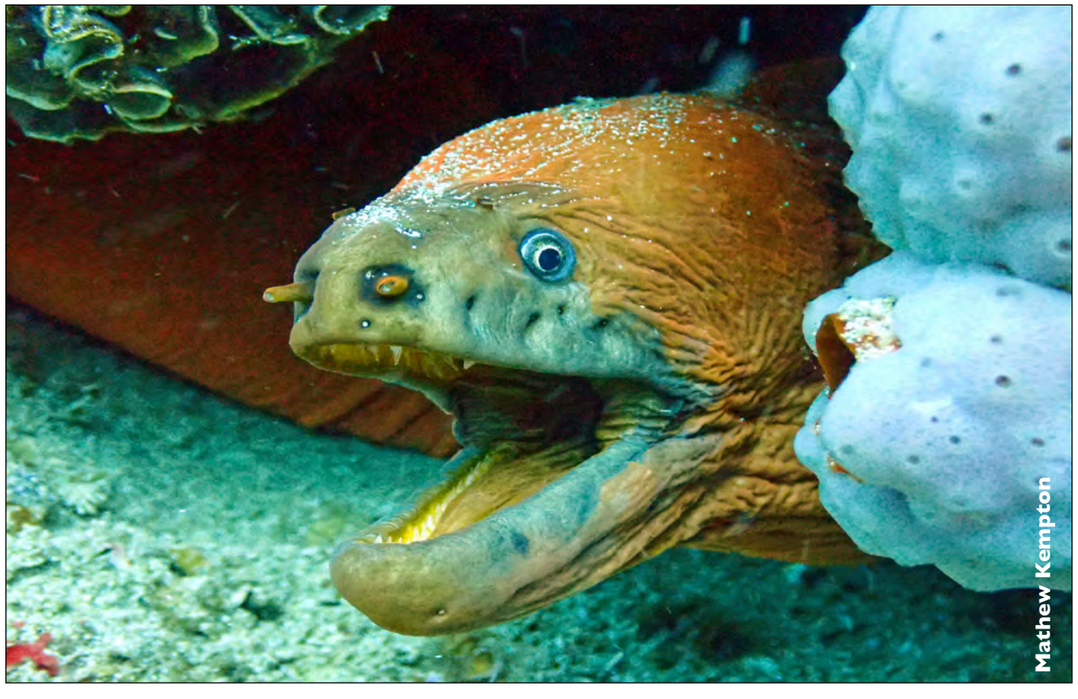
The site is protected from anything but swells with a bit of Easterly in them but, on this day, we had winds from the South at about 20 Kmph…very diveable! We were not disappointed, and the Grey Nurse were out in force.

We counted around 15 of them at the entrance to the bay and hung around taking some photos and just watching them crisscross back and forth. Viz was not the best at 4-6 m …but good enough.

After that we flicked over to the Gravel Loader on the Northern side of the peninsula where the pylons of the loader provide a good backdrop for some shots of the schooling Old wives and Sea Pike. better on this dive at 8-10m and it was a very pleasant way to end the diving for that day before heading South to Huskisson.

Huskisson is a further 90 minutes South, on Jervis Bay, and we drove down for our next day of diving with Pete and Morgan at Dive Jervis Bay.

The wind had dropped to around 8 Kmph and was swinging around to the


Mathew Kempton

Dive the Continent
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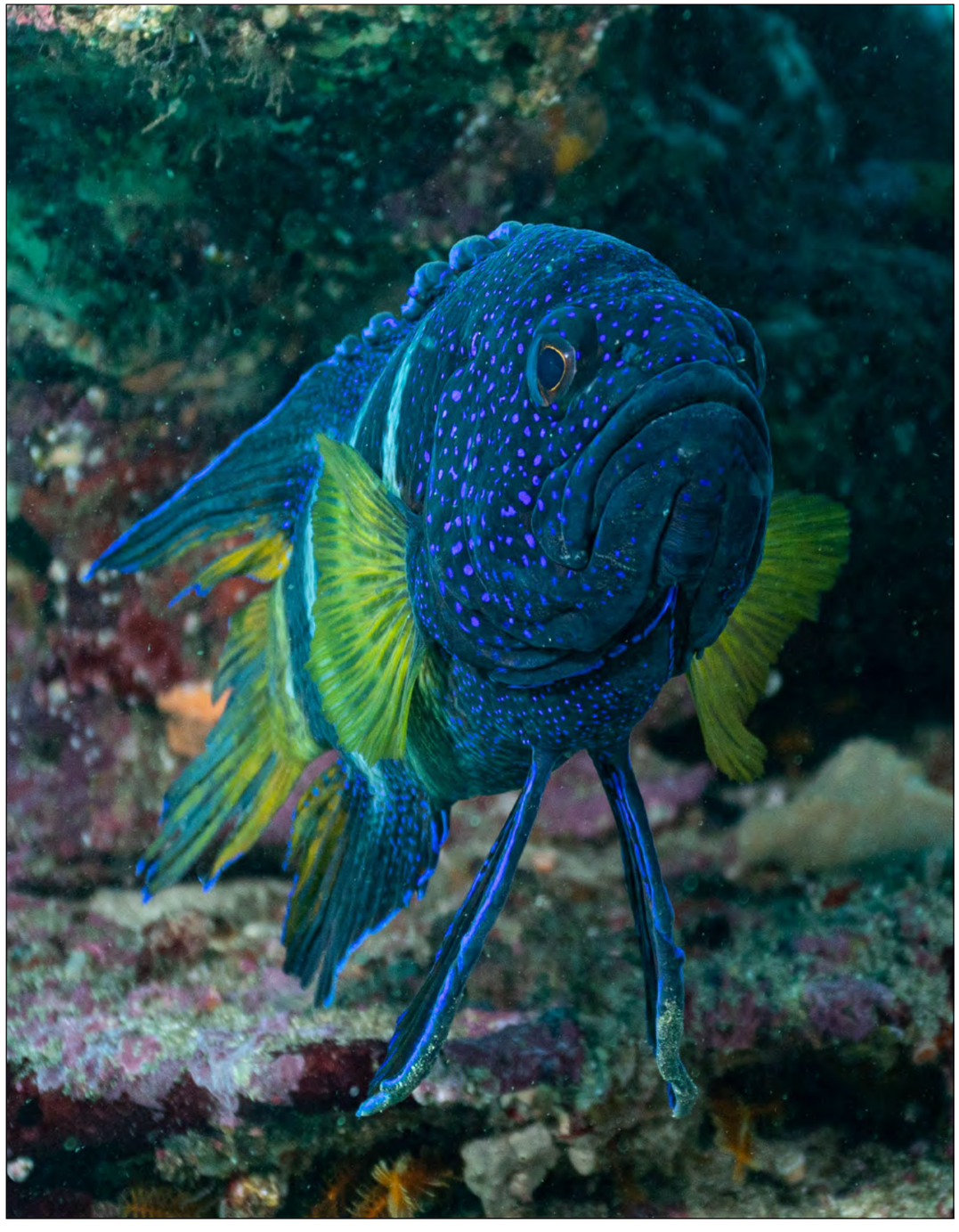

By: Graham Willis

East…still great conditions to get out of the Bay and head North up to the Drum and Drumsticks.

It was time to do a bit of Seal spotting at the colony there, but we dropped in on the TSS Wandra first. The TSS Wandra sits around the 26M mark and is worth a swim around.

The large boiler is still very much intact, and houses quite a few critters, and the engines are in close proximity. The ship went down in December 1915 on the way from Moruya to Sydney and, fortunately, all the crew survived.

Having swum around the wreck, which is not large, we came up to have a frolic with the Seals…and today they were frolicking! I have learned over time that if you try and make out like a seal yourself then the seals will react in kind.
You do throw air consumption a bit to the wind, but the acrobatics of the seals are a joy to watch… you can pause occasionally to take photographs. The viz was a respectable 10-12m so you could get a good view of proceedings.

We had a surface interval of an hour and then the boat meandered to Echo point, in the same vicinity. Again, this was a really good dive with more swim throughs and other topography that made it a more spectacular dive…but without Seals.

We did find a couple of juvenile Grey Nurse is some of the swim throughs and there were several fiddler, or banjo, rays lolling around keeping the Wobbegongs company.

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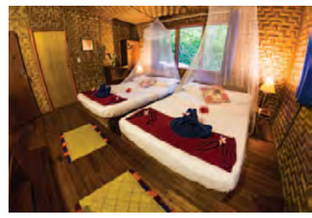



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By: Graham Willis

We were also lucky enough to find a beautiful Bleeker's Eastern Blue Devil Fish that was on display in the open. It eventually got fed up with the paparazzi and retired to an overhang but seemed quite chilled in the open.

At one point we were startled by a fast-moving shoal of Kingfish that shot by in serious pursuit of something and on our safety stop we were surrounded by 1000's of baitfish…Kingfish food.

A really enjoyable couple of dives … four down 10 to go.

We washed our gear and headed down to Ulladulla, just over 45 minutes away. Here we were diving with Steve Williams of Dive Adventures Ulladulla and next day we set off for Lighthouse Reef, just 10 minutes or so South of the bay. 7-8m of viz in 20C water and a lovely sunny day…a good way to start a Wednesday!

This dive was a drift from the Northern end of the reef down to where it peters out to the South and we were getting a kick along from the current.

The current was such that it was tricky to take any photos and we all just went along for the ride. As you came up to the 12-13m mark the surge was strong and I am sure it would deposit you rather unceremoniously onto the reef…if you gave it the chance!

Lots of Sea Tulips along the wall, plenty of Nudibranchs as well as Scorpion Cods and Slipper Lobsters

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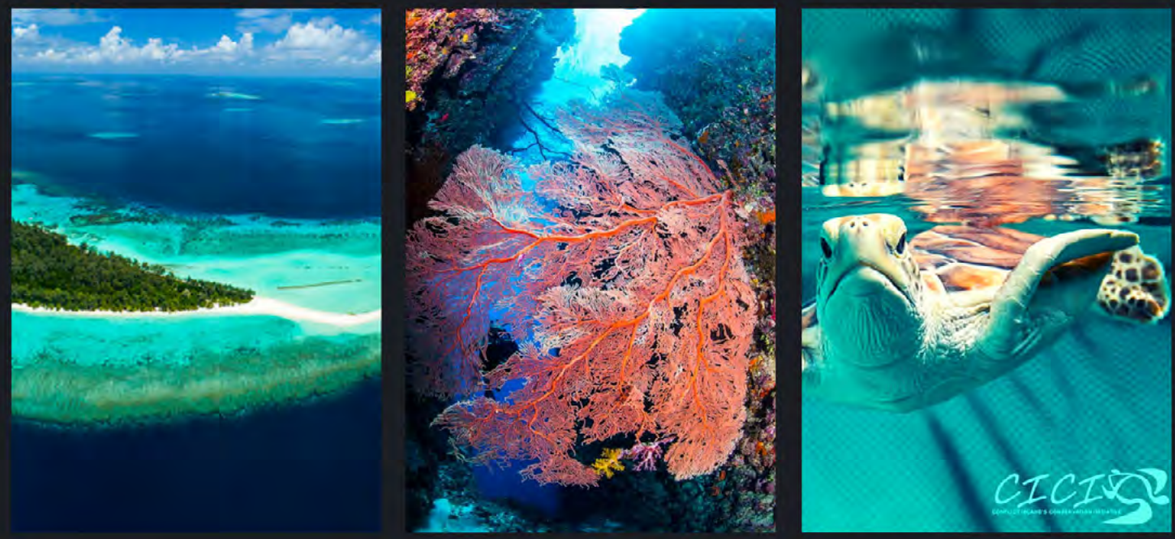

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By: Graham Willis

kept us amused until we headed out from the reef to get picked up by the boat. In good viz this would be a cracking dive along the reef.

Just over an hour between dives and we headed back underwater on Home Bommie. Again, we had a fairly stiff North to South current to contend with so photography took a back seat and for nearly all the dive I just folded up the strobes and tucked my camera system into my body.

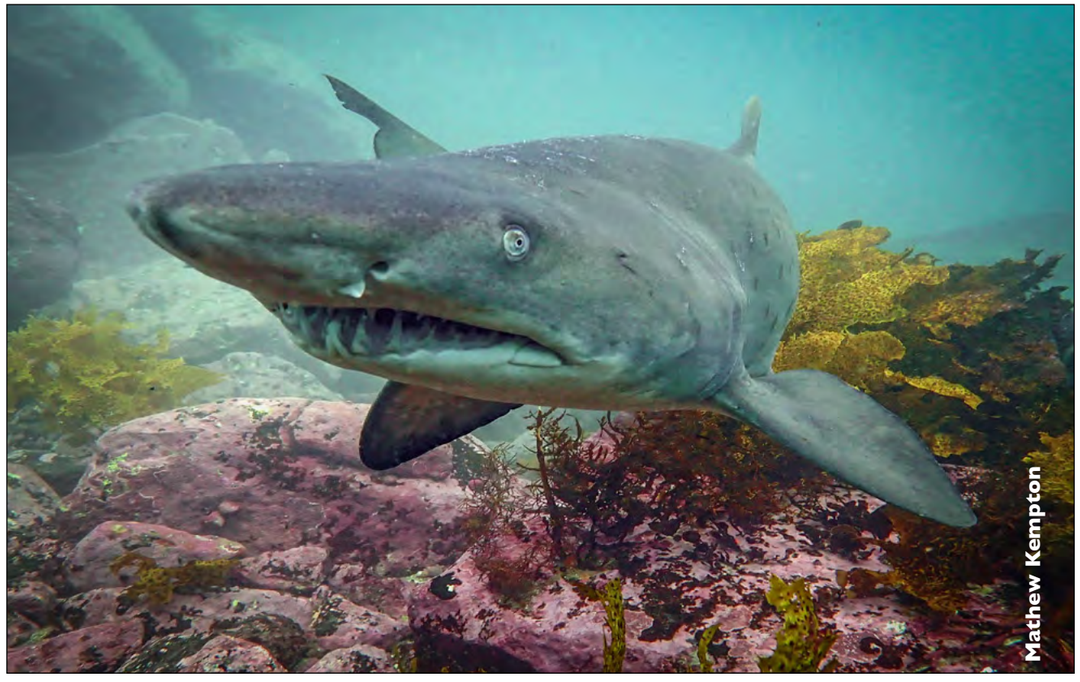
We tracked along at about 22m into the current until we turned round and came back at 18-19m along a ledge. There were plenty of soft corals, Sea tulips and Sponges to see as well as some more Eastern Blue Devils and a swathe of Red Morwongs...there was plenty of fish life around.

Washed the gear off and then hoovered down for a couple of pies from Hayden's Pies on the highway... almost as good as a dive! Then it was back on the road to head down to Narooma 90 minutes South of Ulladulla. We found out we had a bit of dive 'juggling' to do with a minor issue delaying our proposed dive on Montague island for a day.

As a result, we decided to dive Tathra and Merimbula Wharfs the next day and push the Montague Island dive to the Friday...all good but a bit more driving involved than was initially anticipated.

It also meant a bit of an accommodation shuffle, having decided to stay an extra night in Narooma.

Read more about our road trip in the next edition as we continue down the boundless coast line of New South Wales.



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DITCH THE GEAR

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Seahorses

Hippocampus is made up of the two Greek words hippo and kampe. The former means “horse” and the latter means “bending”.

Seahorses are dainty little pipe-fish, with long necks and heads that remind one of a stallion. They live mostly in sheltered lagoons where the water is calm. The most well-known is the Hippocampus capensis.

Unfortunately, with man’s encroachment into such areas, pollution and destruction of their sanctuaries is threatening their very existence.

Although they are true fish and breathe through gills, they also have many unusual features. Seahorses don’t have scales and their bodies are encased in a series of bony plates. These plates make their bodies rigid and stop them from being able to turn their heads from side to side.

In order to see exactly what is going on without turning its head, the seahorse has eyes that can swivel in all directions. In addition, and just like a chameleon, a seahorse can look forward with one eye while looking backwards with the other eye.

Seahorses can’t swim like regular fish (with an undulating body and tail) because of their rigid bony plates. When a seahorse moves, its body hangs vertically and a little fin on its back propels it along. On either side of its head are even smaller fins that look like ears and flutter non-stop.

The tail doesn’t end in a fin. It’s like a monkey’s tail and is used to hold onto seaweed in the current. The seahorse is unique because it’s the only fish that is able to grasp and hold onto something with its tail. Sometimes they even play with each other and use their tails in a tug-of-war contest.

Seahorses are also able to change colour and camouflage themselves, like an octopus or chameleon.

Their long snouts run over seaweed and seabeds and act like a vacuum cleaner, sucking up minute crabs, shrimps and eggs that are found on the fronds.

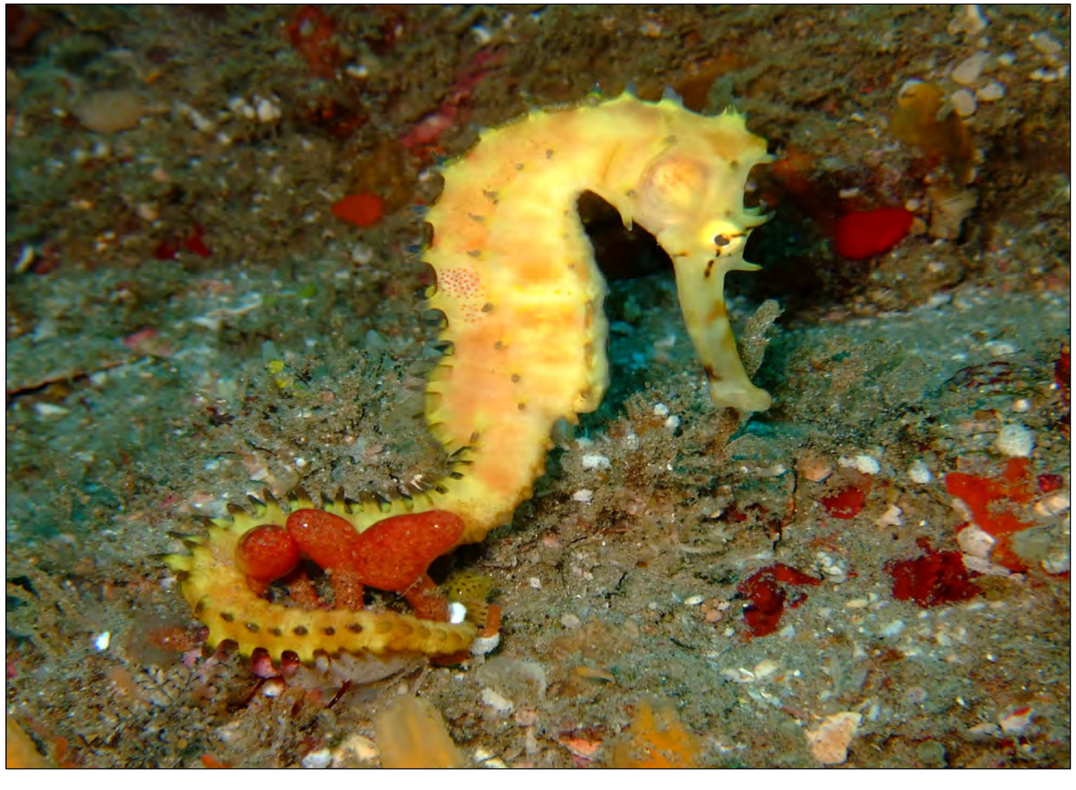
Most fish prefer not to eat seahorses because of their bony armour plating, but birds such as heron stalk around the shallows and are more than willing to snatch one up in an instant.

Man is one of the biggest seahorse predators on earth. Many people catch these creatures and put them in aquariums at home or kill them and dry them out to use as decorations. It’s now illegal to catch seahorses in many areas and some species are even listed as protected species.

Rearing the babies is left to the males. The mating ritual lasts for two days and during this time, the pair “dance” around each other. Each time they come into contact with one another, the female passes the male an egg, which he then fertilises and stores in a pouch. When all the eggs have been transferred, the female disappears. Occasionally, several females line up and deposit their eggs one after the other in the same male’s pouch, leaving him with a large number of babies to take care of.

After two to six weeks, the colts are ready to hatch and emerge from the pouch. The father goes into “labour”, convulsing and twisting and turning as he tries to force out each little seahorse. Each baby seahorse is a minute copy of its parents.

They are transparent and their hearts can be seen beating inside. The bony protective rings and colouring will develop at a later stage and as they grow. From the moment they’re born they’re hungry and are feeding on their own soon enough.



26. More oil reaches the oceans each year as a result of leaking automobiles and other non-point sources than was spilled in Prince William Sound by the Exxon Valdez.
27. Fish supply the greatest percentage of the world's protein consumed by humans.
28. Most of the world's major fisheries are being fished at levels above their maximum sustainable yield; some regions are severely overfished.
29. The Grand Banks, the pride of New England fishing for centuries, are closed due to overfishing.
30. Eighty percent of all pollution in seas and oceans comes from land-based activities.
31. Three-quarters of the world's mega-cities are by the sea.
32. By 2010, 80 percent of people will live within 60 miles of the coast.
33. Death and disease caused by polluted coastal waters costs the global economy US$12,8 billion a year. The annual economic impact of hepatitis from tainted seafood alone is US$7,2 billion.
34. Plastic waste kills up to a million sea birds, 100 000 sea mammals and countless fish each year. Plastic remains in our ecosystem for years, harming thousands of sea creatures everyday.
35. Over the past decade, an average of 600 000 barrels of oil a year have been accidentally spilled from ships, the equivalent of 12 disasters the size of the sinking of the oil tanker Prestige in 2002.
36. Tropical coral reefs border the shores of 109 countries, the majority of which are among the world's least developed. Significant reef degradation has occurred in 93 countries.
37. Although coral reefs comprise less than 0,5 percent of the ocean floor, it is estimated that more than 90 percent of marine species are directly or indirectly dependent on them.
38. There are about 4 000 coral reef fish species worldwide, accounting for approximately a quarter of all marine fish species.
39. Nearly 60 percent of the world's remaining reefs are at significant risk of being lost in the next three decades.
40. The major causes of coral reef decline are coastal development, sedimentation, destructive fishing practices, pollution, tourism and global warming.
41. Less than one half a percent of marine habitats are protected – compared with 11,5 percent of global land area.
42. The High Seas – areas of the ocean beyond national jurisdiction – cover almost 50 percent of the earth's surface. They are the least protected part of the world.
43. Although there are some treaties that protect ocean-going species such as whales, as well as some fisheries agreements, there are no protected areas in the High Seas.
44. Studies show that protecting critical marine habitats – such as warm and cold-water coral reefs, seagrass beds and mangroves – can dramatically increase fish size and quantity.
45. More than 3,5 billion people depend on the ocean for their primary source of food. In 20 years, this number could double to seven billion.
46. Populations of commercially attractive large fish, such as tuna, cod, swordfish and marlin have declined by as much as 90 percent in the past century.
47. Each year, illegal longline fishing, which involves lines up to 80 miles long with thousands of baited hooks, kills over 300 000 seabirds, including 100 000 albatrosses.
48. As many as 100 million sharks are killed each year for their meat and fins which are used for shark fin soup. Hunters typically catch the sharks, de-fin them while alive and throw them back into the ocean where they either drown or bleed to death.
49. Global by-catch – unintended destruction caused by the use of non-selective fishing gear, such as trawl nets, longlines and gillnets – amounts to 20 million tons a year.
50. The annual global by-catch mortality of small whales, dolphins and porpoises alone is estimated to be more than 300 000 individuals.

Info supply by www.savethesea.org

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Weird and Wonders
Environmental Affairs

By: Hermien Roelvert

Oil Spills

From 1970 to 2015, approximately 5,65 million tons of oil has been spilt in marine waters. Oil spilled can be a variety of materials, for example crude oil and refined petroleum products such as diesel fuel or gasoline (statistics only include shipping spills that happened accidently). These figures do not include oil spills of less than 7 000 tonnes, which means that the actual amount of oil spilt up until this yeat is far more than 5,65 million tons.

Luckily, the number of oil spills has declined at a steady pace from 1970 until now. Although this is good news, it's still taking its toll on the marine environment if you think of the strain the ocean has to endure because of other forms of pollution (such as sewage and toxic waste) and over fishing or climate change...

If we think of an oil spill, we imagine images of oil-covered penguins being washed by volunteers. But that is unfortunately not the extent of the damaging effect that oil slicks have on the marine environment.
Apart from the many furry animals like penguins and seals that drown because of this disastrous occurrence, other fish and sea birds also come short.

Marine animals can suffer in a number of ways caused by oil in the water. Apart from drowning and suffocation, animals and fish can become poisoned or consume some of the oil which can cause slow and painful deaths.

In 2000 the world saw the greatest coastal bird crisis due to the MV Treasure sinking 8km off Table Bay between Dassen and Robben Island, oiling more than 20 000 African penguins. A massive capture of non-oiled penguins was launched in conjunction with the rehabilitation of the oiled penguins, and this resulted in 19 500 penguins being successfully relocated without oil contamination. (The number of African penguins worldwide is estimated at 180 000 and this number is becoming less and less).

More than 90% of the oiled birds were rehabilitated and released. According to the International Bird Rescue Research Centre, the logistics on caring for over 20 000 birds was monumental. The penguins consumed over 400 tonnes of fish, and furthermore, 7 000 tonnes of beach sand was brought in for the temporary pens and 302 25-litre jugs of soap were used in the cleaning process. The rehabilitation efforts lasted for more that 12 weeks and the total cost of this spill operation amounted to more than R50 million. The scary part is that the MV Treasure spilled only 1 300 tonnes of bunker oil...

This is the effort and money that goes into only one oil spill. What about all the other sea creatures that were affected by that incident? We will never know the real extent of damage to the environment, because unlike the penguins and other sea birds that we can see and which are immediately in trouble, the effect of something like this will only be seen much later and probably much too late when it has snowballed out of control and we are no longer able to fix the problem. It really doesn't matter who is at fault during such an incident – the damage is already done. We can only minimise the effect.

We haven't even touched on the subject of illegal oil dumping (which occurs on a regular basis and is extremely difficult to control) or oil rigs where their oil leaks into the ocean.

Couple of years ago, the world witnessed Australia's third largest oil spill – the blow-out at the Montara well caused spillage of 2 000 barrels of oil per day into the Timor Sea. This continued for 10 weeks.

The fact of the matter is that we have created a world that relies on the black gold almost more than air. The world today uses more than 11 billion litres of oil every day!
The USA and China are the top oil consumers and South Africa is also amongst the top 50 oil using countries. Tankers and barges will not stop cruising the oceans, and new sea-frontiers are being explored for bigger and better oil wells.

And sadly there will be more oil spills. With that knowledge, we need to be prepared to give a helping hand as soon as there is danger in our waters. The quicker the oil can be removed from the water, the better the chances for that area and its marine environment.

Unfortunately it is our responsibility – we cannot point any fingers. It is our everyday reliance on oil – to get to work and back, to create heat, to be entertained – that creates this demand.

We need to find a solution to the problem that we have created. Or at the very least we can be pro-active and help.

One thing we can definitely do is to put pressure on our national authorities to move the 'Environment-folder' higher up on the priority-list within government. That is something we seriously need to think about.

By: Quintin de Boer

The legal issues of Rescuing a Diver

Rescuing another diver from a life threatening situation can be an amazing experience which fills you with pride and satisfaction. But it is an experience that can quickly turn sour if the victim you rescued turns around and tries to take you to court, claiming that your actions caused them harm instead.

This is an ever increasing fear in potential rescues if gauged against the frequency that the issue surrounding personal liability is discussed in rescue diver courses.

So should a rescuer be concerned about being held personally liable, and if so, what precautions should be taken to limit such liability?

Can you even attempt to assist a person without placing oneself at risk? These are the types of questions that are being asked these days and which even stop some people from actually considering a rescue course or even attempting a rescue.

Well here are the facts and some points for you to consider... To start off with and to clear up a common misconception, there is no legal obligations on a person to help another person requiring assistance, unless providing such assistance forms part of your profession.

There might, however, be a strong moral obligation and the ethics of being qualified to provide assistance and not offering it is a topic that can be discussed to the end of time, but in the end it comes down to the rescuers own choice.

When attempting to provide assistance in an emergency situation it is important to ask permission from the victim. If the victim does not want anyone to assist it is important to respect their wishes.

If the victim is unconscious and there are no medical tags indicating that

they do not want you to assist, you are allowed to start providing help until such time as they can indicate otherwise.

According to the American Heart Association no lay rescuer has ever been successfully sued for providing medical assistance to a victim and doing what any reasonable person with limited training would do.

Most countries have 'Good Samaritan laws/acts' that protect lay rescuers.
A person is considered a Good Samaritan under the following circumstances:
- The person is trying to help.
- The rescuer's actions are reasonable (you can't engage in gross misconduct – for example, doing something no reasonable person would do).
- The rescuer does not receive specific compensation for providing the medical assistance.

A lot of rescuers are also concerned about when to stop providing CPR once started.
Here are a few guidelines as to when you can stop performing CPR:
- The victim starts to move.
- An AED arrives.
- Professional help arrives and takes over.
- You are too exhausted to continue or your own life is being endangered.
- Professionals tell you to stop.
- Obvious signs of death become apparent.

Keeping the above in mind, it is actually quite clear that a rescuer has some form of protection for his actions in an emergency situation, as long as they conduct themselves in a reasonable manner. It is thus very important to 'stick to the book' when providing.

A rescuer must always remember that it remains their choice to assist and they must never put their own life unnecessarily at risk.

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

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GLOBAL NEWS

How Sea Shepherd Helps Combat Illegal Fishing

The key to stopping IUU fishing is monitoring, control and surveillance, especially the enforcement of existing laws and regulations protecting marine wildlife, people and the environment. However, many African coastal and island states do not currently have offshore patrol vessels that can cover the entirety of their waters, meaning that legal fishing vessels are able to operate without being boarded and inspected for legal compliance; and unscrupulous fishing vessels fish without licenses, fish using prohibited fishing gear, exceed quotas, fish in marine protected areas, target endangered and protected species and commit labor abuses.

Sea Shepherd is different from other marine conservation groups because we measure our success by the number of criminal operations that we shut down - and the amount of marine wildlife that we save. We are the only civil society actor signing so-called 'ship rider' agreements with governments, providing civilian offshore patrol vessels (COPVs) so that authorities from partner countries can enforce fisheries and conservation laws in their sovereign waters. While each partnership is unique and tailored to different countries' needs, generally the partner country provides the naval, fisheries or police law enforcement agents, and Sea Shepherd provides the crewed COPV and fuel - as well as training and capacity-building throughout the duration of each IUU fishing campaign. This allows our partners to gain real at-sea experience patrolling, monitoring, controlling and arresting illegal fishing vessels so that they can hit the ground running when purchasing and maintaining their own offshore patrol vessels in the future.

In addition to national governments, Sea Shepherd also works with existing programs like Fish-i Africa and supports Interpol's Project Scale to amplify respective efforts to stop IUU fishing without duplicating each other's work.

Working Towards Regional Partnerships

While the legal authority to board, inspect and arrest vessels currently ends at the border of each country's Exclusive Economic Zone (EEZ), new partnerships with neighboring African coastal and island states joining forces in the fight against IUU fishing allows the pursuit of vessels across borders, facilitates skill sharing between law enforcement authorities, and strengthens communications between regional actors.

Dive the World
Global News

Scuba Schools International turns 50

Scuba Schools International turns 50 years old in 2020, kicking off its anniversary year in a big way – with the launch of MyDiveGuide, the world's largest dive site database. MyDiveGuide is a smart online dive travel guide created by divers for divers connecting dive sites and their potential wildlife encounters with SSI Training Centers worldwide, making it easy for any diver to explore the most exciting dive adventures online.

Besides the successful introduction of MyDiveGuide, SSI will launch a free "SSI 50th Anniversary" program on October 1st, 2020. This free digital program will be available for everyone with a MySSI online account and in the MySSI App. The program is full of entertaining stories and interesting information from SSI's perspective about diving over the course of time.

Briefly About SSI

Founded in 1970 in the United States, today SSI is the world's largest dive business-based training agency, servicing more than 3300 Training Centres worldwide. SSI offers more than 60 training programs in 40 plus languages in various categories from Recreational Scuba Diving and Extended Range, including Rebreather and Overhead Environment, to Freediving, Mermaid, Swim, and Lifeguard.

A broad range of training programs to provide the opportunity for divers to choose from a large variety of what they can immerse themselves in, for Professionals to further their career, and for Training Centers to increase their business.

Since 1970, SSI has been designing state-of-the-art education programs. In fact, SSI was first to become a digital-based training agency in 2006, offering a new service portal for SSI divers and members called MySSI. Since that time, SSI has continued to develop its digital offerings, resulting in being fully digital since 2015. To this day, SSI is meeting customers' needs with an online-based system that integrates training materials, training records, logbooks, marketing, and e-communication.

In 2014 a strategic vision became a reality when SSI had the chance to partner with a primary equipment manufacturer, HEAD, who also owns MARES. This acquisition has resulted in SSI becoming one of the most innovative and fastest-growing training agencies in the world.

Invitation to Participate in DAN's COVID-19 Study

DAN is looking for divers and freedivers who have recovered from a suspected or confirmed COVID-19 infection for a long-term study on the effects of COVID-19 on diver's health and fitness to dive.

If you have been infected with COVID-19, are recovering or have fully recovered, and are planning to return or have already returned to diving, please consider signing up for our study. In 15-20 minutes you can easily complete this initial survey and then over the next 5 years you will be contacted periodically by DAN to follow-up on your diving career and any possible medical issues.

https://www.research.net/r/DANcovidstudy

Dive the World
Global News

DAN's Annual Diving Report
Each year, DAN Research tracks and analyses diving injuries and fatalities occurring throughout the world. We do not publish our findings to scare divers; we publish our findings and highlight numerous cases to teach divers how they can best avoid injury when doing what they love.

As we continue to gather data, we continue to deepen our understanding of behavioural and environmental risk factors that lead to accidents, but some mechanisms that drive incidents remain understood.

Thanks to the generous support of our members, we are able to continue our efforts to explain these risk factors, develop interventions and recommendations to help make every dive a safe dive and keep this information freely available to all divers.

This report is focused on US incidents, however the lessons learned are universal. You can review international data from page 93.

Follow the below link to access the Diving Report. Select 'Annual Reports' and ' Annual Diving Report 2019' and enter your name and email. Please DO NOT enter your Member Number. On this page you will be able to access a range of other documents in addition to Annual Reports.

https://apps.dan.org/publication-library

Rebreather Divers: Have you had a caustic cocktail?
If you have had a caustic cocktail when diving on rebreather or know someone that has, tell us about it in this 5-minute survey so we can develop ways to prevent others from getting injured or having to experience one.

DAN Research is looking for rebreather divers to share their experiences with caustic cocktails while diving and tell us about commonly applied first aid treatments. Currently, there is little data available on how common caustic cocktail events are, who suffers them and how often, if they occur more in highly experienced or less experienced rebreather divers, how long into the dive they occur, or how divers are responding immediately and upon surfacing.

Even if you have just witnessed one of these events we want to hear from you.

https://www.research.net/r/DANcausticcocktail

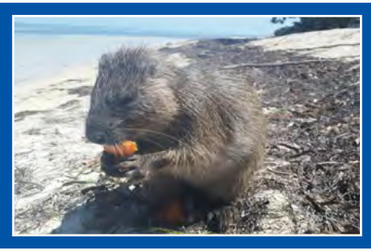
Dive the World
Cuba

By: Peter de Maagt and Theresa Guise

Cuba

A Photographer's Dream

Niñooooo.....Niñooooooooo! The sun is high in the sky and within the mangroves there is hardly any wind. Hot temperatures give rise to a shimmering heat haze, blurring everything and affecting our ability to resolve objects. The engine of the boat has been switched off and we can't even hear birds singing. Niñooooo!!.... Niñooooo!....



By: Peter de Maagt and Theresa Guise

We look at each other and we both think that it is pretty strange that we are here in the middle of nowhere shouting “Niño”. Can crocodiles actually be summoned by calling?

Just when we had the feeling that Niño wasn’t home we spot a few tiny piercing eyes breaking the surface.

Our search for Niño is successful! Niño is the nickname for every crocodile that lives in the Cuban mangroves of Jardines de la Reina. Ironically Niño is an American saltwater crocodile. American crocodiles are reported to be less aggressive than its relatives in Africa and Australia.

But once you slide into the water and Niño opens his large mouth to show his huge teeth you can only hope that this particular Niño got that memo. So, we slipped into the water, and our guides did not enter with us.

Would there be a reason for that? But after the initial adrenaline rush and the first few close passes you realise that this crocodile is pretty chill and you can enjoy the moment. We snorkelled with them in shallow water. The bottom is covered with seagrass against a backdrop of mangrove forest; not a bad place to lose your “crocodile-snorkel-virginity”.

Photography was a bit of a challenge because the silt and sea grass bottom was easily disturbed by those carelessly kicking with fins.

It only needs one fin kick to stir up the silt from the bottom to block visibility. But Niño doesn’t seem to care about reduced visibility and is happily swimming back and forth from shallow to deeper water. Thankfully, he swims close enough to touch the domeports; clean images are still possible.

Although you may enjoy watching crocodiles from the comfort of your couch on various television shows such as Shark Week or National Geographic, nothing beats the real deal experience to see them face-to-face. All divers emerged from the mangroves with their

limbs still perfectly intact which is an added benefit. Apparently it all started because fisherman used to clean their fish close to the mangroves where the crocodiles live.

Now, the sound of the boat engines is usually enough to attract their attention. But still they expect a treat, and as soon as our guide throws a large piece of chicken, Niño thankfully grabs it and disappears to the safety of the mangroves. Time flies when you are having fun and we are summoned back into the boat. What an exhilarating experience.

Jardines de la Reine; “Gardens of the Queen”, were given its name by Christopher Columbus on his second voyage to honour Queen Isabel of Spain.

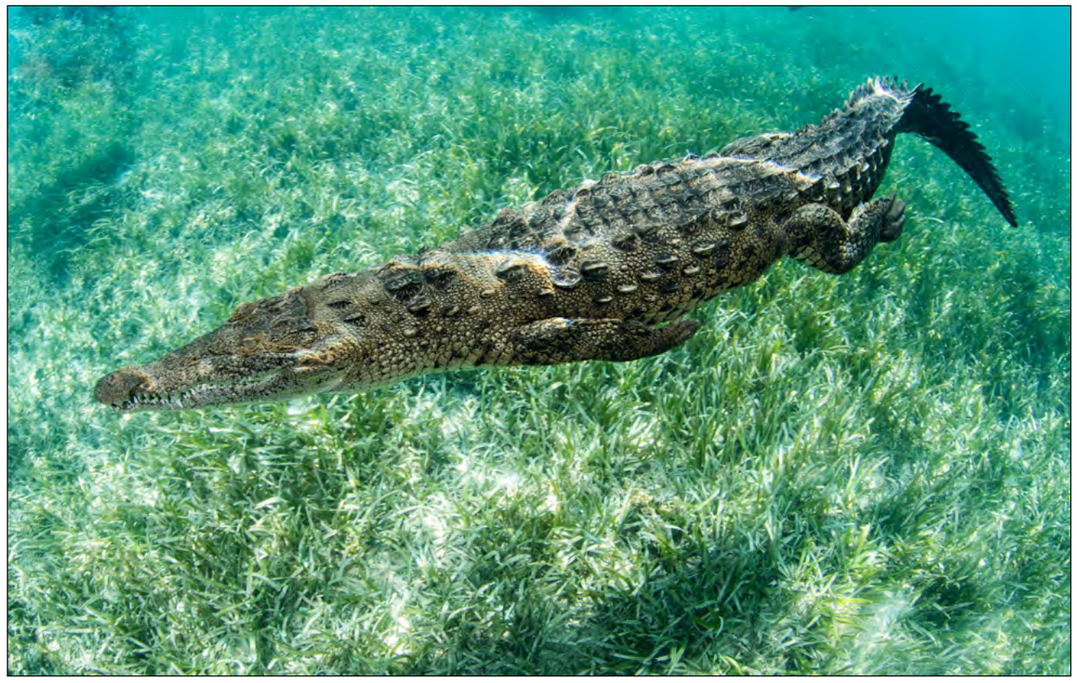
The logbook of his trip states “The nearer we kept to the coast of Cuba the higher and pleasanter these small islands appeared, and it being difficult and useless to give names to every one, the admiral called them all in general “Jardines de la Reina”. May 1494”.

Because Columbus was aware that the King had a tendency to be jealous, a bit later on in his journey he also named a reef “Jardines Del Rey” off the northern coast of Cuba.

But the real beauty lies within the Jardines de la Reina, a complex network of untouched marine ecosystems that scientists consider to be the original status of a reef as the Spanish conquistadors found it in the times of their voyages. “Thanks” to many years of economic embargo and political isolation, this place has been left untouched and its nature pristine.

Tony, the representative of Oceans for Youth Foundation, explained to us that up to a few years ago there were about 600 divers per year that had the privilege to be diving here and enjoy its natural beauty and abundance of wild life.

This is a place that humans haven’t yet ruined. The remoteness of the reefs also helped and just to give you an idea; after departing from your hotel in



By: Peter de Maagt and Theresa Guise

Havana you still need to take a 6 hours' bus tour to arrive in Jucaro, followed by another 6 hours by boat.

It's truly a hidden paradise for divers. There is a common belief that the reefs were a favourite spearfishing and scuba diving spot for Fidel Castro, but this was questioned by Tony. Whatever the preference of Fidel Castro was, the reefs were declared a marine reserve in 1996.

Crocodiles are not the only highlight when you visit this crown jewel of Cuba. You don't have to be a rocket scientist to figure out that there is a healthy population of sharks wandering the reefs. On every dive we would see at least two to five Caribbean reef sharks and usually you would get a close encounter.

It was also striking to see how relaxed the Caribbean reef sharks were; most of the time they would make a big loop and return to check you out once again. They varied in size from youngsters to those of pretty impressive proportions. But the real cherry on the shark cake were the silky sharks. In the past silkies roamed vast stretches of the oceans but their populations have declined dramatically, by 70 percent, due to the demand for shark fins. So, we were thrilled that several of our dives were purposely organised to feature silky sharks.

On the first of such dives, the briefing indicated that we would go down to the reef at 25 meters to see reef sharks and then would return to shallow waters to spend remaining time with the silkies. We briefly exchanged some looks and we immediately had a mutual agreement; our dive on the reef would be short and the safety stop would be very long!

Who would not want to optimise the time with the silkies? No sooner said than done, we touched the reef and then signalled to the dive guide that we would start ascending. The silkies were already there, enthusiastically swimming around to welcome us. Most of them averaged between one and one and a half meters, but a few big ones also made their

From Whale Shark to Pygmy Seahorse....

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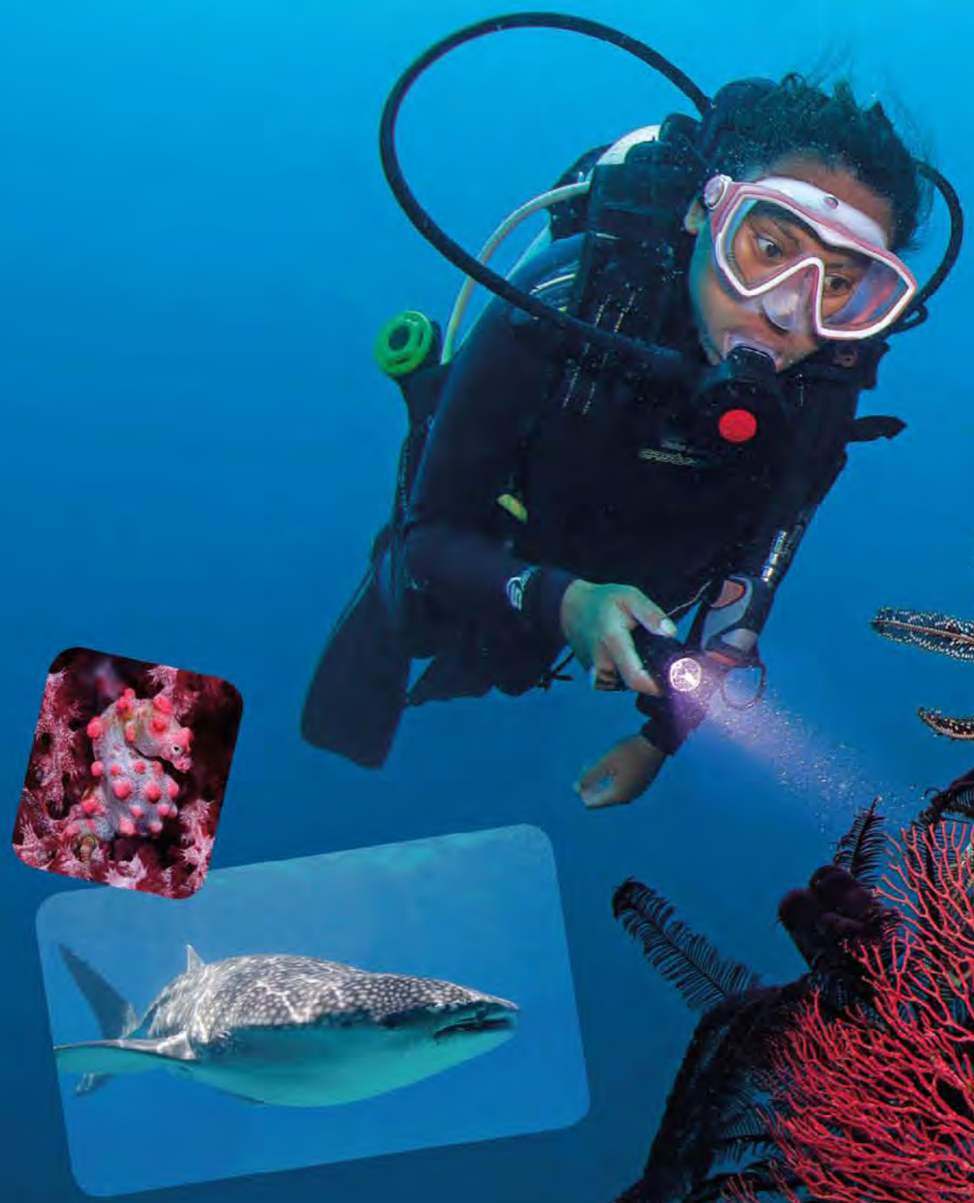

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MAGIC ISLAND

Moalboal, Cebu

Whale Sharks, turtles, the Sardine Bait Ball, beautiful reefs: Moalboal has it all! With only 10 detached cottages, a house reef that's open 24/7 and with more than 30 dive sites to explore, Magic Island Dive Resort should be added to your next list of dive destinations!

By: Peter de Maagt and Theresa Guise

appearance. These magnificent creatures are graceful and streamlined sharks which get their name from the smooth and silky texture of its skin. A few small silkies darted onto the scene and started to play with these strange aliens with cameras; they seemed unafraid and highly curious as to our presence.

But they gave way quickly as soon as a bigger shark appeared. Clearly there's a hierarchy among the sharks. Size matters and the larger sharks dominate smaller ones. Luckily our tour leader had planned both a morning and an afternoon dive with these beauties and the difference in behaviour was noticeable.

The afternoon dive started slowly but action picked up when our captain tossed a few scraps into the water. Despite this, it wasn't really a feeding frenzy, the sharks simply tried to get their share of the cake. Certainly, this rates as one the "sharkiest" destination we have dived for quite some time.
If an abundance of sharks and snorkelling with crocodiles is not enough the Jardines present another trump card: giant and super friendly groupers. Some of them simply follow you during the dive, interested by their reflection in your dome port.

Groupers are a species that have suffered from human interference, because they tend to migrate to just a few specific locations in order to spawn. All over the world fisherman had figured that out and have targeted fishing to those sites.

Furthermore, it takes several years for groupers to reach sexual maturity. Luckily, in Cuba, the spawning sites are within the marine reserve so the impact of humans is negligible and a healthy population can be found in the Jardines de la Reina.

They have this peaceful demeanour and despite their large size they come across like pets, each with their own personality. They are bold and curious and it is difficult not to be amused

Dive the World
Cuba

By: Peter de Maagt and Theresa Guise

by them when they try to wriggle in between your legs. Nearly every site had a resident grouper or two, mainly black and Nassau groupers but a few times we came across a Goliath Grouper. In between dives, we planned to go ashore on a small island to admire a wild "Jutia".

As soon as we approached the white sand beach, we were greeted by a large group of iguanas hoping to be fed. In their wake, the Jutias followed soon after. The Jutia is some sort of a mixture between a rat, chipmunk and beaver and has the average dimension of all these.

Obviously they knew the drill and approached us without any sign of fear hoping to get a slice of fruit. Apparently they are considered a culinary delicacy in Cuba but these jutia are too much of a touristic attraction to disappear in a cooking pot.

Before we realised it, we proceeded to another highlight of the trip. Most of us will have admired the Fairy Basslet and attempted to photograph this vibrant blue-purple-yellow fish. But Cuba has something special in store; the Golden Fairy Basslet.

Initially it was even believed to be endemic to Cuba, but recently the range of this species has been extended. As you might expect from the name, the fish has a golden body and fins, expect the front of the dorsal fin and the ventral fins, which are deep blue. It has been scientifically described as a new species only as recent as 2010.

Needless to say, we joined the treasure hunt and after having failed to spot it on a few dives, our dive guide was friendly enough to come back to find us. Tapping wildly on this tank he attracted our attention. His enthusiasm made it clear what he wanted to show us.

At a depth of 15 meters we could see him (or her) dancing in between a group of normal Fairy Basslets. The little bugger needed some time to get used to us and he would retreat in his tiny hole on several occasions. But as soon as we

Dive the World
Cuba

By: Peter de Maagt and Theresa Guise

backed away from the reef, he would show himself and the fun started all over again. We spent an entire dive shooting this beauty.

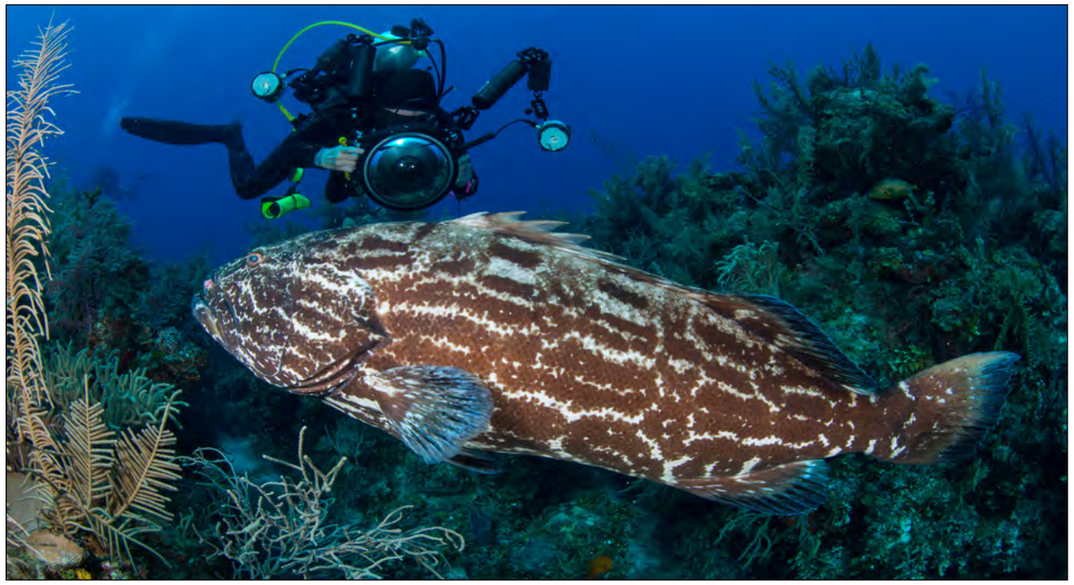
The reefs themselves are home to a very high biodiversity of marine life. Several of them consisted of a reef flat and a slowly descending reef followed by a steep vertical walls dropping to 100m in depth. But we also dove deep water pinnacles. Mostly the reef consisted of pristine hard corals with very large tube and vase sponges.

It was a delight to see these brightly coloured sponges against the blue backdrop. The fish life was abundant, many hundreds of brightly coloured reef fish. Furthermore, tarpons lingered in many of little caves and under the underhangs. They just stared at you waiting motionless, only to move a few meters once you came close.

It was also a pleasant surprise to see that the reefs were not affected by bleaching, there was no evidence of dynamite fishing or changes in ocean chemistry caused by human activities. Obviously this explains the absolutely pristine coral in its full bright colours and the explosion of marine life. Several of our briefings indicated that the next dive would be a drift dive, but reality was that at the end of the “drift dive” we would safely return to the shotline and do our safety stop underneath the tender; an understatement of a “gentle driftdive”. We did one nightdive, and restricted it to one only.

It was impossible to switch on your torch without being eaten alive by thousands of little squirmy worms that had a preference for checking out your ears as well as stinging jellyfish. But on a positive note, surfacing after the night dive offered you a magnificent view on the starry night where the milky way was very prominently visible in complete absence of light pollution.

If you decide to visit Jardines de la Reina you have to realize that you will be one of the happy and privileged few. There is no human settlement nearby, no commercial shipping, no phone and no internet. But you will be rewarded with reefs that are relatively untouched by humans and that are managed sustainably.
This is surely the place to go if you are a shark or crocodile lover; this destination will certainly live up to your expectations.



By: Peter de Maagt and Theresa Guise

THE LIVE ABOARD: The Jardines Aggressor has a length of 35m and a beam of 7m. It can take 20 passengers in 2 deluxe cabins and 8 master cabins. In general, the boarding is Saturday afternoon and disembarkation at the next Saturday 4 A.M. Note that the rooms are very small with minimal storage space.

Upstairs is a dining room, outdoor seating area and Jacuzzi. On the top level is a sun deck, perfect for star-gazing at night.

THE DIVING: The Jardines Aggressor offers 4 dives a day, 3 day dives and 1 dusk dive. We only performed 1 night dive during the trip. Dives are performed from 2 comfortable tenders, which pick up the divers at the back of the Aggressor.

The tenders go to different dive sites every dive in order to minimize the number of divers per dive site. Your gear is brought on the tender on day 1 and stays there till the very end (bottles are filled with a long hose).

WATER TEMPERATURE AND SEA CONDITIONS: The area is protected from most prevailing winds. Unless there is a storm, the seas tend to be calm. You will be diving in water that averages 30°C in the summer months and approximately 25°C in the winter months.

A 1-3mm wetsuit or shorty is recommended year round, however some people might prefer a 5mm in winter.

HOW TO GET THERE: Most people that visit Cuba fly into Havana. Havana International Airport is well-served from cities around the world.

Divers traveling to the Jardines de la Reina will have to find their way to the port of Jucaro. The liveaboard operators will organise transfers from Havana to the departure port.

CURRENCY: Cuba uses two currencies, both of which are legal tender and both of which you can use on your trip.

The major legal currency of Cuba, the Cuban Convertible peso (CUC), is the one that you'll most likely use when visiting Cuba as a tourist.

But there is a second legal currency called the Cuban peso (CUP, 24 CUP is equal to 1 CUC) mostly used by Cuban citizens. All major credit cards are accepted in the big hotels. On the live aboard you can pay in Euros or USD.

VISITOR INFORMATION: www.cubatravel.cu/en

Dive the World
Cuba

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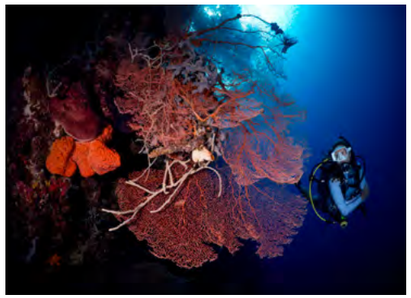


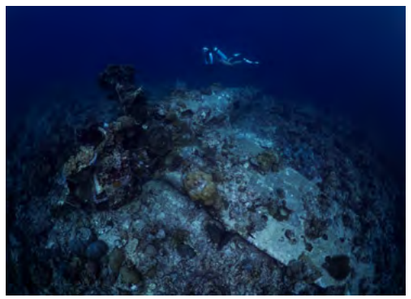


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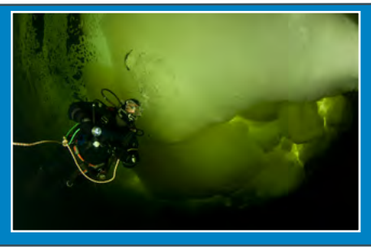
Dive the World
Russia

By: Andre Crone

Ice Diving Russia

For years we had been waiting for a suitable moment to go ice diving. Unfortunately circumstances have not been ideal in the western part of Europe for a decent ice dive. To increase our chances for a beautiful ice dive we headed to the northern part of Europe where we would be guaranteed ice, cold and nice people.



Dive the World

Russia

By: Andre Crone

In March we traveled to the north of Russia. Ice diving had appealed to us for such a long time that we wanted a guarantee of a thick pack of ice. And it would be fantastic to get this thick pack of ice in the sea – no diving in a small, sweet lake with only small critters. No, here in north west Russia we really could enjoy everything – a beautiful pack of ice and also the rich underwater life of the sea.

Ice diving around the polar circle would certainly be an experience. But to tell the truth, the experience already started at the beginning of our journey in Moscow. Only a three hour flight brought us from Cologne to Moscow. When we arrived in the Russian capital, our Russian friend Anna, who would accompany us during our trip, was waiting us for. In the city of Moscow you can get around with the English language, but as soon as you travel further to the north it is be very hard to find someone who can speak English.

That evening we continued our trip by train. It took us 28 hours on the rails to get to the north of the country. You can choose to buy food in the dining car, but the charm of buying a smoked fish from the locals at one of the many stops along the way beats having a meal in the dining car.

We arrived at the station of Chupa in the early morning where we were picked up by the Polar Dive Circle. On arrival at the centre it was still dark, which makes the picture even more idyllic. The wooden houses where our bedrooms were lay splendidly in pristine white surroundings.

After having slept for a couple of hours it was time for breakfast and the dive briefing for our first day. Ice diving means special requirements for dive equipment and the organisation of the dive. Each pair of divers is fixed together with a line – the same line then connects one of the divers with

By: Andre Crone

the tender who stands on top of the ice near the hole. The tender stays in contact with the divers under water with line signals to communicate and make sure that everything is alright. If something goes wrong underwater the divers give an emergency signal to the tender. The tender will then pull the divers out.

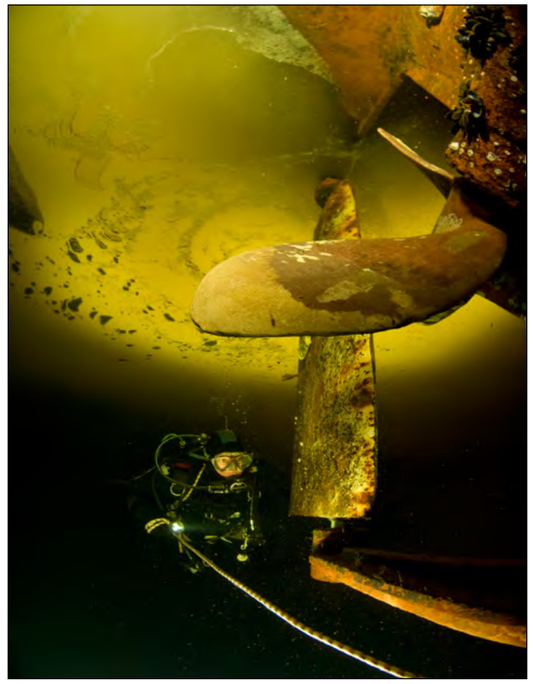
When looking at your dive equipment, it is important to dive with double regulators that are suitable for cold water. During our trip in Russia we had seen that even the special cold water regulators can still freeze here. For this reason, the tender takes a termos with warm water to the hole. If your regulator freezes you only have to make your way to the hole and pour some warm water through the regulator to allow you to continue diving.

After an extensive briefing it was time to prepare our gear for the dive. We had previously done many dive trips and normally you bring the gear to the boat, which will take you to the dive sites. But with the sea completely frozen it is of course impossible to reach the dive sites by boat. As an alternative, snowmobiles with trailers waited for us at the dive centre. The trip on the 'snow trains' is really an experience. We slid by a splendid white landscape, effortlessly going from the land to the sea.

The white, open plain before us was really impressive. After some time on the snowmobile we saw from far off a sort of village – to make diving in these cold circumstances more pleasant they have constructed a small ice camp at the dive site. Small wooden cabins on skis are dragged onto the ice and four divers get assigned to a cabin. With a wood or petroleum stove, the cabin is made comfortably warm. We placed our dive gear in the warm 'houses' and started exploring the area. Besides each cabin is a prepared hole in the ice, and between all the different cabins there was also is a large cabin with a canteen and toilet facilities.

For us the first dive was quite exciting. We had already done a number of cold water dives, but diving under real sea ice was a first. After having changed into our dive gear and prepared, we discussed the dive once more with our tender. We put the tank on and moved to the edge of the hole. The security line was attached firmly to our BCD, but we also held this line firmly in our hand.

What we saw underwater was more than amazing. It was a very sunny day and the sunlight that shone down from the hole made the environment really astonishing. The water had a green glow and was much clearer than we had expected. Because of the large amount of snow on the ice, we were scared that it would be very dark underwater,



By: Andre Crone

but the light that shines through the different holes in the ice gives more than enough light to allow you navigate. The different colours are also really amazing.

For this dive we were in the middle of the sea, which means that the ice here is an even plate. At different spots in the ice we found cracks through which the sunlight culd enter the water. On the rocks at the bottom of the sea we found large kelp and some beautiful plumose anemones. But honestly speaking, we didn't have too much of an eye on this, as the beauty of diving under the ice was more than enough for our first dive. After half an hour our hands really started getting cold and it was time to return to our heated cabin.

For our second dive our tender had an idea for a completely different dive spot. For this site we had to travel ten minute by snowmobile, but we were told that this trip would certainly be worth taking. It was shame that we had to miss out on our heated for at this dive, but we didn't want to miss out on anything. But we were in for a nice surprise – when we were busy preparing for the trip, our cabin was attached to the snowmobile so that it could be dragged to our second dive site!

In contrast to our first dive, this dive site lay beneath a large rocky area. Thanks to the current and the tides, big blocks of ice break loose, and afterwards, these blocks of ice are pushed on top of each other and freeze again. From the start of the dive we saw numerous odd ice formations. Between the cracks in the ice the sun let its light down into the sea which

Dive the World
Russia

By: Andre Crone

fostered a fantastic atmosphere underwater. During this dive we actually ran out of time and didn't have any time to look at anything other than different, almost hypnotic ice formations.

After the dive we returned to our little village on the ice. In the canteen we enjoyed a well earned lunch and a warm cup of tea. We chatted with the other divers an enjoyed our warm meal and drinks. At the end of the dive day, all divers got back into the snow trains behind the snowmobiles and we were taken back to the dive centre. After a whole day in the cold and on the ice, a warm shower and relaxing on the bed are great pleasures. Lovers of the sauna can also enjoy themselves at the end of the day – particularly after a number of days ice diving it becomes really difficult to warm the muscles up completely. Half an hour in the sauna makes a real difference.

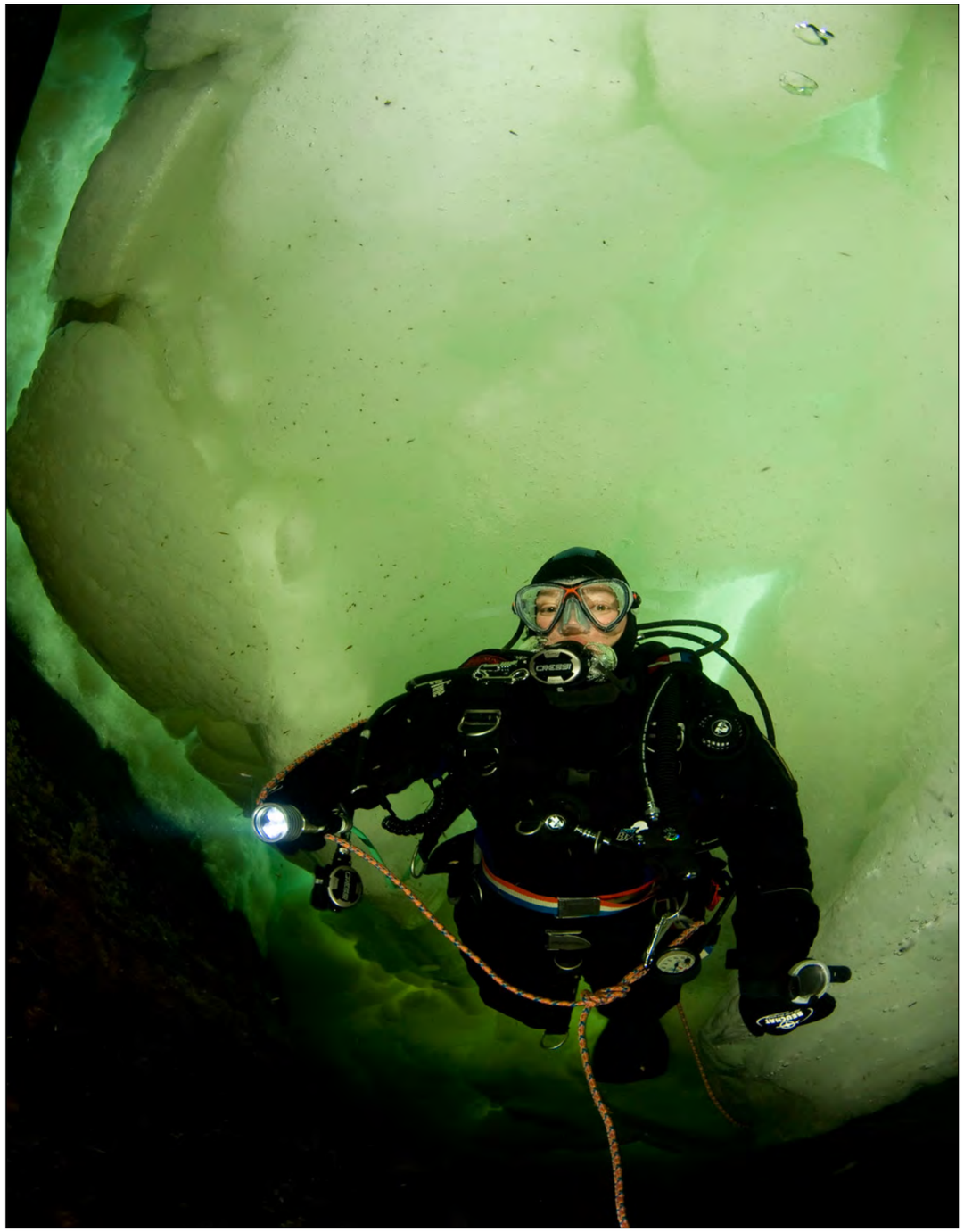
If you are lucky, at the end of the evening there are no clouds in the sky – this really is a moment to overcome the cold as you need to go outside and admire a special natural phenomenon – 'the northern lights'. With the naked eye it looks just like white light flashes moving around the air. A photograph from a camera on a tripod with a long shutter speed gives you a real indication of the northern lights in their full glory – splendid green and purple light flashes decorate the dark pole sky. In spite of the cold you can watch theis phenomenon for hours.

The following day we were asked to prepare ourselves a little bit earlier for the departure of our snowmobiles. We went a little further up the coastline that day, and once we arrived, the extreme beauty of the environment in the area took our breath away. The holes in the ice were prepared in advance and were already waiting for us. The large blocks of ice beneath the holes gave a clear indication of the thickness of the ice – the blocks were at least 80cm thick.

Despite the fact that the holes in the ice were prepared in advance and that the holes are dived regularly, every morning a layer of ice needs to be removed from the top of the hole. On very cold days they even have to clean the ice out of the hole before every dive! Just as an indication the water temperature here is -2°C.

That day we dived besides a small island in the sea. If you pay attention during the day you will notice the tidal area you are in. Despite the frozen sea, low and high tides influence the ice pack – at high tide the whole plateau of ice is lifted up and dropped again at low tide. Underwater we again noticed the effects of this tidal movement on the ice. During our first dive we found some narrow overhangs near the edge of the island, while during our second dive these overhangs had disappeared

Dive the World
Russia



Dive the World
Russia

By: Andre Crone

completely because of the fact that the ice had dropped. At some places the current of the sea had polished the sharp edges of the ice blocks and big plates of ice, creating rounded forms. Here the colour of the ice varied from white to almost green, but the sunlight tends to brings out different colours in the water every minute. That day our favourite canteen cabin was not available for lunch – instead we were taken by snowmobile to an old fisherman's hut, a primitive house, but one which was certainly very charming. It was as if we have gone back a hundred years in time.

Every day, in between dives, there was more than enough time to enjoy the beauty of the nature around us. A little walk around the dive site was certainly worthwhile, yet when you walk around on land you become aware a new challenge... The layers of snow there can be so thick that you could find yourself buried waist deep in the snow.

After a number of days of diving at the Polar Dive Circle it was time to move on to another dive centre – Nereis. This dive hotel, in a white environment, stands in almost fairy-tale like surroundings.

Most dives we did with them were close to the dive hotel – the advantage was that we could warm up in between dives at the hotel. We were once again taken by snowmobiles to the dive sites, and what is striking over here is the different colour of the water compared to what we saw during our first days of diving. The water in the bay of Nereis was a golden brown colour, which was also reflected in the ice. The sunlight further enhances the mysterious nature of the environment. All dives here were done beneath a rocky area in the bay, which meant that we encountered a maze of different ice blocks underwater.

As we kept on enjoying the mysterious environment when diving under the ice, we also took our time to enjoy the rest of the underwater life. On the rocky bottom we found enormous amounts of kelp, and of course, a lot of anemones known from the colder parts of the world. In the water column we regularly found small jellyfish – some were totally transparent, whereas others had a more pink-red hue. The cold water also does not disturb the nudibranches and starfish – many of them could be found on the rocks and kelp leaves.

On the days when we went diving a bit further from the dive centre, we again used the well-known wooden cabins on the ice to change warmly. And at lunchtime we again used the wooden cottages used by fishermen in the summer. The days in Russia were quite sunny, making life pleasant outside. One day though the sun really let us down and we had to cope with a strong wind – as a result the temperature dropped to -10-15 below zero, yet with the wind chill factor, this felt even colder. After having made our dive it was advisable to go into the heated cabin at once. After only a few minutes, even our BCD had frozen to our tank!

We did the last dive of our trip near the centre of Nereis. In the harbour a ship lies surrounded by ice – we doubted whether the fact that the ship was fully surrounded by ice would benefit us, but it made for good diving. The propeller waits, unemployed in the water, waiting for the weather to warm up. Because of the rust coming off the ship, the water in the ship's immediate surrounds is almost brown.

After a week and a half of ice diving it was time to make the trip home again. We enjoyed our last evening in the sauna and then it was time to return to Moscow. We can look back on an impressive trip and a lot of beautiful dives – it was a trip that will stay in our memory for a long, long time!

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Exploration
Liberty Wreck

Liberty Wreck

By: Jill Holloway & David Holloway

The smell of stale pee hung like a miasma in the still early morning air over the entry point to the USAT Liberty Wreck in Tulamben. It was still dark at 5:45am when we crept out of our beautifully cool veranda villa in the Mimpi Boutique Hotel Resort for our eagerly anticipated bump head parrotfish encounter.





By: Jill Holloway & David Holloway

We walked along the sea wall that protects the beach front resorts from the ravages of the ocean, crunching over the black stone volcanic rubble in our sandals as the sky lightened and the sea began to glow.

Tulamben is a small resort village on the east coast of Bali, nestled against the towering Mt. Agung, one of Bali's three active volcanoes.

The areas income comes almost entirely from divers exploring the wreck of the USAT Liberty, a deliberately beached WW2 ship that was landlocked for 20 years until 1963 when the volcano erupted, killing over a thousand people and finally sinking the ship. It now lies in 6m down to 28m of water, wedged against the undersea slope.

With natural disaster always lurking in the background and an active volcano to propitiate, the Balinese practice a very active form of Hinduism in their daily lives. They surround themselves with well tended gardens and natural beauty.

Even the most humble dwelling often has an exquisite pot or planting on the pavement, and almost every family has a temple or sacred place. Daily offerings are made to the gods of earth, wind, water and fire. It is almost as though the Balinese are afraid their environment will suddenly disappear, so they make everything beautiful while they can, asking help from their gods to keep their world safe.

By: Jill Holloway & David Holloway

There are divers swarming over the wreck from 7am when the porters arrive to carry the tanks to the ocean side, until 10pm when the last night divers surface.

Incredibly, where every dive entry point we visited had gear washing facilities, ablutions and loos, this one with the most diver traffic has only a few bamboo platforms to kit up on, hence the stench of pee. All the gear is carried from the resorts on the heads of the staunch Balinese women porters.

Ages range from 24 to 50, and most of the women are married with children. They move in a circuit, from kit-up and ablution area with full kits to entry point returning with empty cylinders. They are paid by the dive operators through the dive guides and most have worked for the 11 years since the system's inception.

We met Parman at the restaurant rendezvous and he was on his cell to a friend with a motorcycle to organise for our gear to be transported the 200m to the entry point, as it was too early for the porters. We strapped on our weight belts, picked up our fins and wearing our Rockies over our booties, we stumbled across the stones and boulders to the entry point.

After 30 minutes, no gear... the sun was showing and the dive boats had arrived, depositing 20 divers onto the wreck. By six thirty it was clearly too late for the parrotfish encounter, but the gear arrived and we kitted up anyway. The bump heads sleep in the wreck and we had seen one on our night dive the

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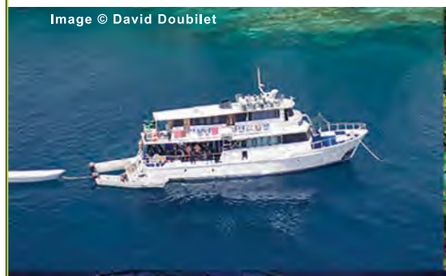

A boutique, traditional style live-aboard catering for 10-12 guests in 7 cabins, including large and small singles.

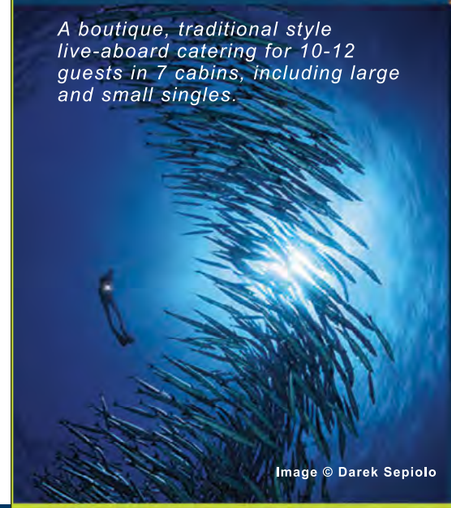

Image © Darek Sepiolo

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Tropical bungalows in rainforest gardens with waterfront and garden views.

Image © Franco Banfi

Image © Grant Thomas

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

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By: Jill Holloway & David Holloway

previous evening, sleeping under an overhang.

They leave at sunrise to disperse across the reef, grazing on the coral and trying to convert the black volcanic silt to white coral sand with their droppings. A single bump head consumes five tonnes of coral in a year. You rarely find them in the wreck after sunrise. Surprisingly, Parman finned away from the Liberty. We soon saw why. As we reached the 11m coral line, 43 bump head parrotfish arrived for breakfast.

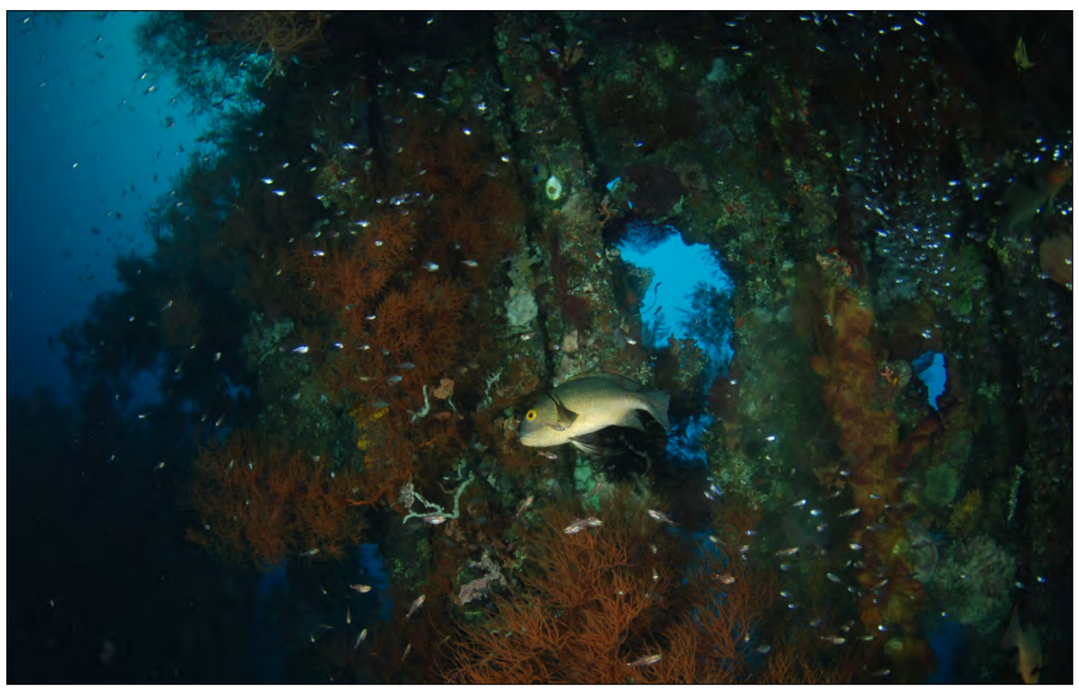
Like a bovine herd, they hung beside us, benignly sleepy-eyed, the little ones pushing and shoving at each other while the gigantic herd bull tried to maintain order. Side on they are huge, but they are almost two dimensional, as they are very narrow creatures. He had an enormous bump, so big there was room for a tenacious remora, which clung optimistically to the edge of it.

As young fish they are a drab grey, but as they get older and bigger, their colour lightens to an exquisite turquoise blue with rich blue fin outlines. When the dominant male in an area dies, the largest female changes her sex and gains the stature and ponderous gravitas of an elder statesman, taking over the role of herd bull. There can be only one male in any area.

We headed back to the Liberty and plunged straight down to 34m where Parman expected to find the exquisite minute pink pygmy seahorse. At this depth our bottom time was limited, so we had eight minutes to find him. As the deco warnings on our computers began to flash, Parman's rattle sounded, and there he was.

Minutely exquisite, clinging tenaciously

Exploration
Liberty Wreck



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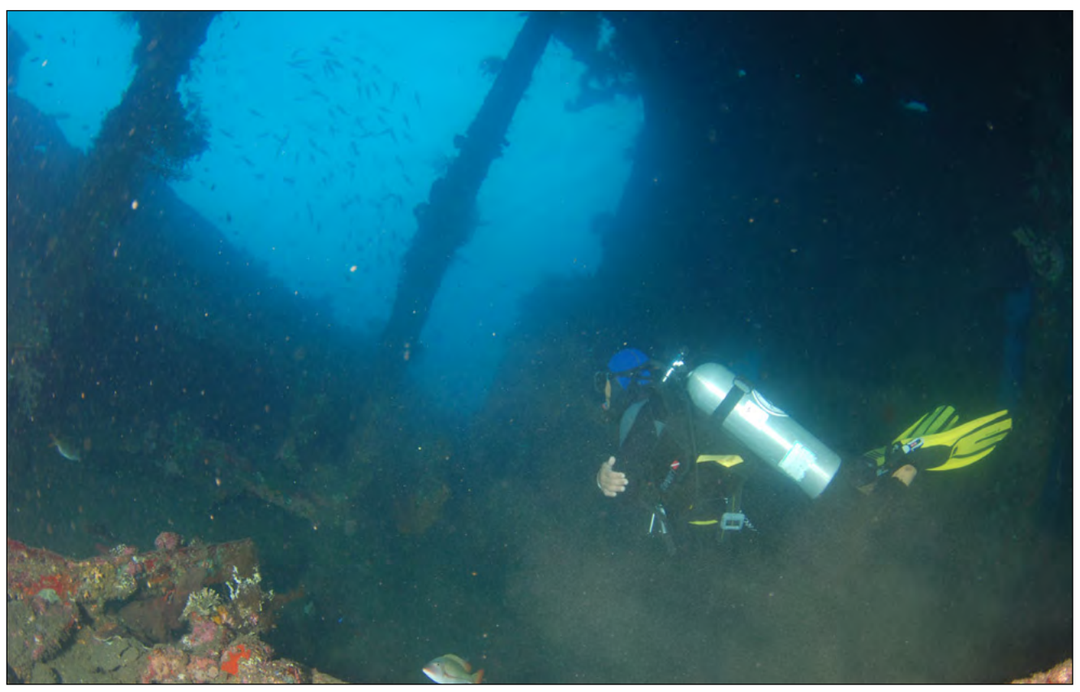
By: Jill Holloway & David Holloway

to his gorgonian fan, we saw the pink pygmy seahorse, (Hipocampus Bargibanti) and then to top off a perfect dive, the dragon shrimp ((Phyllognatha ceratophthalmus).
We ascended through the wreck, passing stunning hard and soft corals, catfaced rock cod, dozens of unfamiliar butterfly fishes, two relaxed regal angelfish and a huge Malabar rock cod.

There were several beautiful oriental sweet lips relaxing on the sand against a fallen boom, with hungry goatfish burrowing in the sand around them.
A patch of garden eels waved in the slight current as we ascended, and to complete a perfect dive, a huge school of kingfish circled us overhead, hoping we would stir up a meal for them at the 3m mark.

We trudged back for breakfast through an origanum field filled with grazing goats, and were stunned by the ancient wisdom of a nation that had the foresight to pre-season its meat.
Every meal we had in Bali was deliciously seasoned, elegantly served by exquisite Balinese hostesses and the most expensive dish, pre-ordered Bali Roast Goose was $10 per person. For three courses.



Through the Lens
Photographer

Kamil Jureczko

Kamil Jureczko

A journey through the Lens

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!

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

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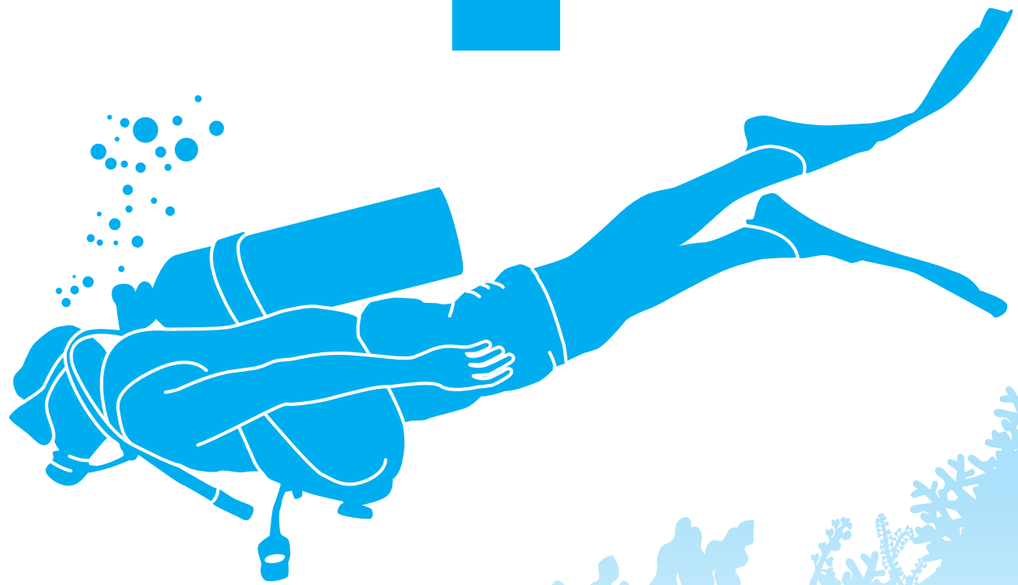

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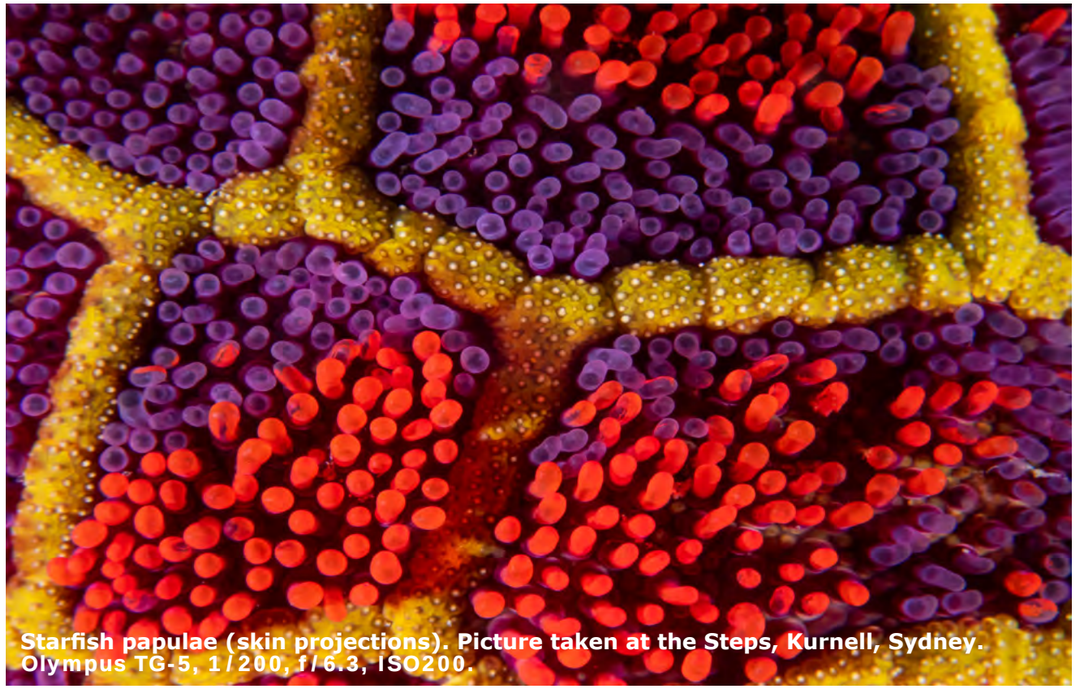
Giant Cuttlefish (Sepia apama) at Oak Park, Sydney. Olympus TG-5, 1/60, f/3.2, ISO200.

Red Hairy Hermit Crab (Dardanus megistos) at Shiprock, Sydney. Olympus TG-5, 1/200, f/6.3, ISO200.



Starfish papulae (skin projections). Picture taken at the Steps, Kurnell, Sydney. Olympus TG-5, 1/200, f/6.3, ISO200.

Southern Peacock Sole (Pardachirus hedleyi) at Clifton Gardens, Sydney. Olympus TG-5, 1/200, f/6.3, ISO200.

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Brown Sabretooth Blenny (Petroscirtes lupus) in his residence at the affluent Clifton Gardens, 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.

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Striate Anglerfish (Antennarius striatus) at Clifton Gardens, Sydney. Olympus TG-5, 1/200, f/6.3, ISO200.

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

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

Common Sydney Octopus (Octopus tetricus) at Clifton Gardens, Sydney. Olympus TG-5, 1/100, f/18, ISO100.

Eastern Red Scorpionfish (Scorpaena jacksoniensis) at Bare Island, Sydney. Olympus TG-5, 1/200, f/6.3, ISO200.

Nudibranch (Pteraeolidia ianthina) at Bare Island, Sydney. Olympus TG-5, 1/200, f/6.3, ISO200.

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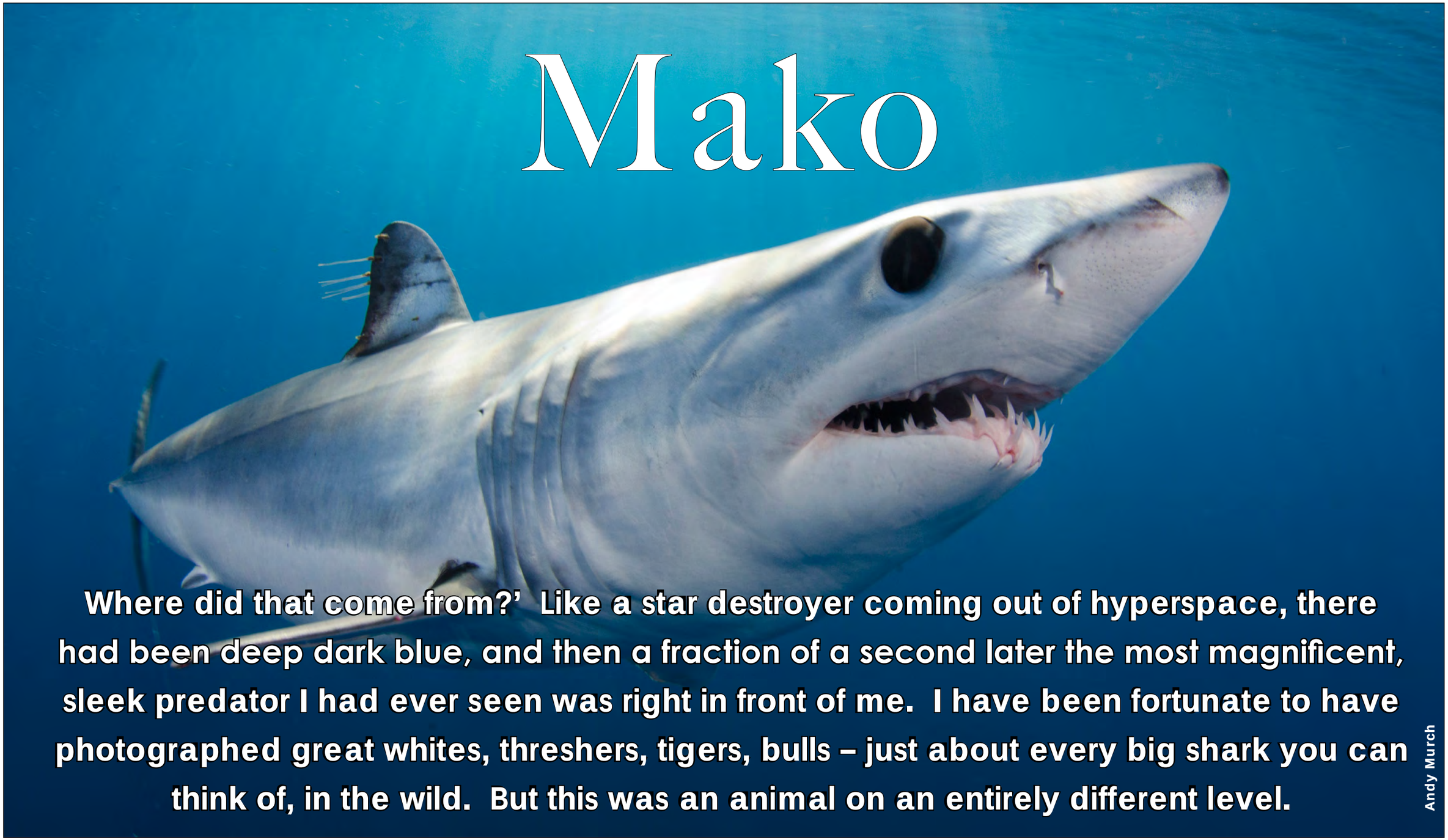
Giant Stride
Mako

Mako

By: Jamie Watts Photos by: Malcolm Nobbs & Andy Murch



Where did that come from?' Like a star destroyer coming out of hyperspace, there had been deep dark blue, and then a fraction of a second later the most magnificent, sleek predator I had ever seen was right in front of me. I have been fortunate to have photographed great whites, threshers, tigers, bulls – just about every big shark you can think of, in the wild. But this was an animal on an entirely different level.

Andy Murch

By: Jamie Watts Photos by: Malcolm Nobbs & Andy Murch

For many years Malcolm had been unlucky with makos, even in places where sightings were 'virtually guaranteed'. So he signed up for two 2020 Cabo San Lucas trips with Andy Murch's Big Fish Expeditions. From day one they had great shark encounters – of all the wrong species of shark. Malcolm decided it was prudent not to mention to the other guests that he was the jinx, that the lack of sightings was his fault. But then, amongst other sharks that somehow now looked crude, sluggish and primitive, appeared that magnificent, super-confident shortfin mako. Oh yes!

Makos are still reasonably abundant, but are far from easy to encounter. A bit of bait sets a scent trail, but this doesn't guarantee that they will even arrive, much less stick around. Some places encounter makos on snorkel only, some with scuba. In Andy's experience, makos approach the boat at great speed and explore everything that might be edible. They often mouth anything metallic that is giving off a tiny electric signal; such as propellors or even the keel. Unlike other open ocean sharks like blues, makos tend to lose interest rather quickly and disappear. Once in a while, a fearless mako will hang around for hours, offering extraordinary photographic opportunities. Andy generally has pretty good luck with makos when he goes looking for them.


Andy Murch

The name mako means 'shark' or 'shark tooth' in the Maori language. For me, the mako has no competition for the title of the ultimate shark. Great whites, tiger sharks, great hammerheads, six and sevengills and sleeper sharks all get larger. But without question, without peer, pound for pound, by the most powerful, fastest, most active, most hydrodynamic shark on Earth is the shortfin mako. I'd add that it is the most beautiful of all sharks, albeit a rather terrifying beauty.

Makos take the shark bodyform to an entirely new level, and no amount of familiarity with other sharks prepares you for the sheer, sleek perfection of this racing shark. The sharp snout cone flows into a muscular, barrel-shaped body, which in turn tapers to the slender, keeled tailstock holding the large wing-like tail. The huge gill slits give a clue as to how much oxygen this hyperactive shark needs to extract from the water. The mako slides through the water with barely a ripple of disturbance. Even the colour; dark, metallic blue on top, baby blue on the sides and silvery white below, is gorgeous. Makos look fast even in a still picture, and they are never still.

The warm-blooded mackerel sharks

The mako's family has five members, each of them far more active and powerful than sharks from any other


Malcolm Nobbs


Malcolm Nobbs

By: Jamie Watts Photos by: Malcolm Nobbs & Andy Murch

group. These five species ecologically hold their own alongside the air-breathing seals and dolphins, nature's most powerful ocean predators, in some of the most productive and competitive ocean environments on Earth. They are rather different animals to the relatively sedentary reef, bull and tiger sharks. Slender as it may look, a mako at the same length weighs almost half as much again as any of these other big sharks. They are more solid, with more muscle and a denser skeleton, and a huge oily liver which offsets their otherwise negative buoyancy.

Makos and their cousins are partially warm-blooded, maintaining in the case of makos a body temperature that can be 7-10 oC higher than the surrounding water. Warming the muscles gives them a huge power advantage over almost every other shark or fish. This mammal-like warm-bloodedness brings with it an almost mammal-like metabolism, which requires a lot of feeding. A mako needs two to three times the calories a similarly-sized tiger, bull or oceanic whitetip shark would need. The metabolism that makes makos such spectacular athletes also obliges them to forage in richer, cooler oceans than other sharks can access, forcing them into competition with concentrations of marine mammals. Tropical seas just don't provide enough food.


Malcolm Nobbs

Makos prefer near-surface water at a temperature of between around 16 and 22oC. When summer warms the temperate seas where they live, makos seem to migrate onto continental shelves and inshore to take advantage of the summer bounty, moving back towards the subtropics as temperatures drop for the autumn. Usually living in the top fifty metres, the smaller-bodied youngsters seem to avoid thermoclines or colder seas. Big makos, however, seem to make use of their large, warm body cores to take them into colder, richer seas, and to dive deeper during the day into cold water in order to hunt spectacular prey like swordfishes.

Only the great white, porbeagle, salmon shark and longfin mako, in the same family as shortfin makos, have a somewhat similar build and this pseudo-warm-blooded metabolism (one species of thresher shark also seems to have some core muscle warming). The first three are incredibly robust and stocky - proportionately more heavily-built and smaller-tailed than makos, and hunt in short bursts of speed. Porbeagles and salmon sharks manage to live and hunt in even cooler, richer seas than the makos, seeking schools of oily fishes. Andy heard that a salmon shark had been clocked sprinting even faster than a mako by a US submarine sonar. Great whites specialise in cramming in seal fat calories to see them through a slower-paced rest of their year. The slender longfin mako lives a little deeper, in warmer seas, where it hunts smaller schooling fishes and squids.

Open sea hunters

Amongst all the sharks, even their close cousins, only large adult shortfin makos (usually the big females) chase down the fastest fishes in the sea in open water. Prey includes tunas,

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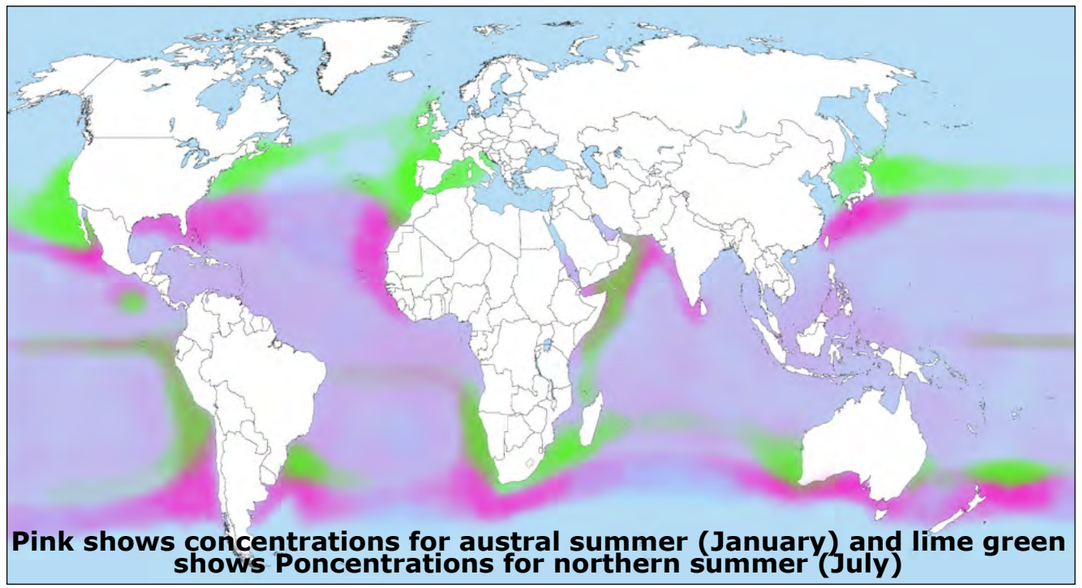
By: Jamie Watts Photos by: Malcolm Nobbs & Andy Murch

marlins, sailfishes and especially swordfishes, sometimes nearly as big as the shark itself. They sprint, and then they sustain the chase. How fast? It's rare to find controlled conditions to accurately measure such open-water speed, but it seems that they are capable of bursts in the high sixties to low seventies in kilometres per hour, somewhere around forty knots. This is significantly faster than any dolphin, including the orca. The only living things in the ocean that have been recorded faster are swordfishes, marlins and sailfishes. But even these magnificent sprinters can't outlast their mako predators.

The largest makos also catch the smaller species of fast, agile open-ocean dolphins. Makos over three metres long (almost all females) have broader and flatter teeth than smaller makos, as they step up to tackle bigger prey. Like their cousins the great whites, makos often hunt smart, and get a little beneath their prey, watching for silhouettes and hunting from beneath by ambush where they can. They don't seem to use electroreception as much as their big eyes to zero in on their prey.

Swordfishes live some way offshore, and deeper than diving depths, and the rich seas they live in generally have limited visibility. It makes me sad, but the oceans' ultimate high-speed predator-prey interaction is almost impossible for us to see. The best we can do is to tow bait at speed behind a boat with a towed camera, and we can chum the nearshore waters where smaller makos hunt, and attract them in for glimpses. But makos are shy, fast, and don't stick around. Glimpses is all we get. The longest humans have ever managed to keep makos alive in aquaria was for five days. They can't deal with walls and confinement. Makos' lives are unconstrainable, the only thing that works for them is open water, wild and free.

A shark this big and well put-together is more than capable of effortlessly making a terminal mess of a human, but there are only a handful of records of mako attacks on humans



Pink shows concentrations for austral summer (January) and lime green shows Poncentrations for northern summer (July)

in the shark attack files. This may partly be because makos tend to not come far enough into shallow bays where humans tend to be, although they come into bays for prey such as bluefishes. Maybe it's as much to do with how ludicrously un-sleek and unappetising we humans are in the water. We don't look like quality food.

Life cycles

Not surprisingly, an animal this well engineered and this high in the food web takes ecological investment, resources and time to grow and develop. Males mature at around eight years old, by which time they are longer than and as heavy as a grown man. The larger females aren't mature until they are around 18, and weigh a quarter of a tonne. Males don't often exceed two and a half metres long, and rarely get past their teens, whereas females keep growing and occasionally live into their thirties or even beyond. Older females can be over three and a half metres long and weigh over 350kg. Like many big sharks, they get bulkier as they get older; very occasionally monster females can exceed four metres long and 700 kilogrammes.

Makos also have a long reproductive cycle. A year and a half gestation, the same again resting, so these big females probably have three years between litters. Mating seems to happen in the local autumn, births peaking in the local late winter or spring 18 months later. Makos are ovoviviparous, meaning the eggs hatch internally, and the mother gives birth to 4-18 live miniature makos, tiny, slender but rather beautifully-formed replicas of their parents, each about 70 cm long.

Satellite tracking seems to suggest that most makos may not be quite the travellers their larger cousins the great whites often are. They move with the warmth and the productivity of the local summer, within a range of a few hundred to couple of thousand kilometres throughout the year, within their home region. And they seem to habitually cruise, in between feeding chases, at a remarkably low average of one knot, slowing to half this speed at night. Which has to be pretty much zero effort for a mako.

A small handful of individuals, though, are wanderers. They've been tracked covering seventy kilometres or more in a day, over a thousand kilometres in a month, and over thirteen thousand kilometres in under nine months, about the same pace as the greatest ocean migrators, the humpback and grey whales.

Regional mako populations

Each region seems to have its own mako population, with its own annual cycle. East Australia and New Zealand's population has a hotspot of makos off the northeast of New Zealand's north island. Makos from both sides of Australia move south with the spring into the south Australian bight for their summer feeding season

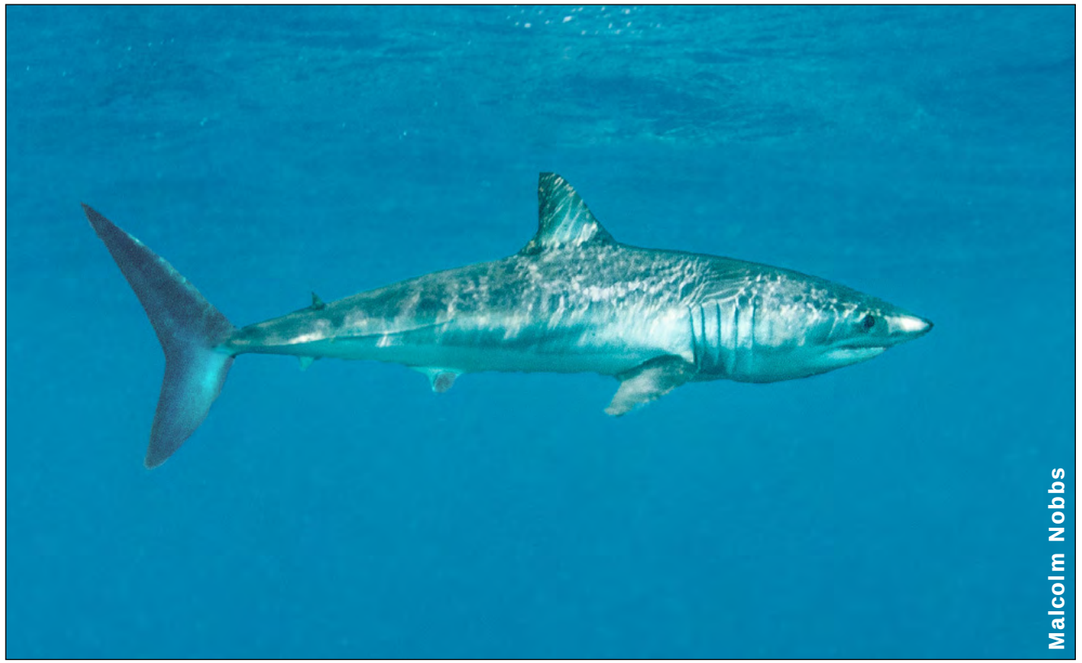
By: Jamie Watts Photos by: Malcolm Nobbs & Andy Murch

as the south warms up, cruising over the continental shelf and occasionally out to the shelf edge.

Northwest Atlantic makos seem to give birth in the Gulf of Mexico, the youngsters staying in the relatively warm southern end of the Gulf Stream, while larger animals ride the current further north each spring and summer, following bluefish, their preferred prey, into bays. They reach New York by late June, then past Cape Cod and to the Grand Banks for the warmest part of the summer, with the biggest makos heading out into swordfish territory. As the season starts to cool the makos head offshore and south to winter in less chilly waters in the mid-Atlantic and Sargasso Sea.

Northeast Atlantic makos seem to have a breeding area in the western Mediterranean and Gibraltar area, with a nursery area and younger animals concentrated off the Iberian Peninsula for the summer. Some big makos stay in the Mediterranean for the late spring to follow swordfish spawning events off Sicily. Larger animals move north for the summer into the Bay of Biscay and as far as the UK. Some of these animals seem to overwinter in the Canaries and Cape Verde. The Azores seems to be a possible crossover area between eastern and western populations, some of the males in particular apparently crossing the Atlantic from time to time.

The rich, cold seas off South Africa, on both sides, have historically been good places to find makos, although this may be changing. The Indian Ocean population spending time of the KwaZulu-Natal coast seems to prefer smaller sharks as prey, and these shark populations have been heavily fished in the last couple of years. On the Atlantic side, a little way offshore off the western cape a few hours from Cape Town is a hotspot. The population in this area probably makes use of the rich food provided by the


Malcolm Nobbs

Namibia upwelling system, although their nursery and breeding grounds are unknown.

In the northeast Pacific, makos, most of them small animals, arrive in the southern California bight in the spring and leave in the autumn. In deeper, colder waters of the area, jumbo squid can take refuge in low-oxygen deep water from oxygen-hungry makos. When the squid migrate in or out, the makos at the shelf edge can dive briefly in to prey on these squid.

Fishing

Like many big sharks, most mako populations have been hit hard by fishing, most of these populations halving with each recent decade. Makos are widespread, and would naturally (without fishing pressure) be as abundant as you could imagine a semi-warmblooded top predator being – certainly much more abundant than great whites. Naturally, though, makos are an order of magnitude less abundant than the blues and oceanic whitetips they overlap with ecologically in open oceans, probably due to their ecological demands and slow maturity.

At least a quarter of a million makos are caught every year, many of them as bycatch from swordfish longline fisheries (but of course in many cases their fins are still cut off and sold). As the swordfishes are probably the primary prey source for big, reproductive age makos, the decline in swordfish stocks also impacts mako populations. Makos, like other sharks are becoming less abundant, and their average size is dropping. The number of reproductive age adults is falling.

But makos are far from done. At what they do they are unparalleled. The continual motion and offshore habits that makes them enigmatic and infuriating for we humans to see them also gives them the best odds for continuing to thrive, and remain the ultimate shark.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Why Cave Diving?

By: Quintin de Boer

Cave diving is one of the most challenging and potentially dangerous kinds of diving and presents many diving hazards. gadgets).

Cave diving is a form of penetration diving, meaning that in an emergency a diver cannot ascend directly to the surface due to the cave's ceilings. Based on this fact, cave diving has for long been considered, even in technical circles, as a voodoo art or a practice of black magic if you will.

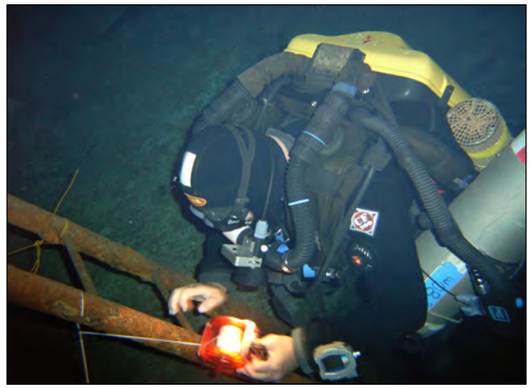
But as with everything in life, people fear what they don't understand. Cave diving, as with any type of diving, does have inherent risk, but proper training mitigates the risk to such an extent that it can be done safely. That being said, it is very important to note that cave diving is definitely not for everyone.

So why do divers venture into the realm of cave diving? Cave exploration is one of the most exciting activities amongst scuba divers. Caves are not only mysterious, but breathtakingly beautiful.

Some have visibility so clear, that other divers can't even begin to conceptualise this in their wildest imaginations. Besides the environment, cave diving allows a diver, in my opinion, to really put his/her diving skills to the test. From the time a person decides to enrol in the course, and every time one enters a cave thereafter, one finds oneself with a smile on their face and a renewed sense of adventure, even if you are a hard-core tech instructor with numerous cave dives behind your name.

This was definitely the case with me. Having reached the level of recreational scuba instructor, I found myself asking, "What now, what next?" I started with technical diving, but it wasn't until I stepped into the world of cave diving that I found my true passion for diving. It asked that I utilise everything I had learned about diving to date and still demanded more. I can safely say I was hooked! It tests every scuba skill in the book, and these include:

• Buoyancy (if positive you will find yourself against the ceiling; if negative against the floor stirring up silt);
• Trim (here you needs to keep track of your



head and fins as improper trim can cause you to silt the cave or bump your head – neither being a preferable option);
• Gas management (Always important in all types of diving but a matter of life and death in cave diving – generally a the rule of thirds is used by cave divers);
• Fin techniques (This speaks for itself as the ability to glide down a passage without disturbing the silt below can add not only to the experience, but can also save you from swimming back through a cloud of silt to the exit).

There is also an array of new skills that comes with the activity of cave diving, such as learning to communicate with your dive team in zero viz (yip, not limited but zero).

This includes touch communication. Learning to do reel work and placing line arrows – this is a critical skill as the line and reels become your lifeline to the outside world.

Teamwork and absolute trust in your diving buddies becomes a necessity; you form a kinship second to none. Exploration techniques, mapping techniques, advanced navigation techniques and even advanced searching techniques are also a prerequisite.

Although I could write a complete book on cave diving I have tried to highlight a few of the main considerations.

In closing I would, however, like to state that it is one of the most challenging, enjoyable and adventurous activities out there and it will put your skills to the test.

So if you find yourself asking what next, then maybe, just maybe, cave diving is for you.

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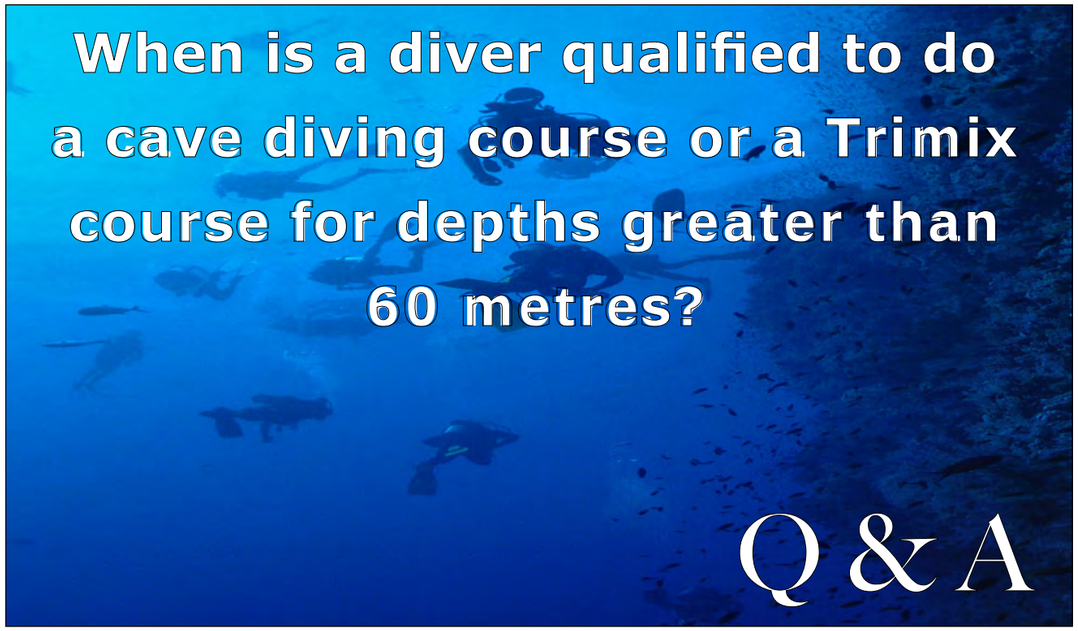

When is a diver qualified to do a cave diving course or a Trimix course for depths greater than 60 metres?

Q & A

Nuno Gomes

Looking at it from a logical point of view, I would not register anyone on a cave diving course unless they have the magical 100 dives behind them. These dives should include a number of night and low-visibility dives and

I would also like to see the diver have an advanced Nitrox and rescue diver qualification. Most organisations do not link cave diving and Trimix qualifications, but I do not enrol anyone on a Trimix course before they have completed at least their Cave II qualification.

Some people might say that there is no link, so why do it this way? Well, during a cave dive, ascent is only possible at the end of the dive, because in a cave there is no direct ascent to the surface. That makes it similar to open-water Trimix diving, where an invisible barrier – lengthy decompression time – prevents divers from ascending to the surface during the dive. This lengthy decompression time requires some getting used to and since all Trimix dives require lengthy decompression, cave diving prepares divers for that very well.

Failure to fully decompress will result in severe decompression sickness or worse.

Barry Coleman

This question has plagued training agencies from the start. In an effort to address the problem, they have set minimum standards to meet before the diver can consider doing the technical training programme.
Is it enough, however? Well, statistics imply that it is, otherwise the agencies' insurers would be screaming loudly. In the day-to-day training of the technical programmes, the more experienced instructor will allow those who meet the minimum standards for the course to start that programme, but may insist that they complete additional training to become certified.
The other advantage with most technical training agencies is that they have evaluation assessments after each session, allowing the students to evaluate themselves based on certain standards for each course. I've found these evaluations to be an integral part of the programme, as they clearly define the standards needed by the diver.
Students who are honest with themselves will know whether they are up to the level needed to be certified. The ocean takes no prisoners and suffers no fools.

Pieter Smith

All diving agencies offering technical courses have set minimum requirements such as other diving qualifications, age, fitness and health level, medical background, equipment and so forth. I would like to focus on attitude, mental fitness and commitment. Technical diving is not for everyone.
Only a small percentage of sport divers proceed to technical diving, and even fewer last the distance. You need to be willing to start at the bottom (again) and be able to commit yourself to a long and intense learning and skills-practice journey. The actual learning starts once you have qualified and it never stops.

Part of attitude is your acceptance to learn, practice and dive technical on a regular basis. Due to the potential dangers associated with technical diving, you need to know yourself – your ability, your limitations, your fears and how far you can stretch yourself. "Been there, done that, got the t-shirt" does not work in technical diving. If you want to do it to just to get the qualification, rather don't and save yourself a lot of effort and money. You will find a competent technical diver at any dive site, busy diving and fine-tuning his or her skills. You do not find competent technical divers behind PC's all day. The wrong attitude kills technical divers. Commitment, mental fitness and attitude count for 80 percent of your readiness to start technical diving.

Pieter Venter

The complex and risky activity of cave and Trimix diving takes a lot of bottom time, practice, good mentoring and reading – much more than can be learned on any course. Cave and Trimix divers are often certified long before they are qualified. This is acceptable if the certified person continues his training with qualified divers. Those who do not continue their training by regular diving and reading should stick to displaying the badge and framing the certificate and rather find excuses not to dive.

Doing the occasional Trimix or cave dive after completing a course is courting disaster. Qualifying is a never-ending process and should include a mentoring programme, of which a certification course is only one part. Technical and cave instructors should involve students in current courses and technical dive trips, or other projects aimed at learning, providing support, exchanging ideas, etcetera. The interesting dives require expedition-style teamwork and usually provide ideal learning opportunities.
A minimum standard, comprising a certain number of required dives of specified depths or activities, is only a start. Complying with the minimum requirements should not be a definitive indication of readiness, and the instructor and mentor should do monitoring dives with his or her students. Cave and Trimix diving requires effort and dedication. It is a long journey that's not for everyone.

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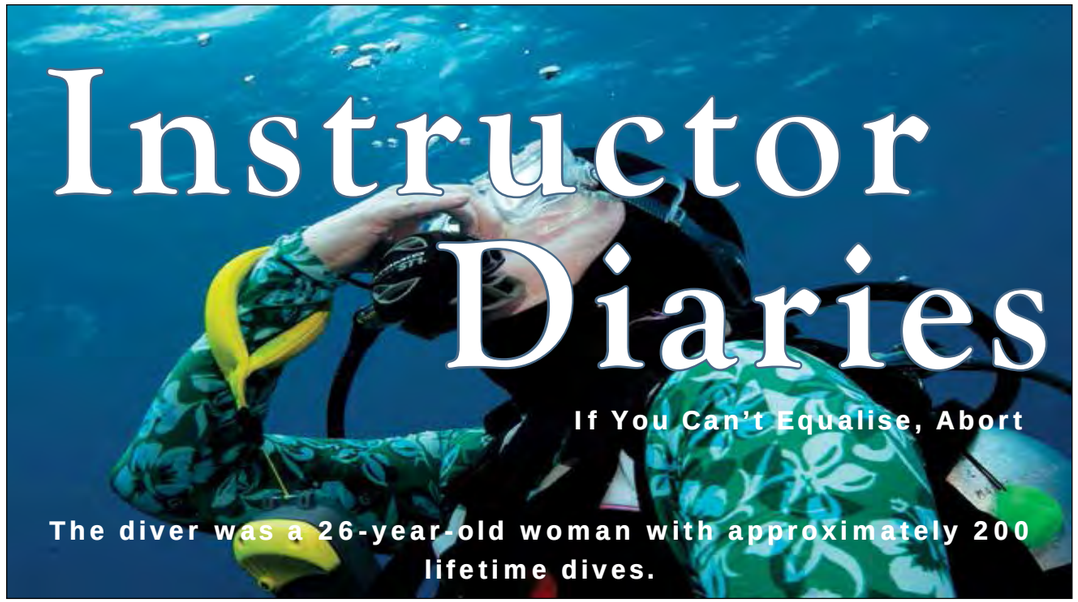
By: DAN's Matías Nochetto, M.D.



Instructor Diaries

If You Can't Equalise, Abort

The diver was a 26-year-old woman with approximately 200 lifetime dives.

The Dive
She did a single, morning dive to a maximum depth of 27 metres. She reported no troubles equalising or other complications during her descent. Approaching her safety stop near the end of the ascent, however, she was struck by a sudden massive headache, nausea and vomiting. She skipped the safety stop and ascended directly to the surface.

The headache and vomiting continued on the boat, and she also experienced an onset of what she called dizziness. The crew helped her remove her gear and administered oxygen. After a few minutes with no improvement, the crew recalled the rest of the divers and called emergency medical services (EMS) and the DAN Emergency Hotline.

Analysis
Further discussion revealed that the dizziness the diver reported was likely true vertigo. Vertigo is characterised by a spinning sensation and is usually accompanied by nausea and vomiting, while dizziness is a sensation of loss of balance.

In a diving context, a sudden onset of vertigo during ascent or descent is suggestive of ear barotrauma, with inner-ear barotrauma (IEBT) being most concerning. Ear pain may or may not be present. Vertigo is also common in cases of inner-ear decompression sickness (IEDCS). Symptom onset for IEDCS is usually not so sudden and dramatic, and the dive profile did not seem to be aggressive enough to immediately suggest IEDCS. Nevertheless, such a diagnosis could not be completely ruled out.

Distinguishing between IEDCS and IEBT can pose a significant diagnostic challenge, but doing so is critical because the two conditions require very different therapeutic approaches, and misdiagnosis and mistreatment could be harmful.

Headaches are a common post-dive complaint, often the result of a sinus barotrauma.

Although much rarer, another possible diagnosis was a very bad sinus barotrauma with gas leaking into the cranial cavity (pneumocephalus). The sudden onset of a massive headache associated with a significant drop in barometric pressure accompanied by nausea, vomiting and vertigo was suggestive of such a rare diagnosis. The diver did report some difficulties equalising and what seemed to have been some sinus pain during descent as well as a sensation of pressure later during ascent. The diver's recent history of a cold increased the likelihood of a very bad sinus barotrauma.

Pneumocephalus is usually diagnosed using imaging, but small amounts of gas can be reabsorbed in a short time. Because of the relatively small window for a positive diagnostic image and the harmful — even fatal — nature of pneumocephalus, ruling it out should be a priority.

The mechanism of injury is assumed to be a reverse block of the sinuses. The presence of mucus and inflammation of mucous membranes are the most common causes of transient sinus blockage. These generally pose no greater risk than inflammation in the mucous membranes of the sinuses, but with the ambient pressure changes involved in diving, a partial or intermittent blockage may act as a valve that impairs normal gas flow in the sinuses.

Gas expansion from a reverse block can be significant enough to disrupt the thin bone walls separating the sinuses from each other and from the cranial cavity. When a sinus cavity suddenly relieves its pressure into another one, this usually manifests as pain, a headache and possibly a nose bleed. Gas leaking into the cranial cavity (pneumocephalus), on the other hand, can result in anything from headaches to life-threatening neurological deficits.

Potential consequences will depend on the amount of gas and the degree of displacement of normal anatomical structures. This sort of injury can initially manifest as a moderate or severe headache or, in severe cases, result in seizures or even death. Most cases of pneumocephalus resolve spontaneously without surgical intervention. Management involves breathing oxygen, keeping the head of the bed elevated, taking antibiotics (especially when traumatic injury is involved), managing pain and performing frequent neurologic checks and repeated CT scans.

Evaluation and Treatment
The diver's X-rays revealed subtle signs that could indicate pneumocephalus, which warranted admission to the hospital. These findings, however, could not be reproduced during a CT scan several hours later. These diagnostic discrepancies prompted some discussions, but based on the case history, symptom presentation and initial imaging, the diagnosis was still thought to be pneumocephalus following sinus barotrauma. The patient had been breathing pure oxygen since surfacing, including during transportation, evaluation and hospital admission, which could have sped up the reabsorption of the gas.

In the absence of concrete evidence of pneumocephalus, the treatment plan was for the patient to continue to breathe oxygen, begin a course of antibiotics, undergo repeat CT scans and be observed for no less than 48 hours.

A six-month follow-up appointment revealed the diver had a very good outcome and had no complications during or after her hospital stay. She has not resumed diving.

Discussion
One of the first rules we learn as student divers is to discontinue diving when we experience difficulty equalising. This is probably the first rule we all break. Questions about the use of decongestants are among the most common asked on the DAN Medical Information Line. (Learn more about decongestants and diving at DAN.org/medical/FAQ.)

With regard to barotrauma risk, the most critical phases of a dive are the descent and ascent, during which massive barometric changes take place. When divers have difficulty equalising during descent, dive leaders often go to excessive lengths to avoid aborting a dive, encouraging divers to try different equalisation techniques and instructing them to alternate between ascending a few metres and trying again to descend.

It is also not uncommon to see divers pinching their nose and blowing during ascent, presumably because they are experiencing equalisation difficulties while ascending.

Both of these practices are counterproductive and significantly increase the risk of middle-ear, sinus and inner-ear barotrauma.

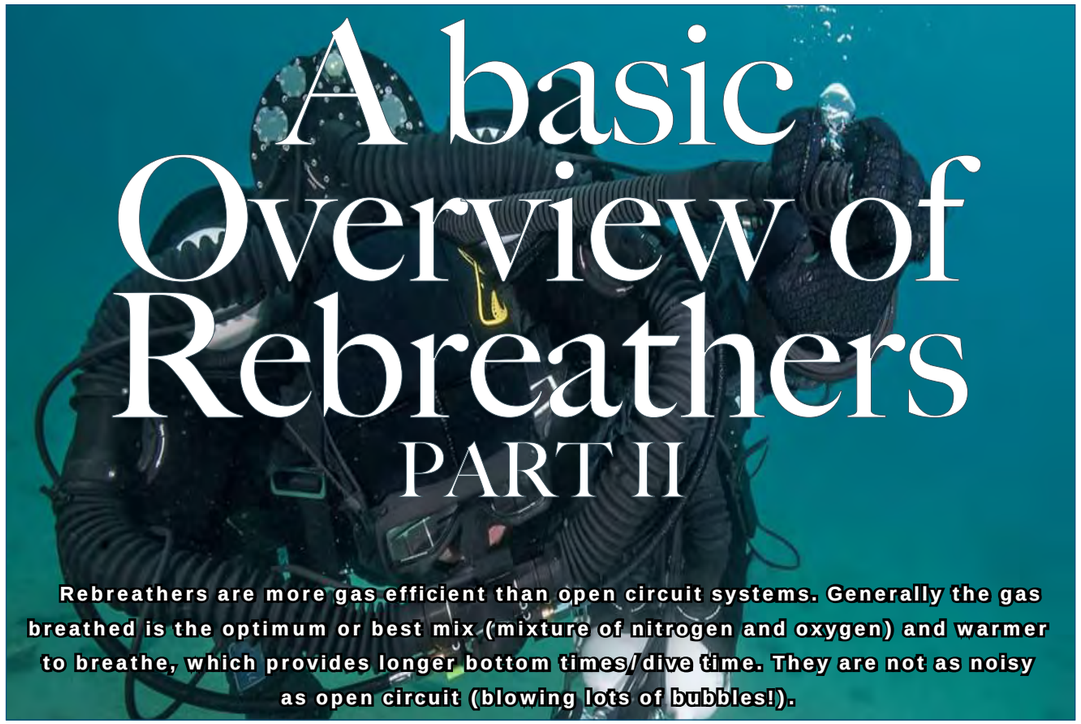
Problems with sinus inflammation and congestion may be amplified by the sinuses' natural responses to cold temperature. Exposure to cold triggers a reflex to limit heat that manifests as increased mucus production and swelling of mucous membranes. This is known as "cold-induced rhinitis." Sea water can also have an irritating effect on mucous membranes, further stimulating mucus production.

Normally this has no negative consequences other than copious amounts of clear mucous when we surface, but be careful when diving: If you are recovering from a cold or have other predisposing factors such as active allergies, gas movement between sinuses may be significantly more difficult. If you experience mild difficulty equalising at the beginning of a dive, chances are the increased mucus production and swelling of mucous membrane may make equalising even more difficult near the end of the dive. Remember you can always abort a descent; aborting an ascent is a lot more problematic.

DANAP.org

By: Barry Coleman

A basic Overview of Rebreathers PART II



Rebreathers are more gas efficient than open circuit systems. Generally the gas breathed is the optimum or best mix (mixture of nitrogen and oxygen) and warmer to breathe, which provides longer bottom times/dive time. They are not as noisy as open circuit (blowing lots of bubbles!).

Closed Circuit Rebreather Systems

The exhaled breathing gas is circulated within the breathing loop and only a small amount of oxygen is added to replace the used/ metabolized oxygen by the diver.
There is a wide range of Closed Circuit Rebreathers (CCR) and some designs border on the Passive Semi Closed rebreather design. All of them have oxygen sensors and electronics in order to have a reading of the PpO2 in the breathing loop.

eCCR

Electronically/computer controlled oxygen solenoid adds oxygen into the breathing loop in an attempt to maintain Set Point, based on information determined by the oxygen sensors.
The diver has the added ability to manually add oxygen by way of a valve in the event of solenoid failure.

mCCR

The delivery of oxygen is controlled manually by the diver in an attempt to maintain Set Point, based on information determined by the oxygen sensors.
The diver has to regularly add oxygen by way of a valve.

cm CCR

A constant oxygen pressure injection system mechanically supplies a constant flow of oxygen into the breathing loop, which is then supplemented by the diver with manual addition of oxygen to maintain Set Point, based on information determined by the oxygen sensors.
ecm CCR

Electronically/computer controlled oxygen solenoid adds oxygen into the loop in an attempt to maintain Set Point, and is supplemented with a constant oxygen pressure injection system mechanically supplying a constant flow of oxygen into the breathing loop. This is then backed up by the diver with manual addition option. All are based on information determined by the oxygen sensors.

All the various types of CCR's rely on the information provided by the oxygen sensors. The constant flow of oxygen into the

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By: Barry Coleman

breathing loop attempts to reduce the risk of hypoxia (too little oxygen content), but has created a risk of hyperoxia (too high oxygen content). In view of this, the units with a constant flow will have depth limitations, unless they have a method to shut off the constant flow at depth.

All closed circuit rebreathers attempt to optimise the oxygen gas mixture. The diver does this by looking at the hand set which will show the oxygen sensor readings of the gas in the breathing loop. These readings are shown as partial pressure of oxygen (PpO2), for example, 0.7 (near the surface) or 1.3 (at depth). Controlling the loop, PpO2 may be manual or with electronics or both.

Rebreathers generally use two cylinders, one for oxygen and one for diluent gas which is generally normal air. The oxygen consumption is slow as the gas added to the breathing loop only replaces the oxygen consumed. This may be anywhere from three to 0,8 litres/0,106 to 0,028 cubic feet per minute.

The oxygen consumed/metabolised by the diver is a fraction of that used in either semi closed or even open circuit. The oxygen is supplied from a small oxygen cylinder, with attached first stage and LP hose connected to the electronic solenoid or a mechanical valve. The important issue is that the oxygen must be added in a controlled manner into the breathing loop. Too much or too little is dangerous.

With electronic closed circuit rebreathers, the oxygen solenoid is controlled by the computer software. Electronic control systems (eCCR) attempt to maintain a constant partial pressure of oxygen, within the breathing loop to the Set Point. With a manually operated oxygen system, the diver has to physically add oxygen to the loop in order to maintain the partial pressure with the Set Point. The diver monitors the breathing loop partial pressure by the display reading from the oxygen sensors.

The diluent/air cylinder is an important part of any rebreather system because gas needs to be added to the breathing loop to equalise the pressure difference, incurred directly upon descent. Without adding the diluent gas, the water pressure would collapse the breathing loop and you will not be able to breathe. Diluent gas may also be added to the breathing loop to reduce the partial pressure of oxygen by 'diluting' the oxygen content of the loop. This is why the gas is called 'diluent'.

The diluent gas is supplied by the diluent cylinder, with attached first stage and LP hose connected to the automatic diluent valve (ADV) or a mechanical valve manually operated by the diver. The rebreather diver's exhaled carbon dioxide is cleaned from the breathing loop by the 'Scrubber' (absorbent). The exhaled gas/dirty gas from the diver which has a high CO2 content passes into the counter lungs which are felxible and therefore allowing exhalation. The inhalation by a diver draws in the CO2 cleaned gas and oxygen enriched gas to breathe.

The inhalation also draws the dirty gas through the CO2 absorbent where the reaction occurs and the CO2 is removed from the gas. The capicity of the absorbent is the amount of absorbent available for this reaction to take place – and it is limited. The risk of CO2 must never be underestimated and is a real danger and will quietely kill you if you do not follow the simple rules.

Always ensure that the absorbent canister is packed correctly and never use the absorbent beyond safe limits. Always have new absorbent when planning a deep dive or you are unsure of the remaining absorbent time. Do not hestiate to replace used absorbent with fresh material – it could cost you or your buddie's life.

In order to reduce the risk of breathing high levels of carbon dioxide (CO2), which is potentially fatal, companies have designed real-time CO2 monitoring for rebreathers. At the time of writing these monitors are still in their infancy, but because of the real danger of CO2, these monitors will soon become mainstream.

Once the gas passes through the absorbent it is then anaylised by the oxygen and carbon dioxide (CO2) sensor/s together with the electronic computer and determines the amount of oxygen needed to maintain the oxygen partial pressure (PpO2) limit with Set Point .

The oxygen solenoid will add oxygen from the oxygen cylinder as required into the breathing loop, after which the cleaned (scrubbed) and oxygen enriched gas (blue) is drawn into the inhalation counter lung on the right, ready for the diver to inhale.

Any fitted CO2 monitor will activate the relevant alarms between 0,5% and 1,0% gas content or the surface equilevant of 5 mbar and 10 mbar. 0,5% exposure over a prolonged period may lead to unconsciousness and death. 3,0% is 'abort immediately!'

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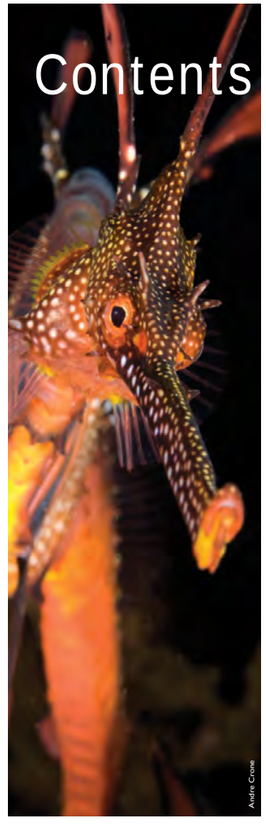
DIVE & SNORKEL GUIDE – TWEED HEADS TO EDEN



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Sydney Harbour

Southern Beaches

SOUTH COAST

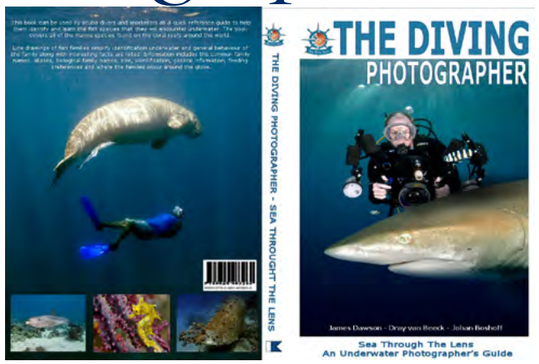
Gear, books, software, apps and scuba diving gadget reviews.

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

The Diving Photographer –

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



This easy-to-use guide book for the diving photographer can be used by all levels of photographers. It helps you with choosing the right type of camera for your ability – although with all the information presented you will learn so quickly that you will have to buy a better camera after working through the book! Preparing and setting up your equipment becomes a breeze with easy pointers on how to check and replace o-rings, quick tips on keeping your housing dry and other small things we usually forget to check.

The technical advice on how to perform manual camera settings, lighting techniques and editing the not-so-perfect shot was a great help. One of the main things I took from this book was learning to back up my photographs and then trying anything and everything with them in the photo editing programes until it looks like the professionally taken shot that you have been aiming for the whole time. Some other topics covered are strobe positioning, ambient light, photographing wrecks, long exposures and equipment maintenance.
I must say that this book has proved to be a great help in improving my photographing and editing techniques. Photographer is available in all good scuba diving and book shops or online at www.ozdiver.com.au. Cost: $19

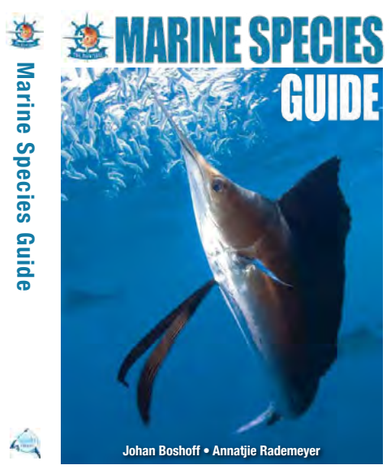
Marine Species Guide –

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

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

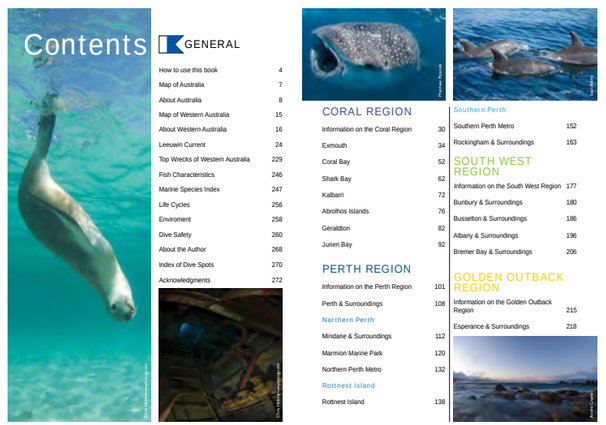
Information include common family names, aliases, biological family names, size, identification, general information, feeding preferences and where the families occur around the globe. Photographs of the most common of the species found when scuba diving or snorkeling are included and the fish families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

The book works very well in accompaniment with the Marine Species Slate, which can be taken underwater to help with fish identification.
To buy your copy for $ 29, visit www.ozdiver.com.au or email info@ozdiver.com.au



The Dive Spots of Western Australia

The Dive Spots of Western Australia is an indispensable guide for all levels of divers and snorkelers, broadening their horizons on places to visit and dive/snorkel in Western Australia.
The book has more than 175 dive spots in Western Australia. Important guidelines on each coastal dive destination include accommodation, facilities, travelling tips and dive conditions. Complete with photographs and more than 100 illustrated maps of each dive site, all reefs are star rated to cover depths, marine life and other essential information for the diving and snorkelling community.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Scubapro Everflex Steamer 7/5mm Wetsuit

As we all know, Scubapro have extremely good scuba diving equipment, and when it was time for me to upgrade my wetsuit there was no other option to go but Scubapro.

By Johan Boshoff

After many years of diving it was time for an upgrade as a standard 5mm wetsuit doesn't work for me anymore, especially when I do long tech dives. The one option was to use my dry suit, but as all dry suit divers know, a dry suit is high maintenance and it gets really hot in the suit before a dive.
There was no way I would be able to dive in a dry suit the whole year round...
So what was my next option? To switch to 7mm, but that's lot of rubber and it makes it very difficult to move around, not to mention the buoyancy issues. Then I heard about the solution; a wetsuit that has a combination of 5mm and 7mm Everflex neoprene and best of all, it was made by Scubapro.

The new Scubapro Everflex Steamer 7/5mm Wetsuit is made of Everflex neoprene (I don't know what that means exactly, but it's a very stretchy neoprene that makes donning and doffing very easy and also offers outstanding thermal protection).
It was exactly what I needed, and as I know that the Scubapro designers work tirelessly to improve and restyle their wetsuits and try to expand the features of all their suits, I was confident that it would be what I was looking for. My mind was made up and I knew that I had found my suit for many years to come.

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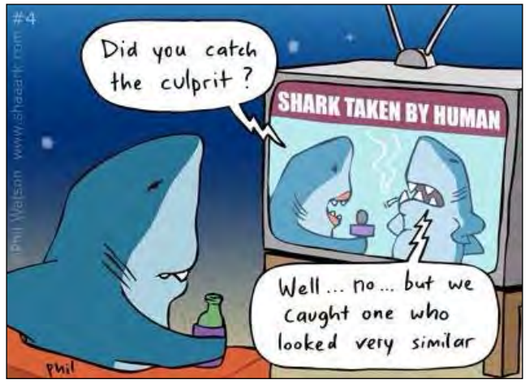

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Web: www.divealbany.com.au

South Australia

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Calypso Star Charters - Port Lincoln

Calypso Star Charters is an iconic charter company providing guests with the opportunity to dive with Great White Sharks or Swim with Sealions. With market leading vessels, Advanced Eco Certification and Eco Guides we are the forefront of tour provision.
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Mail: info@sharkcagediving.com.au
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ND Scuba - McLaren Vale

We are a small business that go above and beyond. We pride ourselves on providing safe and fun-filled courses at affordable prices. You get trained on a more personal level through to one on one, or small group tuition.
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Mail: barrettn80@hotmail.com
Web: www.nbscuba.com.au

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Diving Adelaide is Adelaide’s newest PADI 5 Star Dive Centre. We run all PADI courses as well as Leafy Sea Dragon Tours. Diving Adelaide is located next to the tram and bus-stop in Adelaide; easy to reach with public transport.
Phone: +61 (0) 8 73 250 331
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Web: www.divingadelaide.com.au

Underwater Explorer’s Club of SA

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

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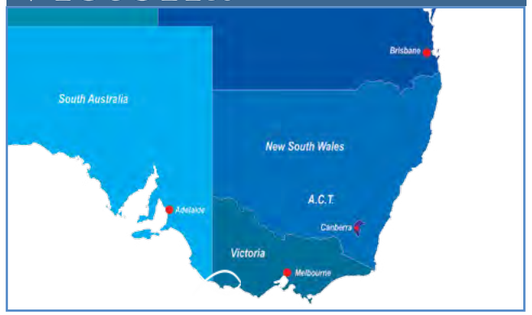
Victoria



ausdivinginstruction- Geelong

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Phone: 0408365216 or 0352722181
Mail: steve@ausdivinginstruction.com.au
Web: www.ausdivinginstruction.com.au

Bay City Scuba

Bay City Scuba is Geelong’s premier dive shop. Offering all levels of training from Freediving through to Technical training and offering a huge selection of equipment to your diving needs. A RAID training facility offering extensive technical OC & CC rebreather training.
Phone: +61 (0) 35 248 1488
Mail: info@baycityscuba.com
Web: www.baycityscuba.com

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Web: www.scubadoctor.com.au

Dive Victoria Group

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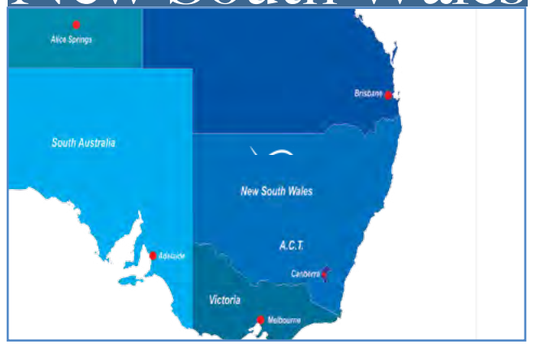
New South Wales



Sydney

Frog Dive

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

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Devocean Dive- Gold Coast

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Web: www.devoceandive.com

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Christopher Barlet