

OZDIVER

AUSTRALIA'S PREMIER DIVE MAGAZINE

THE
LOST
WORLD

FIJI

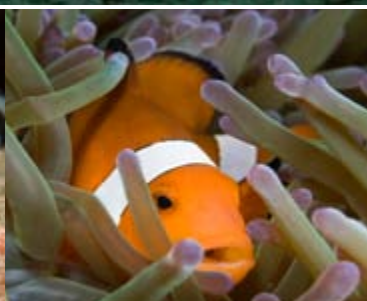
MANTIS
SHRIMPS

SCAPA
FLOW

HUMPBACK
WHALES

PURA VIDA

ENJOY THE PURE LIFE IN THE PHILIPPINES



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Editor's Deco Stop

In our industry there are things that the divers are scared of and one of them is technical diving.

And most of you are already technical divers and you don't even know it. Technical diving is any type of diving that is different from the normal sport diving. Breathing air and diving with air tables is considered recreational sport diving.

It is like taking a photograph. Sport diving is like putting your camera on automatic and then taking a picture. Whatever you do your camera does its thing, accounts for the variables and produces an image. When technical diving, you put the camera on manual and specify what you want it to do. You decide on the outcome. In technical diving it is the same thing – you decide what you want to do on the dive and don't just follow your standard air tables and air computers.

Technical diving can be described as a dive where you change any of your gases or change your surroundings to do the dive that you want to. Most of you are Nitrox divers, so what do you do? You change your gas and you dive on Nitrox tables or Nitrox computers to stay down longer than the other divers. Now what is that other than technical diving?

There are of course different variations of the technical side of diving and everyone thinks that it is a dangerous activity. Yet the most dangerous part of technical diving is that your

wife or husband might just find out how much all of your gadgets cost you. Most technical diving is safer than sport diving, for instance, in sport diving they teach you how to go deep with a buddy. For example, at 40m you have one cylinder and you are narc'ed. Now if it hits the fan, what do you want in your regulator hose pipes?

In sport diving you will have a buddy who also has one cylinder with his regulators. Yes you can use his secondary regulator, but what happens if he is low on air or, heaven forbid, lost?

In technical diving you have three cylinders and three regulators with you, so if one goes you don't have a problem. Furthermore, your buddy also has a minimum of three cylinders and three regulators with him.

This is but one example, but if there is a difference between sport and tech diving it is that in sport they show you how to go deep and how to survive. In technical diving they teach you how to become an independent diver and teach you how to 'dive' deep and not just how to 'go' deep.

But decide for yourself. I know that some of you don't want to go to 100m or penetrate caves, but these are only two of the hundreds of technical courses available on the market. Doing the basic course will only make you a better diver, and as an instructor, I believe that it is of the utmost importance to know all you can about this field.

I hope that this year you make the decision to become a better diver and dive where 99% of other divers don't dive. Contact your instructor and find out what he can do for you to make you part of that 1%.

The Editor & Publisher

Johan Boshoff

-it is all about the journey and not the destination

Matthew 6:33

But seek ye first the kingdom of God, and his righteousness; and all these things shall be added unto you. ✕

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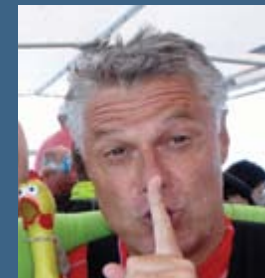
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CONTENTS

Regulars

- 3 - Editor's Deco
- 4 - The Team

Letters

- 7 - Log Book

Dive the Continent

- 9 - OZ News
- 15 - Coral Bay

Weird and Wonders

- 31 - Mantis Shrimps
- 33 - Thermoclines
- 37 - Sea Acidification

Dive Med

- 39 - Giving Birth

Dive the World

- 41 - Global News
- 47 - Fiji
- 61 - Pura Vida
- 73 - Mtoni Marine

Wreck Explorations

- 77 - Scapa Flow



COVER PHOTO
Dray van Beeck



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Through the Lens

- 87 - Photo Competition
- 91 - Photo School
- 93 - Editing School

Giant Stride

- 97 - Humpback Whales
- 111 - The Lost World

Technically Speaking

- 119 - Helium
- 123 - Q&A

Instructor Diaries

- 127 - Log

Gear Talk

- 129 - Kitting Up
- 135 - Reviews

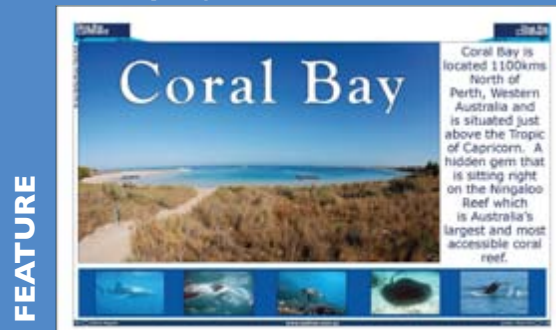
Safety Stop

- 140 - Funnies

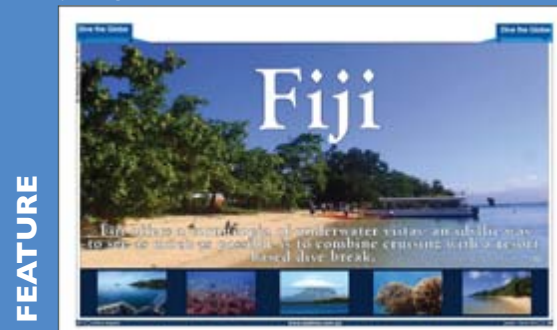
Dive Operators

- 141 - Listings

Coral Bay - Pg 15



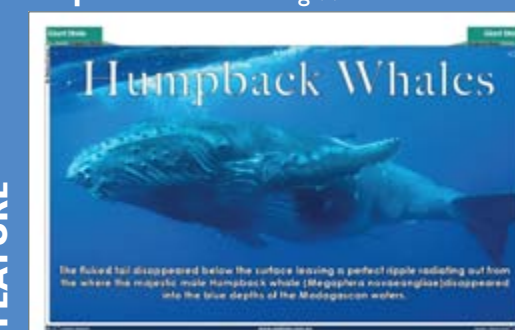
Fiji - Pg 47



Pura Vida - Pg 61



Humpback Whales - Pg 97



Log Book



Glaucus Atlanticus

Perfectly camouflaged in the ocean lives a strange creature. It lives a glorious life, forever floating on its back. With perfect tones of blue and silver, predators from above would see it as a mere glisten from the sun; lucky for them because eating it would be fatal. This creature preys on two species, the venomous Portuguese man-o-war and the Australian blue bottle. After it consumes its prey it selects the most venomous cells to use for its own defence, becoming far more potent than what it ate for its dinner. Behold, the glaucus atlanticus.

In March this year, whilst on an afternoon walk along at our local beach (Dee Why Beach), we came across a strange creature. We were following the trail of the tide line and commenting on the increase in micro-plastics washing up on our beloved beach, when I noticed a weird blue blob on the sand. On closer inspection, we realized that this thing

was moving and by the way it was positioned we initially thought it was a frog. We soon realized that there were hundreds of them lying dead along the tide line. With them were hundreds of blue bottles, washed up in the storm swell.

Curiosity got the better of me and after I found three alive I scooped them up with a bottle of sea water and took them home for inspection. When I arrived home I put them in a bowl and after a few minutes they stretched out and revealed their true form. I snapped a quick picture and posted it on a few dive forums and started my research to attempt to identify it. It wasn't long before a friend contacted me a told me that I had taken a picture of a rare sea slug called glaucus atlanticus or more commonly known as a blue sea dragon. A


fter research led me to discover what its prey was, I raced back down to the beach and scooped up a few blue bottles as well. I later discovered that in the three I had rescued

off the sand I had actually collected two different species. The larger being the glaucus atlanticus and the smaller two being glaucus marginatus.

I monitored the three I had collected as I waited for the storm swell to recede. Whilst under observation I was able witness glaucus atlanticus eating a blue bottle, which attempted to strangle it in the process, and I saw it releasing its venomous sack whilst under attack.

Unfortunately, two out of the three did not survive the first day but I managed


to successfully release one back into the rock pools. There isn't a lot known about these creatures and whilst investigating it I discovered that of the few photos available most were pixilated or out of focus. I knew that I had taken a rare image and I couldn't wait to share it with the world.

These images have been featured in The Manly Daily Newspaper, have been an editor's favourite in a National Geographic Your Shot competition and one of them is currently an editor's favourite for the 2017 National Geographic Nature Photographer of the Year competition. 



WIN

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

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



OZ News



Australia International Dive Expo (AIDE) 2018

The Australia International Dive Expo (AIDE) 2018 will take place once again at Darling Harbour's International Convention Centre as part of the Sydney International Boat Show from 2 – 6 August 2018.

The annual event will be bringing together even more water lovers and enthusiasts together to experience endless activities, products and destinations on offer.

From scuba, free diving, spearfishing, snorkelling, photography and conservation policies and practices to hi-tech equipment, hot dive apparel, super-cool gadgets, dive tours, dream holiday packages as well as expert training and education, this annual event is where the entire industry comes together to provide water enthusiasts, young and old, beginners and professionals, the latest and greatest in the underwater world.



AIDE's core objective is to continue developing and maintaining awareness of the recreational sport, while encouraging growth in the dive community.

We aim to keep new and existing divers engaged and inspired continuously in the world of diving. Equally important, the Expo also acts as an educational platform keep the public updated and informed about new and ongoing diving technology and marine conservation practices.

Being part of the event will ensure your brand, product and services are exposed to more than 60,000 water enthusiasts from Sydney and around Australia. Our objective is to help you with both your short and long term ROI in terms of generating leads and businesses - not only on the floor at the Expo, but across all of the marketing activities via print, online and broadcast pre and during the event.

We warmly welcome you to learn more about AIDE2018 and how the Show will be beneficial to your brand. The Expo is now open for Exhibitors' registration.

For more information on the Australia International Dive Show, contact us at info@australiadiveexpo.com or head to www.australiadiveexpo.com.

Join our Facebook community for more intriguing news on world of diving.

Two PADI Specialties for the New Year

The New Year is a great time for you, or your dive buddies, to experience PADI speciality courses. The below two are popular options to tick off the list in the New Year.

Want to spend more time underwater?

The PADI Enriched Air Diver course is PADI's most popular specialty scuba course. Why? Because scuba diving with enriched air nitrox gives you more no decompression time, especially on repetitive scuba dives. If staying down longer and getting back in the water sooner sounds appealing, then don't hesitate to become an enriched air diver.

Want to explore deeper?

The lure of the deep. There's something exciting and mysterious about exploring deeper dive sites while scuba diving. Sometimes it's a wreck that attracts you below 18 metres and on wall dives it may be a giant fan or sponge. Whatever it is, to scuba dive with confidence at depths down to 40 metres, you should take the PADI Deep Diver Specialty course.

Visit your local PADI Dive Shop or padi.com for more information or to start today.

SYDNEY DIVE WRECK

A petition to create an artificial reef by having an ex-Navy ship scuttled off the Sydney coastline. The wreck will provide valuable diving opportunities to SCUBA divers in the metropolitan Sydney region.

This will not only improve the sporting and recreational attractions of Sydney, but will also increase tourism from visitors travelling to Sydney specifically to dive the wreck. It will also provide educational and scientific research resources for local marine scientists and their research projects.

- Coogee the perfect site
- Estimated to generate from \$5-\$7 million per annum
- Creates new marine habitats
- Better use for an old ship than selling for scrap or target practice
- No impact on Coogee Beach as the site is 4km offshore
- The dive wreck will not move

More information and to support our petition visit www.sydneymdivewreck.com.au

SYDNEY DIVE WRECK



The ex HMAS Adelaide, photo courtesy of Robb Westerdyk



The ex-HMAS Swan in Western Australia courtesy of Rossco Cox



The ex-HMAS Swan in Western Australia courtesy of Rossco Cox



Sea bottom at the site, photo courtesy of George Evatt

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SIGN OUR PETITION

More information at www.sydneymdivewreck.com.au

OZTek2019

The dates are set, the venue booked, the creases ironed out and the new speaker selection begins. After a hugely successful event earlier this year, the new dates for OZTek2019 are official ...

OZTek2019 will be held at the International Convention Centre Sydney, Darling Harbour on March 16/17, 2019.

Continuing to be the premier dive show in Australia and New Zealand, OZTek covers all aspects of diving including technical, travel, training and photography. No matter your diving level, OZTek has something to ensure your imagination is fired up. The 2017 speaker-based event with over 40 speakers, brought together over 650 prepaid pass holders and another 1500+ enthusiastic divers to listen to the presentations and enjoy the exhibitions and photography. OZTek is a unique opportunity to hear incredible adventurers, explorers and scientists - from those at the forefront of diving - as well as seeing all the new technology first hand. In 2019, OZTek will be the first conference of its kind to use Silent Conferencing, enabling both speakers, listeners and exhibitors to co-exist without disruption.

If you are interested in adventure, exploration, excitement, new technology and listening to amazing feats of diving - OZTek will not disappoint. It is a genuinely awe-inspiring weekend of talks, films, debate and laughter with diving's international A-list.

Block out the dates and bookmark the website as we gear up to another awesome event.
www.diveOZTek.com.au



Dive Schools / Operators / Organisers / Instructors

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

Here's what we need:

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

Please send to info@ozdiver.com.au



OZ DIVER



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CONTENTS

Regulars
3 - Editor's Desk
4 - The Team

Letters
7 - Log Book

Dive the Continent
9 - OZ News
15 - Port Kennedy to
Esperance

Weird and Wonders
31 - Manta Ray
33 - Climate changes
35 - Photographers

Dive Med
39 - Hypertension

Dive the Globe
41 - Global News
47 - Manta Mambo
61 - Ras Mohammad
73 - The Hilton

Wreck Explorations
77 - World War II - Part II

Through the Lens
87 - Photo Competition
91 - Photo School
93 - Editing School

Giant Stride
97 - Shape Up
105 - A last glimpse
115 - Micro infiltration

Technically Speaking
119 - Dive Planning
123 - Q&A - Backup

Instructor Diaries
127 - Log

Gear Talk
129 - Kitting Up
135 - Reviews

Safety Stop
139 - Funnies

Dive Operators
141 - Listings

Ras Mohammad

Manta Mambo - Pg2

FEATURE

Ras Mohammad - Pg1

FEATURE

World War II Wrecks Pg7

FEATURE

A last glimpse of the world Pg11

FEATURE

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Page 1 of 100



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Coral Bay

Western Australia



Coral Bay is located 1100kms North of Perth, Western Australia and is situated just above the Tropic of Capricorn. A hidden gem that is sitting right on the Ningaloo Reef which is Australia's largest and most accessible coral reef.





Snorkelling is accessible straight off the main beach in Coral Bay where you will be amazed with the vast amount of coral and fish life, there is also a few four wheel drive tracks which again, you can snorkel right off the beach once you arrive to the remote beaches through the sand dunes and you will more than likely end up with the whole beach to yourself! If you are here from November-February you

may be lucky enough to witness the turtle nesting and hatching, seeing these green turtles and huge loggerhead turtles pull

themselves up onto the sandy beaches of the Ningaloo to lay their eggs is a truly mesmerising experience to witness.

Scuba diving and snorkel trips are a must once in Coral Bay, we are lucky enough to have a year round population of manta rays that frequent the waters due to the constant natural food source and cleaning stations that are scattered around the reef.

Whale Sharks are also found from March to July feeding on the coral spawn and Humpback Whales on their migration path from June-November.

The scuba diving in Coral Bay is perfect for any diver from beginner to advanced to avid photographer to explorer!

The maximum depth that we get on the inner reef is around 10m and on the outer reef maximum depth is around 15m, the vast amount of marine life that we see on all our dives is so diverse and abundant especially for shallow dives.

From schools of giant trevally, red bass,



CONTINUE YOUR ADVENTURE



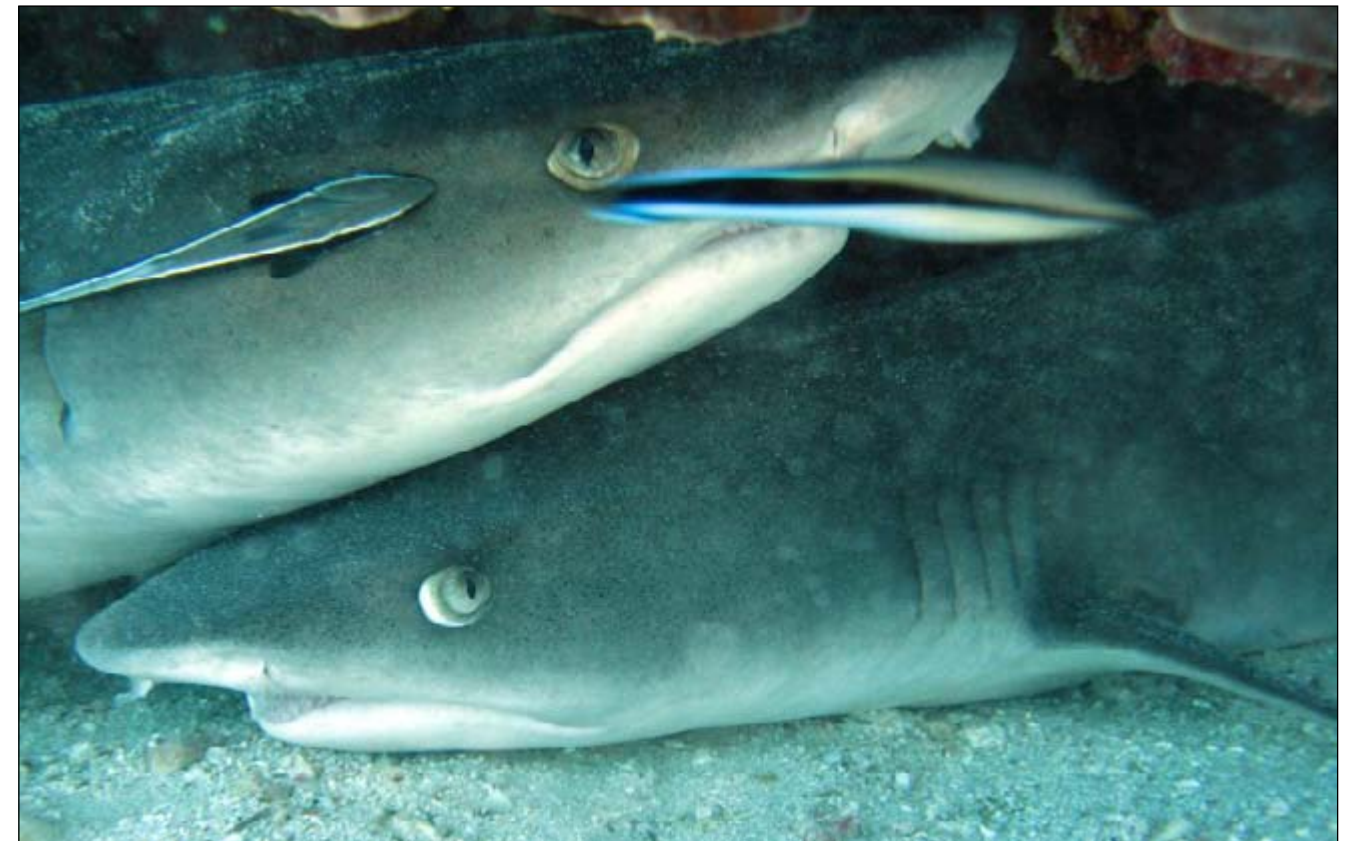
***Need to stay down longer?
Need to go deeper?***

The PADI Enriched Air Diver course is most popular specialty course for good reason. Diving with enriched air nitrox lets you stay down longer and get back in the water sooner.

Further explore the mysteries of the deep blue with the PADI Deep Diver Course. Continue developing your skills and learn to scuba dive with confidence at depths up to 40 metres/130 feet!

Contact your local PADI Dive Shop to start your PADI Enriched Air Diver or PADI Deep Diver course today.

Specialty of the Quarter
**DEEP DIVER &
ENRICHED AIR DIVER**



By Jess McNair Photos: Vikki Hoff
chevron barracuda to loggerhead turtles, green turtles and the rare hawksbill turtle to your smaller critters such as lagoon rays, octopus and nudibranchs and of course a nice population of grey reef sharks, black tip and white tip reef sharks there is something for everyone.

The local dive sites on the inner reef are: Ashos Gap, maximum depth 10m. This dive site is covered completely in hard corals ranging from huge plated corals to large stag horn gardens.

Grey reef sharks and green turtles often gather over a huge cabbage coral to be cleaned by the abundance of cleaner wrasse found on this coral.

Huge schools of trevally, red bass and giant barracudas are also residents at this site, you really feel as if you are in an aquarium!

Blue Maze, maximum depth 8m. Just like the name says, it is a maze! With huge coral formations, this site has been rated one of the best on the Ningaloo Reef for its abundance of coral. You will find your smaller critters here such as nudibranchs, octopus and eels.

Lotties Lagoon, maximum depth 11m. With scattered coral formations and a large exposed area on this dive you are always in for a surprise. With quite a large sandy bottom area we have had everything from shovel nose rays, 3m potato cods and huge hermit crabs on this dive site. Big Blue, maximum depth of 8m

The entire ocean floor is covered in hard corals, there is an estimated 200 varieties of hard corals and 500 species of fish here on the Ningaloo Reef, so guaranteed you will something new overtime you dive or snorkel!

The Canyon, maximum depth of 12m on the sand flats. The dive starts in the shallows before you explore through the S bended canyon into the open space of the reef. Schooling fish life in abundance





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Advanced Blender

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↓

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↓

Mixed Gas - CCR

↓

Advanced Mixed Gas - CCR










For course information contact SDI TDI Australia 02 8004 0950

www.tdisdi.com

dwells in the overhangs and the foliage of the reef. Often a resident nurse shark lurks in the darkness patrolling the water ways. Schools of bludger trevally and swarms of glass fish fill the frame of the water column.

The rich diversity does not disappoint as you follow the contour of the reef flat and the vast open reef for pelagic encounters.

You should be asking only one question... when should we go?

There a few tour options you have when booking your Coral Bay dive or snorkel experience:

- Full Day Manta Ray Tour which includes 2 dives or snorkels on the reef and snorkelling with manta rays.
- Half Day Manta Ray Tour which includes 1 dive or snorkel on the reef and snorkelling with manta rays.
- Two Reef Dives or Two Reef Snorkels.
- Whale Shark Adventure Tour which includes 2 snorkels on the reef and snorkelling with whale sharks.
- 3 Hour Whale Watching Tour which includes three solid hours of watching the annual migration of humpback whales pass through Coral Bay and the Ningaloo Reef.
- In-Water Humpback Whale Interaction Tour which includes whale watching, snorkelling on the reef and a chance of snorkelling with a humpback whale

We are really lucky to have 2 planes to act as marine spotters, once the boat is out the pilots will be in contact with the boats letting them know where the manta rays or whale sharks are, they will also let the Captain know if there is any other interesting marine life out there for us to have a look at.


The diving and snorkelling in Coral Bay is

great all year round, for the larger marine life the best times to see them are:

- Manta Rays-all year round
- Whale Sharks-March-July
- Humpback Whales- June-November
- Turtles/Dolphins/Dugongs- all year round

If you are planning your trip to Coral Bay and the Ningaloo Reef and would like more information about tours, things to do, places to see please contact us:

Ningaloo Reef Dive and Snorkel
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Email: info@ningalooreefdive.com
Website: www.ningalooreefdive.com 



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enos
on board

Mantis Shrimps

The fastest claw in the west! The main claim to fame of a Mantis shrimp is its ability to strike out with its front claw, which is one of the fastest movements in the animal kingdom. Mantis shrimps can be broken up into two types, those that use their claws as spears (Spearing mantis shrimp) and those that use their claws for smashing (Smashing mantis shrimp).

Mantis Shrimps are Crustaceans and form part of the order Decapoda (deka is ten in Greek and pous is foot).

The Peacock mantis shrimp, *Odontodactylus scyllarus*, also known as the Harlequin shrimp or Painted mantis shrimp, is a large mantis shrimp which is well known in the Indian Ocean. It is one of the larger, more colorful mantis shrimps commonly seen, ranging from 3cm to 18cm.

They are primarily green in color, with orange legs and leopard-like spots on the anterior carapace.

This mantis shrimp is a smasher, with a club shaped claw. It is an active hunter and will smash its prey until it can gain access to the soft tissue for consumption.

Mantis shrimps have compound eyes on the end of stalks which give them fairly good vision. They can detect movement and are able to judge distance which is important when catching prey.

Like other shrimps they have two pairs of feelers, but the front feelers each branch into three. The feelers can 'smell' food.

The mantis shrimp has a large segmented tail. Down each side are paddles that are used for swimming. When it swims, the shrimp uses the fan at the end of its tail as a rudder to steer a course.

An unusual feature of this shrimp is the exposed gills that grow from the swimming paddles.

Oxygen is picked up by the gills and pumped through the body by a long tubular heart that extends from the head down the length of the body to the tail.

Mantis shrimps live in burrows in the sand or in rock crevices. These homes are fiercely guarded. Mantis shrimps hold their arms up in a 'praying' attitude like the land based Praying mantis.

Did you know? – Peacock shrimps are



popular with aquarists for their bright colours and active behaviour, but are definitely not reef safe, as they will eat most other tank occupants. Additionally, large specimens are capable of breaking very thick aquarium glass. That will teach them a lesson – leave them in the wild where they belong. 🐡



Warning: Thermocline Below

Many divers have had the unpleasant experience of diving through a thermocline. If this is in water with a surface temperature of an already chilly 17°C, and the thermocline causes the temperature to drop a couple of degrees further.

This unpleasantness is magnified when you are used to enjoying water temperatures of 24°C. Why can't they put up signs saying: 'Warning: thermocline below', like they do on our highways where you find warning signs for 'strong winds'?

Then you can at least brace yourself for the unexpected rush of cold water resulting in massive muscle vibration making it difficult to keep your life source in your mouth...

Our oceans have a permanent thermocline between a 100m and 200m. This means that there is a layer of water separating the warm surface layer from the cold bottom layer. Within this layer, the water temperature drops more rapidly with the increase in depth than it does in the two layers above and below it.

This layer moves up and down depending on the season, with the thermocline at its deepest in summer and its lowest in winter.

This movement can change much more drastically in areas with a distinct temperature difference between seasons.

The upper layer of surface water is generally warmer due to the sun's rays. The fact that this warmer water is less dense than cold water causes it to 'sit' on the denser, cold water. Simply, this is how a thermocline is formed.

Other factors which could influence the depth and the thickness of thermoclines are latitude, currents and tides.

Ask any proud fish tank owner how important the water temperature is in his man-made underwater ecosystem and he'll tell you that a difference of a few degrees in temperature could mean the difference between life and death for his underwater pets. The same applies to all the free animals in the ocean. Unless they are specially adapted, they are unable to handle sudden changes in water temperature making it impossible for them to move between these layers. This is one of the reasons why you will only find certain fish at certain depths.

With inland diving, thermoclines are much more common. It works on the



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exact same principle of the sun warming the surface water and there being no vigorous disturbance in the body of water. A layer then forms separating the warm surface temperature from the cold bottom temperature.

The big difference with thermoclines in inland waters is that the water is generally much colder to begin with, so going through the thermocline is a bigger shock and a definite part of the dive memory – especially when it's your first thermocline experience...

If you have experienced thermoclines it is also probable that you have seen them. Where the two bodies of water meet (obviously the transition layer is much thinner inland compared to the ocean), you can see a mirage-like effect in the water.


It looks like heat waves on a hot tar road. Once you see these 'heat waves' approaching you know it's time to prepare yourself for colder water running into your wetsuit if you are not lucky enough to dive with a semi or a dry suit.

During war times, thermoclines were used by submarines to deflect sonar. Sonar systems use sound to 'echo locate' objects under water. The speed of sound decreases

as the water temperature drops, and by getting their calculations right, they could reduce the effectiveness of an enemy submarine's, or warship's, sonar.

Their use of thermoclines to avoid detection was a very sly submarine combat strategy. Today, countries are continuously trying to improve search devices to track or find submarines and enemy mines, even through thermoclines.

In truth, thermoclines are not easy to predict and not everything is known about this phenomenon.

Thermoclines can disappear and appear without warning, with not enough known about them to be able to predict their appearance. I suppose we'll have to wait a while longer before we can get a 'thermocline report' on our cell phones telling us what the variable temperatures will be on our planned dives. Come to think of it, if I knew that a 16°C thermocline was waiting for me, I probably would not have seen the Leopard shark on a recent dive, or the 14 Manta's on an earlier dive, or the young Whale shark on one of the boat rides back... No, I would rather take the thermocline and the surprise of each dive rather than miss out on the potential sights that await beneath the surface. 



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Ocean-based food threat by sea acidification

Part II

A billion people live on or near the coasts and are directly reliant on fish and seafood for survival. Most of these people live in some of the poorest countries in the world.

Impact on coastal communities

Coral reefs support more than 800 species of coral and more than 4 000 species of fish worldwide. That is more than 25% of the world's fish biodiversity and nearly 12% of the world's total fisheries. All of the abovementioned will cause the fish populations around coral reefs and shallow areas to decline, because they are directly dependent on coral reefs to survive and prosper.

In some places, such as the Maldives, well over half of the available food protein comes from seafood. The levels of fish and seafood consumption rates in each country are used as an indicator of dependence on the oceans. Higher seafood consumption suggests that a nation is more vulnerable to changing ocean conditions that could lead to a loss of seafood options.

Although many countries will be affected by any losses in seafood security, the least developed nations where residents eat great quantities of fish may suffer the

worst hardships because they have fewer socio-economic resources to obtain more food to replace what is lost from fishing.

Wild caught seafood is often one of the healthiest and most accessible options for protein in coastal and small island nations. Losing this resource may mean more dependence on less healthy processed foods that are imported from abroad. Communities that have recently made a shift from eating traditional seafood items to importing cheap, processed foods have suffered widespread health problems. For example, in Pacific Island nations about 40 percent of the population has been diagnosed with diabetes, cardiovascular diseases or hypertension.

Nations with a low GDP, high population growth and high levels of undernourishment are more vulnerable. These countries include the Comores, Pakistan, Eritrea, Haiti and Madagascar. They are the least adaptable because their governments cannot provide for them in case their cheap proteins from seafood are


no longer available.

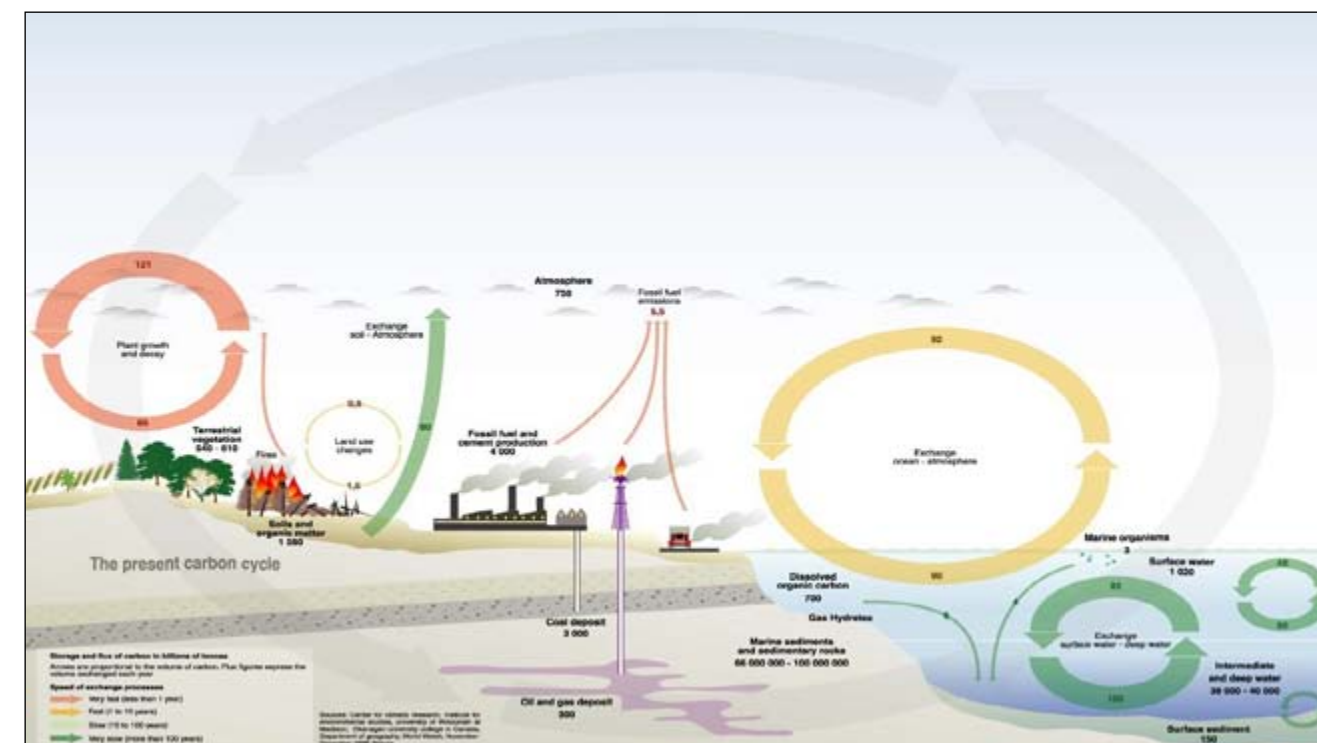
Three different rankings were used to establish the ranking of countries according to their vulnerability. There are three sets of data – Most vulnerable nations to food security threats due to Climate Change Impacts on Fisheries; Most vulnerable nations to food security threats from Ocean Acidification and Combined vulnerability to food security threats from Climate Change and Ocean Acidification Impacts on seafood availability. These are the top 10 in the latter set of data: Comores, Togo, Cook Islands, Kiribati, Eritrea, Mozambique, Madagascar, Pakistan, Sierra Leone and Thailand. South Africa is number 46 on this list.

Many of the high-ranking nations based on climate change indicators are located in the tropics and low latitudes. This reflects the general trend that fish species are predicted to be migrating toward the poles as water temperatures continue to rise.

Millions of small-scale fishermen depend on the capture of seafood, not just for a food source for their families, but also as a source of income. Many nations have also benefited from marine tourism jobs associated with coral reefs and abundant

marine life. This multi-billion dollar industry could also be threatened by climate change.

To protect this important source of food security and income to billions, we need to do more than just improve fisheries management. We must also protect the oceans from climate change and ocean acidification by dramatically reducing carbon dioxide emissions from our use of fossil fuels and rapidly transitioning to a clean energy economy. Let us help reduce carbon dioxide emissions, stop overfishing, by-catch and destructive fishing practices, establish marine protected areas and manage fisheries more closely. 



Giving Birth

How long must I wait before I can dive again?

Virtually all avid female divers who have given birth pose this question to their doctor. Like everything else in life, diving after childbirth depends on several factors:

- Was the pregnancy terminated or aborted?
- If it achieved full-term was the baby delivered by normal vaginal birth?
- Was a Caesarean section done?
- Were there any complications such as haemorrhage, infection and post-partum depression?
- Were there any underlying illnesses such as high blood pressure or diabetes?

The non-pregnant uterus is about the size of a plum. Just prior to birth it is as large as a watermelon. Immediately after birth the uterus contracts down powerfully, expelling the placenta and umbilical cord and shutting down residual bleeding. It

is then about as large as a grapefruit. It takes a further six weeks for the uterus and the mother's physiology to return to the non-pregnant state.

This period is called the puerperium. So, in the average case and without any



complications, a woman can return to diving six weeks after a normal delivery.

In the case of a miscarriage, if the loss of the foetus occurred within the first six weeks of pregnancy and no further medical treatment was necessary, diving can usually be undertaken after one week.

Abortions occurring later in pregnancy usually pose greater problems – they often necessitate medical intervention – dilatation of the cervix and curettage of the uterus (D&C) to ensure that any retained or residual products of conception are completely removed. This ensures a clean and rapidly-healing uterus with a much-reduced chance of infection but six weeks must again be allowed before diving.

A Caesarean section poses a double problem in that the normal puerperal reversion of the uterus to the non-pregnant state occurs simultaneously with abdominal and uterine wound healing. If both proceed without complications, diving can again be commenced after six weeks.

If excessive haemorrhage occurred, leading to anaemia, this must be corrected by blood transfusion or iron, vitamin and protein supplements, or both, before any return to diving can be considered. Similarly, if any postpartum infection occurred, either in the uterus, the vagina or the abdominal wound, this must be fully healed before diving again.

Postpartum depression is a special problem. These so-called "baby blues" can be very intense and debilitating in the new mother and often persist for months. Resentment and even real dislike for her child may occur as a result of the inevitable personal, familial and lifestyle changes.

The mother may become unable and even totally unwilling to care for her child, her occupational duties or even

her own personal needs. Drug treatment and intensive psychotherapy are then frequently needed. Until full recovery has occurred and the new baby has been fully accepted and incorporated into her life, diving is both dangerous and very ill-advised.

Many divers have underlying illnesses, currently considered acceptable with sport diving provided they are very well-controlled. Hypertension, diabetes, thyroid disorders and asthma are common examples. With the vast physiological changes that occur both during and after pregnancy, control of these conditions may then become difficult or inadequate. Only when excellent regulation is again achieved should diving after childbirth be considered.

Breast-feeding and diving is a perennial question. Breast-feeding a baby poses no problem at all. Once the required six weeks after a normal delivery have elapsed, the mother may both dive and continue to breast feed.

The small extra volumes of nitrogen absorbed into breast milk during a dive pose absolutely no problem to a baby feeding at surface pressure. Any increased nitrogen gas in a milk feed is equivalent to the baby drinking slightly carbonated milk – a little fizzier but easily relieved with a burp. ■



Global News

Safety is in the air – New Awareness Campaign from DAN Asia-Pacific

If it wasn't for scuba cylinders and surface-supply breathing apparatus that give us the possibility to breathe underwater, we wouldn't be able to explore the underwater world. However, we also need to be vigilant that the gas we breathe is safe as there are various kinds of contaminations that can turn your underwater life support into poison.

After the relatively recent death of a scuba diver, it was found the level of Carbon Monoxide (CO) in his tank was over 450 times the accepted limit.

He had filled his tank from a compressor which had not been properly maintained or regularly tested. As a result, the air being supplied was found to be very high in Carbon Monoxide (CO) levels.

This has prompted DAN AP to launch a long-contemplated safety and awareness campaign in an effort to prevent a repeat of this incident.

Many divers only think about air problems from the perspective of running low or managing an out of air emergency, so DAN AP will work to create awareness for this very real issue. Contaminated gas can lead to perception changes and subsequent poor decisions, headaches, dizziness, nausea and, in extreme cases; it may cause unconsciousness and even death. Unconsciousness from CO poisoning often occurs during or shortly after the ascent and can often lead to drowning unless the diver is rescued very quickly.


Over the coming months we will be sharing information that is focussed on prevention and aimed at equipping recreational and professional divers with:

- An understanding of the dangers of carbon monoxide and other contaminants
- The ability to identify the symptoms associated with CO poisoning
- First Aid and Treatment; and
- Knowledge on how to reduce the risk of poisoning.

The main goal of the campaign is to prevent people from diving with contaminated breathing gas in the first place. We encourage you to share the information so we reach as many divers as possible.

Join the campaign via DAN AP's Facebook (search DAN Asia Pacific), Twitter (@DAN_APAC), Blog (DANInsider.org), and access resources via the Diving Safety section of the DAN AP website (danap.org).

Let's work together to ensure the air we all breathe when diving is safe.

Note: Safety campaigns are financed by DAN membership dues. Thank you to our members for their invaluable support. 



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Divers Land on Planet Deepblu

Deepblu Launches Product that Offers a Whole New Experience in Dive Trip Planning

TAIPEI, October 30th, 2017 – For the past two years, Deepblu has been forging a path to make itself known as the premier logging app for divers around the world. In addition, it has become a place for those divers to connect, create, share, and learn from like-minded enthusiasts spanning the globe in an active online community. The company is now introducing a whole new way for divers to discover dive destinations.

Planet Deepblu is a revolutionary new feature that represents a landmark achievement in the crossroads of technology and diving. It is a unique, informative place where divers can access content generated from the community and obtain a thorough idea of what a dive destination is like before they even leave the house. Virtually all popular global dive locations are placed on a fully interactive map, allowing users to browse ratings, interact with reviews, and find out more about dive spots than previously available.

With tens of thousands already using Deepblu, the platform is a link that helps travelers, divers, shops, dive pros, and dive centers connect in ways that they haven't been able to before. Planet Deepblu expands upon this concept by putting them all on the map.


Pros and dive businesses will be able to keep in touch with their students and customers through customizable business profiles; and on the flipside of the coin, divers will be able to share their stories about the pros and dive operators.

The profiles, maps, and reviews will also be supplemented by the integration of user-contributed dive logs, videos, photos, and stories about each site. Divers will also be able to find descriptions of countries including what to expect from the people, the climate, the costs, and everything else a diver might like to know before heading out on their journey.

"Deepblu's mission has always been to improve the way that divers plan and experience scuba. With the help of our user-generated content from divers all over the world, the platform has evolved into something that helps adventurers discover their next dive, and it will continue to grow over time," says CEO James Tsuei.

About the COSMIQ Dive Computer: The COSMIQ is the trendiest dive computer and the only one in its segment to boast Blue-tooth technology to synchronize digital dive logs with the cloud. Since its launch in April 2016, it has won many awards for its ease of use, clarity and unique design.

About the Deepblu Platform: Deepblu is the fastest-growing online community for divers and ocean enthusiasts. Released in November 2016 at the DEMA Expo in Las Vegas, it has since brought tens of thousands of divers together at deepblu.com. Their latest feature, Planet Deepblu, aims to change how divers explore and plan their dive trips by connecting the dive world in one place online.

About Deepblu, Inc.: Deepblu, Inc. is the company behind the COSMIQ Dive Computer and the Deepblu social network for divers. Deepblu, Inc. is a team of divers and technology enthusiasts whose goal is to use technology and the power of the internet to revolutionize the diving community and lifestyle. 



Blue The Film

Half of all marine life has been lost in the last 40 years. By 2050 there will be more plastic in the sea than fish.

The way the ocean operates is different to how we thought of it 100 years ago. We can no longer think of it as a place of limitless resources, a dumping ground, immune to change or decline.


BLUE takes us on a provocative journey into the ocean realm, witnessing a critical moment in time when the marine world is on a precipice.

Featuring passionate advocates for ocean preservation, BLUE takes us into their world where the story of our changing ocean is unfolding.

We meet those who are defending habitats, campaigning for smarter fishing, combating marine pollution and fighting for the protection of keystone species.

This feature documentary comes at a time when we are making critical decisions that will decide the legacy we leave for generations to come.

BLUE shows us there is a way forward and the time to act is now.

Visit www.bluethefilm.org for more information where people can go to find out how they can host their own screening of the film and how they can become part of the ocean guardian movement. 




Send us your news.

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






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DISCOVER YOUR NEXT DIVE

Fiji

Fiji offers a cornucopia of underwater vistas- an idyllic way to see as much as possible is to combine cruising with a resort based dive break.



Whatever it is you love to see underwater – be it nudibranchs, sharks, hard corals, soft corals, dainty colourful fish or mighty mantarays – chances are you'll find it in Fiji.

But with more than 300 islands, deciding where to focus your underwater exploration can be confounding.

I recently made headway on this dilemma by hoping aboard a Captain Cook Cruises voyage that calls in at the islands fringing mountainous Vanua Levu, Fiji's second largest island.

As the 4 Cultures Discovery cruise traces a path around Vanua Levu's craggy, convoluted shores, the landscape moves from the luscious emerald islands sprinkled near Taveuni, to the stark and sculptural.

When on land, we visited picturesque islands inhabited by people of Polynesian, Micronesian and Melanesian backgrounds, as well as the colourful Indian sugar town of Labassa.

This seven night trip is a blissfully relaxing way to see a lot of Fiji – above and below the surface of the water- and gives an engaging peek into the lifestyles of people largely detached from the 21st century.

Whilst the diving on cruise ships can sometimes come across as catering to the lowest denominator, on this trip experienced divers had plenty to get excited about.

We were in the water twice each day, just about every day of the trip, on untrammelled reefs that varied with each new destination.

After breakfast, Verassa -our divemaster- would explain what we had to look forward to. The vibe is relaxed but professional, and having a Fijian divemaster who is intimately familiar with the region - we passed his home island on the voyage- gave us an insight into the culture of the islands and the reefs, some of which are considered sacred.

Rabi Island is close to the hypergreen



'garden island' of Taveuni. In a region famed for its' soft corals, our experience certainly lived up to the reputation, with vast carpets of richly coloured soft corals and dramatic drop- offs. Mantas are known to come in to this region between May and October, though they eluded us this time.

Kia Island resembles a volcano leaping out of the ocean. The big buzz on our dive here was the spectacular and craggy topography, with massive bommies and lots of swim -throughs, overhangs and tunnels; populated by a myriad of colourful reef fish. In crystalline waters with visibility of at least 30 metres, we feasted our eyes on a confounding arrangement of colours and intricate formations and large fans jutting out and overhanging at weird angles.

Velvety soft corals were everywhere, sometimes ethereal and translucent, other times brandishing bold shades like canary yellow.

After a morning in bustling Labassa , we dived on nearby reefs tunnelled with

spectacular swim -throughs.

The Great Sea Reef, billed as the third longest continual barrier reef in the world, stretches for about 200km along Vanua Levu's northern shore. Home to 55% of Fiji's coral species and 80% of reef fish species, these largely uncharted reefs are also home to dolphins, whales and turtles. On the last few days of the trip, we dived into glassy water with visibility of at least 40 metres.

The reefs off south western Vanua Levu and a region called Nananu-i-ra are extremely intricate, a mesmerizing maze of swim - throughs, tunnels, pinnacles, gorgonian fans, and vast fields of bommies, with highlights being white tips, nudibranchs and large schools of fish.

Unlike many 'small ships' the Reef Endeavour excels in its spaciousness, thanks to the profusion of lounging zones on each level. Staterooms are accessed by external walkways, providing a fresh bewitching scene as soon as I opened my door in the morning.



Dive the Globe

Fiji

A casual vibe prevails and comforting touches, like being able to make our own coffee in the morning – ideally enjoyed in solitude on the top deck – create a homely feel.

The '4 Cultures' cruise makes for an intriguing, replenishing break and diving reefs we had all to ourselves made this trip worthwhile in itself.

But a Fiji mindset is something you want to hold on to.

Eager to spend more quality time underwater, we topped off the cruise with a stay at Mantaray Island Resort, situated in the ruggedly beautiful Yasawa Islands. Mantaray Island Resort fronts a marine sanctuary that's become a magnet to a kaleidoscope of fish that have no need to be afraid of humans – and they show it.

Much of the time, I swim amidst a confetti of hundreds of fish in a single eye-full – often having to be careful not to touch them.

The dive boat typically goes out twice a



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day, with spectacular underwater terrain just a short boat ride away. Stunning underwater topography – think swim throughs, channels and layered reefs festooned with giant fans - and large numbers of pelagics make diving at Mantaray Island a treat for the eyes, with each site offering something different.

There are many rewarding dive sites about a 10 min boat ride away; revealing highlights such as pinnacles, walls, drop-offs ranging from 5-40 metres, cleaning stations, wrecks and lots of white-tips.

Because of the currents, this area unfurls sensational soft corals. I was particularly taken with the huge fans in resonant shades of orange brown and green and the purple whips.

Low rainfall has seen the Yasawas dubbed the 'desert of Fiji', resulting in crystalline water with visibility of at least 15-50 metres. Thanks to vivid tides, the scenes are in constant flux.

At a site called 'fantastic wall', we dived with turtles galore.

At Tavunillo Point- a cleaning station- we saw more turtles, lots of rays and big grey reef sharks who were extremely agitated and engaged in a bout of visually entrancing argy - bargy; testing each other and rolling about. Meanwhile 2 clownfish insisted on coming up to my mask and morays peeped out from under rocks.

The dive groups were small and dive masters – who are long standing and knowledgeable -guided us through a series of exciting swim throughs and overhangs.

At Golden Gate, we saw dolphins, pipefish, blue ribbon eels, and lots of pinnacles. Luckily, we were able to get to a site called Brown Trousers - rarely visited due to prevailing and punishing South Easterly trade winds - where pelagics are the stars of the show.

I dived under corals aglow in luminescent shades of purple, tangerine and red, through a web of fans and alongside 2 remores.



Pelagics are also prolific around the wrecks. Our final dive here was remarkable for the fans – in rich shades of yellow, orange, brown , as well as giant clams, morays, loads of fish and carpets of pastel hued corals of all types.

We passed a cleaning station of white tipped reef sharks and just beyond a stunning drop-off, we chanced upon an octopus garden. Later, 3 giant turtles swam alongside me over soft dusty purple corals.

Strong currents and tides around full moon bring in super plankton that draws the namesake mantas; with the most sightings occurring in June and July, just after full moon. Humpbacks are also sometimes seen breaching just behind the house reef.

From December to February, the water is very warm, with 50-60 metre visibility and big schools of fish and sharks. In the cooler months, there are more pelagics to be seen.

Over dinner in the breezy and sociable tree-house style dining area, our companion raved about the night - snorkelling on the house reef.

It sounded tempting, however our lovely beachfront bungalow exerted too powerful an inertia.

Escape Routes

Cruising In Fiji:

Captain Cook Cruises have a series of voyages to distinct parts of the vast Fijian archipelago: the rugged and dramatically beautiful Yasawa group, the far – flung Lau islands, as well as a journey that visits the most extant colonial settlement in the Pacific – the moodily picturesque Levuka. Diving on remote reefs is offered on all of these trips.

The range of activities - snorkelling, visiting fascinating islands, kayaking, paddle-boarding, just chilling out at untrammelled beaches -makes this trip appealing for couples or mixed groups of



family and friends.

www.captaincookcruisesfiji.com

Mantaray Island Resort:

Whilst resorts in the Yasawas typically veer towards the uber- expensive, Mantaray Island offers great value, a social, laid back atmosphere and flavoursome, hearty meals.

Our beachfront Reef Bungalow was a sensual haven, with a stone and timber open- to- the- stars bathroom that's popular with geckos and birds.

The dive centre here offers open water and advanced courses ; all taught in ocean.

Free-diving is also taught here – courses run for 2 days and are as much about physical challenge as they are about pushing mental boundaries – the only place accredited to do so in Fiji.

www.mantarayisland.com 



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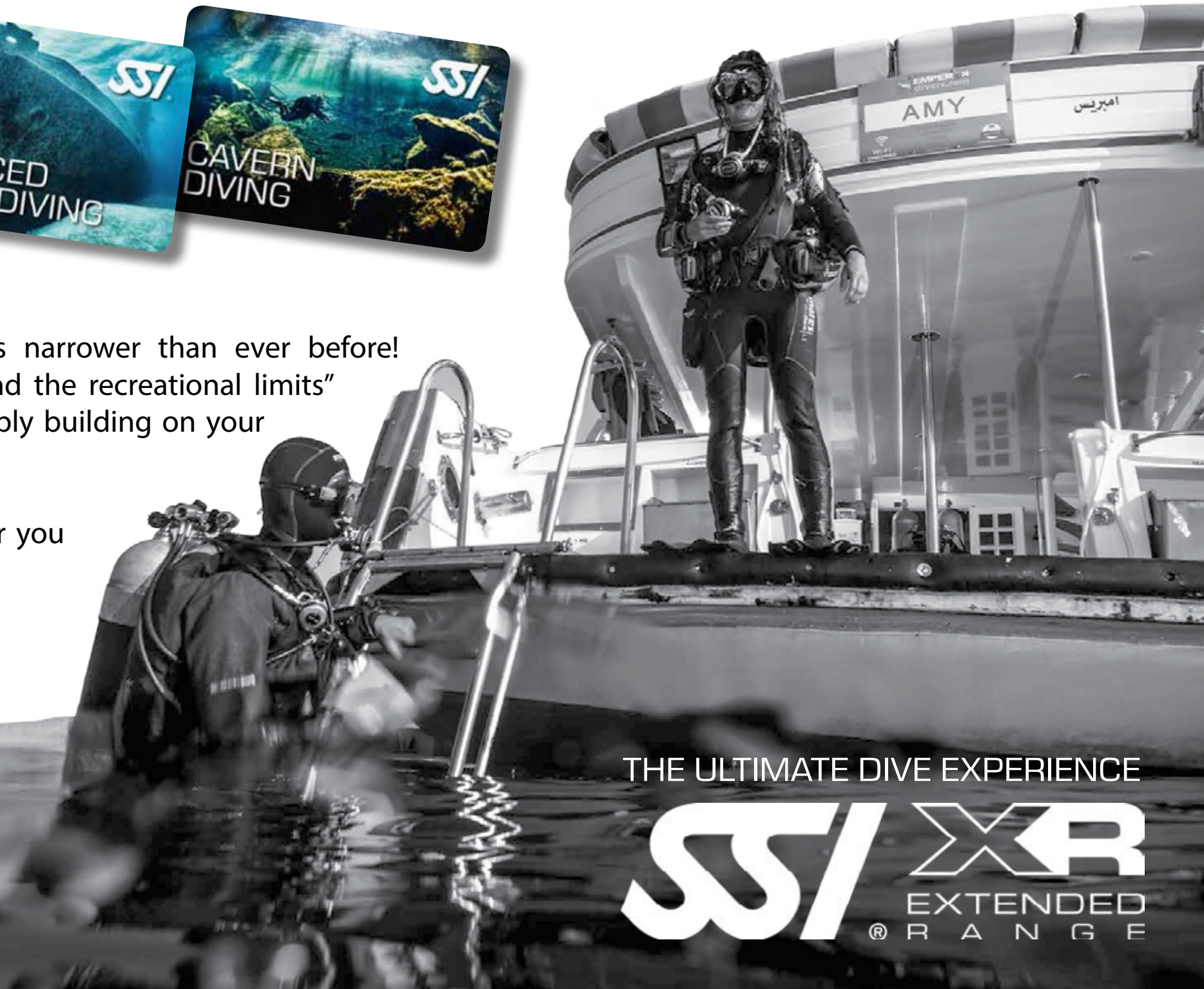
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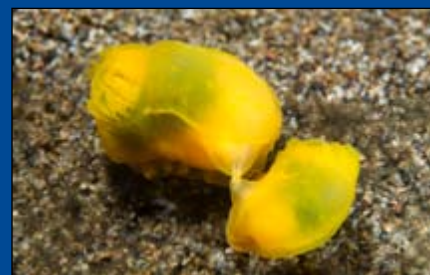
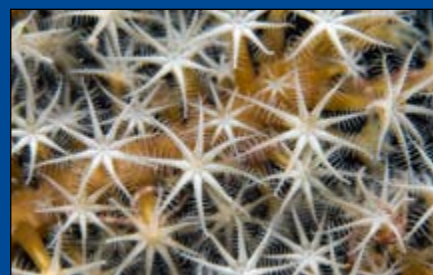


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Pura Vida

Enjoy the pure life in the Philippines.



Already for a lot of years divers go to the Philippines. And for sure, diving in the Philippines has many different faces. In this enormous country you can enjoy your dive holiday in many ways.

We have chosen this time to visit a dive resort on the island Negros: Pura Vida. This island in the Visayas area of the Philippines offers many possibilities of enjoying the under water life.

The Philippines lie between 21 and 5 degrees north of equator. This Asian country is in total 300.000 km2 large and exists of more than 7000 different islands. As a result of its tropical position it is always pleasantly to stay there.

The Philippines have actually three different seasons. From November up to February it is the "cold" and dry season. The warmer and dry season runs from March to June followed by a wet season from July to October. The temperature is with 31 - 33 degrees always very pleasant.

Roughly you can state that the Philippines can be subdivided into three geographical

areas: Luzon, Visayas and Mindanao. In each of these areas there are good possibilities for divers. You can find here things from big whale sharks to tiny pygmy sea horses; for each diver there is a nice spot to be found.

But as said we before for us it is time to go to the Visayas. The Pura Vida Resort will become our house for the coming two weeks.

Because of the position of the Visayas area, outside of the typhoon area, it is possible to dive here all year around. The travel to the island of Negros is long and tiring. First of all we will fly to Cebu in the Philippines.

After a long flight we arrive in Cebu, where we are waited for by the nice driver of Sea Explorers. By car we are brought to the south west of the island of Cebu from where we will cross by ferry to the island of Negros. Eventually we arrive after a long travel at our Resort.

The Pura Vida Beach & Dive Resort is only one of the resorts of Sea Explorers Philippines. Sea explorers have been set



up by some Swiss owners. From their head office in Cebu all dive activities within Sea Explorer are regulated.

In total Sea Explorers have six different dive centers in the Visayas area. The centers are located in Moalboal (cebu), Dauin (Negros), Siquijor, Alona Beach (Bohol), Cabilao (Bohol) and Malapascua (North Cebu).

Each dive center and area has its own special attraction. For Malapascua the attraction are the large animals. Over here there is a good chance to encounter manta's and tresher sharks. The dive sites of Dauin-Dumaguette on the other hand are specialised in the small stuff; Very much macro life varied with big coral gardens around Apo island.

The Pura Vida Beach Resort is situated along an untouched piece of beach of about 3 kilometres long in Dauin. The nearest city, Dumaguette, lies about 15 kilometres further. The Resort is clearly designed by and for divers. Everything you wish for is present.

At arrival we directly meet the pleasant people of our resort for these weeks. Our bags are delivered directly to our bungalow and we get an invitation to come and drink a welcome cocktail at the pool bar.

And after such a long travel this drink tastes of course well. As we look forward from the bar to go diving tomorrow morning we get our first impressions about of the Resort.

Next to the pool bar the dive centre is located. Unfortunately today we are already too late to present for diving but we will be present tomorrow morning at eight.

The first dive on the resort is always made on the house reef. Probably there is no more relaxte way to start your diving. The house reef is located directly in front of the Resort. After we have performed the obligatory paper work we prepare our gear.

Each diver here gets its own case where all dive stuff are put in. At night the divegear is stored in a closed space so there is no need to sweat your guts out by carying your dive gear around. Our dive day is yet to begin.

Our guide Carlos gives us a clear briefing about waht to expect this dive. Afterwards



we walk along the beach intothe water; ready for our first dive. Because of the position in front of the resort it is ideal for the first dive. There is no need worrying whether you have enoug weight; extra weight can be obtained easily.

The house reef is a easy site to start with. The sandy bottom goes smoothly to a depth of around 20 meters. During the dive you pass a twelve meters long wreck in which you will find all kinds of life.

Something that really strikes us here is the enormous quantity of life we encounter here. At first the sandy bottom looks a bit boring, it starts with a piece of sea grass and further on it proceeds in sand.

But in and on top of the sand so much animals live that on the first dive already we have loads of different animals in our logboek. Several nudibranchs, the harlequin ghost pipefish, many anemones, small frogfishes, leafe fish, gobies, mantis shrimps and lots more.

Later this week we would encounter some squids during our nightdives. Besides the fact that this is a perfect start-up dive site this site is also very suitable for nightdives.

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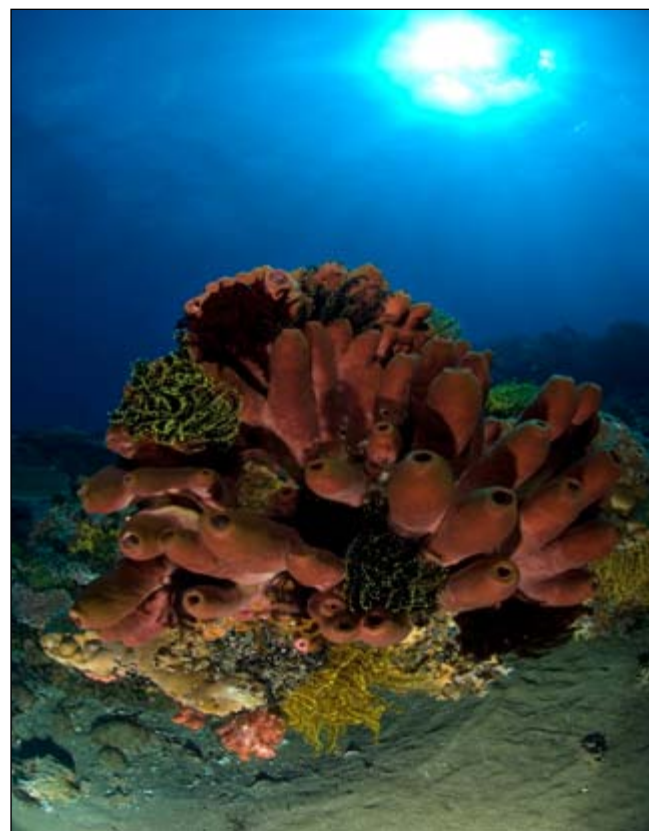
For the second dive of this day we register ourselves for a boat dive. The dive centre has a fixed planning board where you can register yourself for a dive.

Every day several dives are organized. Some are carried out by boat; others by car and finally there are also a number of sites you can walk to from the Resort. The guides are very helpful in advising which divesite nice for a next dive and every guide will tell enthusiastically about all the beautiful stuff you can see there.

The sites that are carried out by boat all are within ten minutes from the dive centre. Only the sites around Apo island lie further.

At the end of our first day we choose to go to a varied dive site on a five minutes boattrip, Sarah's Place. The most important reason for a visit to Sarah place is Mandarin fish which comes out of the coral daily around sunset. So we enter the water around five o'clock.

Before we go to the area where the Mandarin fish is found we make a big round around the reef. We meet several frogfishes and some snake eels try to hide themselves in the



sand. Between some artificially created reefs we find sea horses, anemones, clown fishes, shrimps, lionfish and still much more. At the end of the dive we enter the area of the Mandarin fish. At day time these small and coloured animals hide inside the coral. Only at sunset they come out of their homes for just a couple of minutes.

They are looking for another mandarin fish to mate with. After a couple of minutes they disappear just as sudden as they came back into the coral. As a diver you will have to approach these animals very carefully. Coming near the animals too fast and with a verybright light will result in the Mandarin fish going back into the coral in a second. And then you will simply have to wait for another day.

Our second day we start with a deeper dive to a site named Car Wreck. From the dive centre we go by mini-mini van to the divesite. On our way down there we drive along the municipality house and the church of Dauin; and we get some impression about the way the Philippines live here.

As as the name of this site suggests the most important attraction of this divesite is a carwreck. The surroundings around Dauin have only little natural reefs. The bottom consists mainly of sand. But by several local initiatives a number of artificial reefs have been made which attract a much richer under water life. Also on this place around the wreck it is crowded with life. Schools with small fishes, pipefishes, shrimps, nudibranchs and lot more have found a home around the wreck.

Moreover our dive guide Carlos indicates us even more life on this site. We meet the harlequin ghostpipefish, a robuust ghostpipefish, leaffish, enormous tube worms and as a special treat this dive we find a lizzardfish that has just caught a prey.

After a second visit to Sarah's Place we continue our discovery trips with a visit to a divesight called the jetty. Also here the name of the divespot is not very original. We dive here along and under the wharf of a jetty. The jetty consists from two parts. Along the larger peer ships lie and are unloaded frequently. This causes the fact that diving here is not always possible. During the unloading of a shop it is possible to dive



under the peer, but certainly not next to the peer. Next to the large peer there is a small peer where there are only sporadically boats.

Under water both divespots are very particular. Till this point we have seen beautiful animals but they were all found on sandy bottoms. Here the surroundings are very different, we dive along the wooden pillars of the jetty. And that these wooden pillars are a good environment is proven very rapidly.

We start our dive at the bottom of the pillar and circle slowly up. On the bottom we find an enormous quantity of nudibranchs, sea urchins and cowries. Between the two peers we are surprised by a sea snake. Fortunately this poisonous snake is not disturbed too much by our presence and continues its way after we made some beautiful pictures of it.

The pillars are splendidly grown over with softcorals, sea whips and gorgonians. If you take a good look to the sea whips you will notice that frequently small gobies

or small shrimps live on these sea whips. Camouflaged entirely and adapted to their surroundings.

In between these we find even more life. Forgfishes in all types and sizes, small fishes which are in hiding in their little holes; nudibranchs, large schools of razorfish; the only thing you have to do here is slowly swim around the pillars and enjoy yourself.

At diving around Dauin a visit to Apo island cannot be missed. Every other daytrips are organised to Apo island. From years Apo island is known for its splendid coral gardens. On the picturesque island itself there are only few places to stay, but the island can be reached easily with a daytrip from Negros or Siquijor. Also we joined one of the Sea Explorers boats to enjoy a day at Apo. Beside the coral gardens Apo is also notorious for the frequently firm currents around the island.

At the beginning of the day the diveguide clearly indicates that the exact divespot can only be determined on the spot. Depending on wind and current a suitable divesite is



selected. In total we will make three dives on Apo.

The first dive is on Coconut point. And the rumours concerning current definitely are correct.

We have ourselves taken along with the current along the reef. The splendid coral gardens are amazing. Several types of corals vary each other continuously. And mostly where there are corals there are also large schools of coral fish. Small damselfishes and anthias rapidly fall into the coral as soon as a diver comes near.

Thanks to the nice coral gardens you will almost forget to look into the blue once in a while. But this really is worth doing because, thanks to the current around the island, you can find here large fish, solitair or in schools. Barracudas, large mackerels, sharks and turtles are frequently seen around Apo island.

Around the islands of Apo and Negros everythin is done to preserve and promote the quality of the under water life. By establishing special Sanctuaries areas are protected. In these special areas the number of divers allowed on a day is limited. Nightdiving is not at all permitted in these areas. As a contribution you pay 3-10 USD each day for the protection of the area. As a result these protected areas have developped in the previous years into areas with much richer and nicer under water life.

After diving it is also a pleasant stay above the water. The Pura Vida Beach Resort has several accommodations. There are ten largely set up and luxuriously bungalows which are been built around the swimming pool. These are stones bungalows provided with airco, TV and a warm shower. With a splendid view on sea you can daily enjoy sunrise, provided you come out of bed early. Beside the luxurious bungalows the Resort has also ten simle bungalows. These traditionally built bamboo bungalow are situated along the tropical gardens of the Resort. Also these bungalows have a warm shower. Thanks to traditional construction there is no need for airco; a fan at the ceiling and wind blowing through the bamboo bungalow will be very comfortable. These bungalows are a bit further from into the

resort; in a nice and quiet part of the Resort.

If you want to see something more from the environment besides the diving you can choose to take a visit to the local market in Malatapay. Each wednesday the local population come together to by and sell fish, vegetables, fruit and animals. Also you can go for a 45 minutes walk to the Casaroro water falls. The water is very cold, but refreshing after a tough walk. Lovers of a game of golf can enjoy themselves here also. On a 30 minutes drive there is a small golf course and for the real devotees on a half hour drive there is a professional course with a spectacular view.

Maby a little daring, but it is possible to hire a motorcycle to take a drive. Motors can be rented with help of the reception of the Resort. After renting the only thing you have to do is take care with the unpredictable Philipines trafic.

The Pura Vida Resort really has to offer something beautiful for each diver. Just enjoying macro life under water or pay a visit to the coral gardens on Apo. Or just relax at the swimming pool or on the resort. At the end of the day enjoy a refreshing massage in the spa is really a must.

Beside the stay on one resort at Sea Explorers you can also choose for a dive safari. During this safari you are brought from resort to resort so that you can enjoy all specific dive spots. And this nearly without losing dive days. While changing resort you just continue diving on your way to the next resort, a perfect opportunity to see different sites of the Visayas. 🇵🇭



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Mtoni Marine

Zanzibar

If you're attracted by exotic Stone Town, but want the beach as well,
Mtoni Marine is the place to head.

Five minutes outside Stone Town, on a large crescent of sand, sits one of the best value hotels in Zanzibar. It's set in a rambling green garden, shaded by trees and flowering bougainvillea. The resort is quiet, spotlessly clean and has a variety of rooms of different sizes and to suit various budgets, yet it's literally just outside town, so you're soon in on the action should you want it.

And amazingly given its location, it has its own extensive beach where you can stroll by the Indian Ocean without a care in the world. In short, Mtoni Marine is an absolute gem. Owned and managed by Italians, it has a chic, colonial style with large, high ceilinged rooms, big fans and simple decor. There's a large pool (particularly useful at low tide when the sea is a bit of a walk), big, bed-like loungers to while the day away in, and if you really can't escape the office, wi-fi and a desktop where you can use the internet.

All bedrooms are en-suite and are spacious and cool with big beds and mosquito nets. The Club rooms are fresh and airy, and extremely good value, while if you want a real spoil you can opt for a Palm Court room with your own balcony and sea view.

Try to score one of the four rooms on the second storey, and stare out to sea as you lounge in your bath. Every night you'll find jasmine and flowers on your bed, and these

little touches run through your experience at Mtoni. Their slogan 'Sense the Spice in Style' reminds you whether you're dining, indulging in a massage at the spa banda or lounging in your room that you're on the exotic Spice Island.

There are three restaurants; their flagship, the formal Mtoni Marine Restaurant where you breakfast, and enjoy the superb flavours of local seafood, curries, steak and fruits; the Sports Bar, perfect for lunch or an informal evening meal; and the only sushi restaurant on the island where an enthusiastic chef transforms the freshly caught catch into works of art.

Most evenings there is a themed dinner on the beach; a seafood buffet or some other gourmet bonanza where you dine under the stars at a candlelit table. Best of all, if you're on half or full board you can eat a la carte from any of the restaurants – and with three to choose from you never tire of the food or the setting. The bar has a really great atmosphere, particularly when there's a big game on. And, in true sports café tradition there are plenty of screens and non-stop sports coverage. This place certainly has the South African diver taped.

One of the best things about Mtoni is that you can forget the dawn starts. Diving is with One Ocean Diving, a thoroughly

professional outfit only five minutes away, and their dive times are civilised – plenty of time for breakfast before you kit up and board the magnificent dhow and head out to the reefs. The dhow stays out long enough for two dives, with a superb meal of samoosas, spring rolls and fruits provided in between. And if any of the party don't feel like donning tanks it's still a wonderful day out to see the outer islands or for the great snorkelling.

The local reefs display magnificent corals and sponges, with plenty of shallow options for novices, while there's a beautiful wreck for the more advanced to explore. I remember my first dive on it; my buddy was so excited by the density of fish that she described it 'like a present, wrapped in colour'.

If you're staying a few days there's also the option of diving from the east coast, a ninety-minute transfer but worth every second to enjoy the treasures of Mnemba Island where the vis is usually superb, the coral pristine and the fish and marine life outstanding.

Once the diving's over, there's plenty of time for sightseeing. The Maruhubi Palace and The Mtoni Palace Ruins are a short stroll and

the hotel will organise tours throughout the island. Stone Town will take several visits to really appreciate. There are some great bars and restaurants, including Freddy Mercury's bar where you can sip your cocktail whilst watching the sun set.

The architecture is fascinating, every shop is a treasure trove of fabrics, spices and artefacts and a wander through the busy tables of street food will have your mouth watering.

A spice tour is an interesting outing, you can go on a journey back in time to the oppressive days of slavery, and a visit to see the entertaining Colobus monkeys in the Jozani Forest is a must.

But my favourite was the sunset dhow trip. We stopped off briefly at Prison Island to check out the friendly giant tortoises, then sat, glasses in hand, on the open deck of the wooden dhow watching the sail turn golden as the orange ball melted into the ocean. Zanzibar is the stuff of romance, and how well Mtoni Marine combines this essential holiday ingredient with slick, professional service.

One Ocean Diving can be contacted on oneocean@zanlink.com 





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Scapa Flow

It's dark, deep and dangerous. Every year an increasing number of hard core divers venture to the far north of Scotland to the tiny island of Orkney, to dive Scapa Flow, the world's greatest cold water wreck site. And every year several push beyond their limits – the average fatality rate at Scapa is one a year and in 2004 four deaths were recorded in the short summer season.



The Flow is remote, cold and inhospitable. Its weather is extreme, the current rages and 10m is considered good vis. There's one dive school where you can arrange a scuba guide (if you can convince them of your competence) or book a dive course. Otherwise if you and your buddy are feeling confident you can usually jump on a charter. If you're still up for it, Fiona McIntosh outlines what you can expect.

My depth gauge registers 20m, there's still no sign of a wreck and the shot line plummets into a black hole. At 25m a vast black shape appears, like a huge reef, stretching out of my peripheral vision. But despite the encrustations that create the impression of natural feature, as I hover I realise that this is no reef but a colossal warship lying almost upside down. The vast hull shadows everything we drop over its edge into the vertiginous, inky darkness, past the decks, with their rows of portholes, to the bridge.

As our eyes gradually become accustomed to the light I see enormous, twelve-foot long guns protruding, so big that they're hard to scale. And a massive mast and rigging that I try desperately to capture with my wide angled lens. At this depth I have just minutes to enjoy the dive, not time to explore. I've hardly scratched the surface. We dive the SMS Kronprinz Wilhelm twice more in the week, and still I feel that I've barely seen the massive ship. The techies enjoy penetration dives, through the open hatches, into the dark innards of these massive dreadnoughts. I'm envious. Next time I dive this place I'll be appropriately qualified.

Scapa Flow is the final resting ground of scores of ships, the most famous of which were the 52 vessels scuttled some seven months after the end of the First World War by the commander of the German fleet. The German High Seas Fleet had been disarmed, escorted to the British naval base at Scapa Flow and interned there after the German surrender in November 1918 awaiting the outcome of the Armistice peace negotiations. On 21 June 1919, Rear Admiral

Ludwig von Reuter, believing that the Armistice was to have ended that day and that hostilities might resume, gave the order to pull the plug and some of the biggest battleships the world has ever seen sank slowly to the seabed.

It was the biggest naval suicide, the biggest single loss of shipping ever. And tragically, nine German sailors were to die that day (the last casualties of the Great War) as a result of panic, anger and frustration on behalf of the British sailors who watched impotent as the German fleet slipped dramatically to Scapa Flow's depths.

Many other lives have been lost at Scapa Flow and the Orkneys are littered with gun emplacements, deserted barracks and graveyards, which tell of its military past. Lyness, on Hoy, was the main Atlantic HQ during the First and Second World Wars thanks to the sheltered Flow – a bleak, windswept expanse of water that serves as a natural harbour, almost encircled by the islands of Orkney.

Many vessels have come to grief both in wartime and in the fierce northern gales – others were deliberately sunk as 'blockships' in the channels leading to the Flow to prevent enemy vessels from attacking. When the enemy did penetrate the losses were horrific. The British battleship, the Vanguard was sunk by a German U-boat in 1917 with the loss of more than 700 men. Then in 1939 HMS Royal Oak was torpedoed and turned turtle within five minutes drowning 833. Both are now war graves that may not be dived.

Following large-scale salvage operations undertaken after the war, today only eight of the High Seas Fleet remain as a token of the naval history of Scapa Flow. These include three battleships - the Markgraf, Kronprinz Wilhelm and König, each of which measure 177m long and displace as much as 25,390 tons. Four light cruisers also lie on the seabed - the Dresden, Brummer, Cöln and Karlsruhe – and the destroyer V-83, which lies in 12m of water next to the Island Rysa Little. Many other vessels have since



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By Fiona McIntosh

come to grief in Scapa Flow creating even more diving sites. The deliberate sinking of Blockships at the Churchill Barriers and within Burra Sound has resulted in exceptional dive sites. Fast moving water here creates excellent visibility and attracts a large diversity of marine life.

The dive of the trip was on The Doyle, a Scottish steamer, which lies in Burra Sound. The Doyle was also deliberately sunk, this time in 1940, one of several ships sunk to blockade the channel against raids from German submarines. The current absolutely pumps through here so you can only dive it in perfect conditions and on the turn of the tide. The dive boat goes out a bit before and you kit up then watch the bouys.

They're stretched out, showing the strain of this ferocious tide. As the tide slackened, we tightened our over-weighted belts as much as possible and had our final dive briefing – 'get down as quickly as you can and hang on to the wreck for dear life or we'll be picking

you up miles out into the Atlantic' - did our final checks and lined up at the edge of the trawler, BCs empty for the negative drop. You get one chance at this; there is no room for error so the adrenalin was pumping. The skipper barked the command and we each took one giant stride and swam down for all we were worth, through a gap in the wreck and into the shelter of the hull.

Inside all was calm, the vis was good and the wreck a small, interesting dive, very different to the huge battleships. She has three open levels of decking to explore, between 10 and 17m, and as you descend, you see her two masts lying on the seabed to starboard and her anchor lying to the port of her stern. Inside the kelp strewn wreck is a mass of anemones, colourful sponges, wrasse, lobsters and crabs. But when you looked out of the portholes and through the ribbing, the kelp was horizontal and fish were zooming past.

It was like whizzing through the countryside



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on a high-speed train. When the time came to ascend, we hovered in the exit point clutching one another's BCs, then launched ourselves out into the current. The SMB seemed more like a speedboat towing us in its wake and we surface kilometres from where we had dived.

But it's not all hardcore diving at Scapa. The Blockships at the Churchill Barriers provide the best shore diving wreck sites in Orkney. The Blockships were sunk during WWI and WWII to close channels created between the four south Islands thereby protecting the Grand British Fleet anchored in Scapa Flow. But on October 14th, 1939 they proved inadequate and a German U boat managed to squeeze between the Blockships sunk in Kirk Sound resulting in the tragic loss of the Royal Oak.

In response to this tragedy, Sir Winston Churchill commissioned the building of the Churchill Barriers to effectively block the channels. Italian prisoners of war (held captive in Orkney) built the barriers but ironically, since they took nearly five years to construct, the war was over by their completion!

After the Second World War a number of the Blockships were heavily salvaged or removed, yet the majority remain on the seabed in some form or another. Unwittingly, Churchill had provided a series of ideal, sheltered wreck diving sites within easy swimming distance from the shore, ideal for novice divers.

I didn't dive them, but I'm told the best and most accessible wreck dives are on the second and the third Barriers. On the second Barrier, nine wrecks remain. Of these, the Lycia, Ilsestein and Cape Ortegale are the most enjoyable dives.

All three are Single Screw Steel Steamers sunk in 1940 to replace or reinforce the original Blockships sunk in WWI. They lie encrusted with anemones and sea life, in a maximum 12m of water on a sandy seabed with good vis. Don't expect the vast shoals of fish that we get in tropical waters (this

is more like diving in the Cape) but pollack, cod and crabs are frequently sighted. At the third Barrier, the three wrecks, the Empire Seaman, Martis and Gartshore lie in water of 12m or less. The Empire Seaman is possibly the most enjoyable to dive of all the Barrier Blockships. She remains relatively intact and provides numerous swim throughs and points of interest. All the wrecks shelter saith, pollack, wrasse, cod and ling and there are numerous anemones, starfish and sea urchins. Seals occasionally play in the wreckage, and you'll often spot the occasional bird 'flying' past you underwater.

Scapa Flow is one of the most exhilarating, and interesting locations that I've ever dived. If you're a wreck fan, it's the top site in the northern hemisphere so stop worrying about the fact that Scotland is full of men in skirts: diving Scapa is something going half way around the world for.


Dive essentials: Scapa Flow can be dived all year round but only the very brave or foolish head to the north of Scotland outside the milder months of April to November.

<subhead> Qualification: Minimum advanced diver qualification required for the deep wrecks. Open water divers can dive the Blockships, and there are some good shore dives. Scapa Scuba offer a 'try dive' package for visitors with no experience of dry-suit diving. After basic instruction you can dive on the Churchill Barriers. Deep diving and wreck diving specialties are also offered as are eco courses and other technical qualifications such as IANTD Technical diver and TDI Extended Range (and to be honest, the depth of the most interesting wrecks means that I'd definitely recommend at least a deco qualification to make the experience worthwhile) A good torch is essential, and most divers carry a back-up torch and computer. Nitrox, and trimix are available for suitably qualified divers.

Water temperature: Usually around 9-10 degrees, so a drysuit is a requisite. I was comfortable in a 7mm neoprene drysuit, thick gloves and thermals, which can be

hired from Scapa Scuba in Stromness. Don't forget your card to prove you're drysuit qualified if you're planning on hiring - you won't last long in a wetsuit.

Dive boats: Most diving is from a converted fishing trawler, the MV Radiant Queen, which plies its way out of the picturesque harbour. The boats are spacious with plenty of room in the galley and there's a stove on board for brewing up. You'll often do two-tank dives as the German wrecks are about an hour from Stromness, spending your surface interval warming up in the Lyness pub or café, or perusing the museum and the graveyard on the nearby island of Hoy. Alternatively, if you have a group, you can charter a 'liveaboard'

Depth: The wrecks in Scapa Flow lie in water ranging from 24 - 45m. The three dreadnoughts lie in 35-45m of water, whilst the Cöln and the other light cruisers are at 24-35m. The blockships lie in around 12m of water within easy swimming distance from the shore. This site is ideal for certified divers who have not dived for a while, or who are not qualified for the deeper dives in Scapa Flow. 





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"The diving and snorkelling at Wakatobi is outstanding, that's well known. But also important is the excellent customer service of every staff member. Wakatobi can teach customer service to any industry or organization. You feel at home the first day, and it just gets better every day after that." ~ Steve and Cindy Moore



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Photographic Competition



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Winning Photograph

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Expose it right Underwater



The word aperture simply means 'opening'. The lens aperture is situated inside of the lens and is a mechanical diaphragm. This diaphragm consists of a number of petals or blades that act like an adjustable iris. Just like your own eye's iris that changes size as light conditions change, so can the aperture of a lens be adjusted.

The size of the aperture will then determine how much light it will allow through the lens to the light sensor. These changes in the aperture have been calibrated into precise steps known as f-stops. These are the makings you will find on your lenses aperture ring: f32, f22, f16, f11, f8, f5.6, f4 and f2.8. On more modern cameras, the aperture ring is controlled electronically.

Either way, somewhere on your camera you are going to have to set your aperture to

obtain the correct exposure. What is very important here is that you realise that f2.8 is a much bigger opening than f32.

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

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

In some cases there are fractional stops and this will come in handy when we want



to bracket the photograph. Bracketing is when you are not really sure of the correct exposure, so to play it safe you use the fractional stops and make small adjustments. The end result will be three photographs with slight differences in exposure. One will be slightly over exposed, one slightly under exposed and one correctly exposed.

This is a very handy function to have on a camera and it often produces very pleasing results. So basically we use apertures to control the intensity of light through the lens. Another topic that often comes up when we talk about aperture on a lens is depth of field.

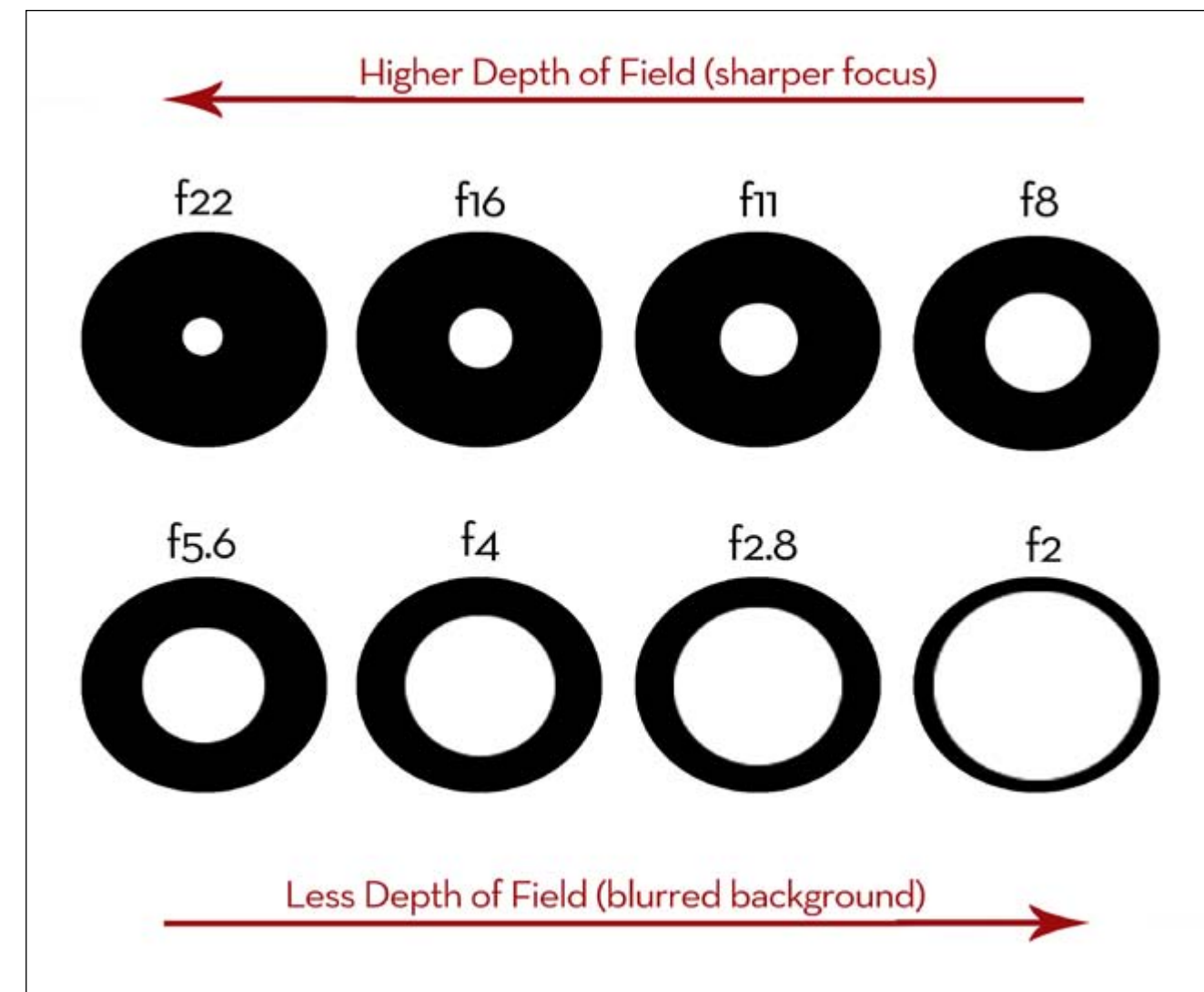
Here we are going to have a brief look at the effects on depth of field and get a better understanding of how this affects your results.

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

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

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

So remember this next time you are setting up your camera to take that winning shot.





With underwater photography, many photographs may tend to look on the blurry side when they are uploaded to the computer. Often this is not the fault of the camera or lens but what is between the lens and the object.

The further away the object is from the lens the more water will be between – a recommended distance to take clear photographs in average visibility would be from 15cm-2m. With most photographs, post editing will make a big difference with your shots and we will show you how to do this.

When taking photographs it is advisable to get as close to the subject as you can to achieve the most detail from your object. Taking photographs randomly when diving without thinking about the end result will most of the time end up in disappointment. If you can, try to take your time and compose yourself. Think 'slow and deliberate' and try to get close to the subject without startling it or causing any interference when moving by stirring up debris. This is difficult to achieve on dives and practice does make perfect – the more you dive the better you will become with your buoyancy and composure underwater.

The main causes of a blurry photograph are:

Slow shutter speed

Make sure that you set the camera to the fastest

shutter speed possible for the conditions. When photographing fish expect them to move rapidly at any time – it will be virtually impossible to achieve a sharp picture of a moving fish without a fast shutter speed. If you can then select a high ISO, for example 400/800 when on a deep dive, which will make the image sensor more sensitive to the light. You will then be able to take a well exposed picture and capture the sharpness of the object in motion with faster shutter speeds. Be careful, however, as the higher the ISO the grainier the picture will become.

Camera zoom

Try to avoid using the zoom on the camera when underwater as the more you zoom in on a subject the more sensitive the camera becomes to movement. Even though you may think that you are holding the camera steady, the smallest of movements will result in motion blur. It is best to set the camera as wide as possible and then get close to the subject to enhance the sharpness and detail of the subject. You will then give the camera a much better chance of taking a good, clear photograph with a faster shutter speed. Some of the best photographs of large animals are taken with fish eye or wide angle lenses that allow the subject to virtually touch the lens, preventing any distortion or noise between the lens and subject. When using a wide angle lens you can get extremely close to the subject and

also manage to fit in the background to enhance the composition and impact of the photograph.

The perfect tool to enhance the sharpness of your photographs

In case you have not read the previous issues, we have decided to show you how to edit your photographs on a free downloadable programme. We have chosen Gimp as this is an excellent free alternative to Photoshop as it shares many of the powerful functions of this industry standard.

Just about every photograph needs to have a little sharpening and you will be surprised at the impact that this has on the shot. This is fortunately easy to do with technology these days and Unsharp Mask is a fantastic tool to help you achieve the best clarity from your photographs. First make sure that your photograph is magnified on the screen in the correct size. To see your whole picture on the screen you will have to zoom out and the standard and most accurate magnification to work in is 50%. This is a uniform size and it will give you the most



accurate display to view your changes. In Gimp select 'Filters' from the top menu, then 'Enhance' and then 'Unsharp Mask'. The Unsharp Mask box will appear and you will have three sliders to work with – Radius, Amount and Threshold.

Radius

The Radius will determine how many pixels the sharpening will affect out from the edge.

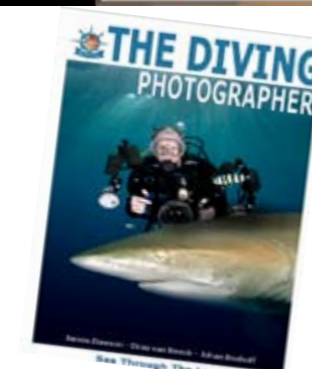
Amount

The Amount determines the amount of sharpness that you want to apply to the photograph.

Threshold

This slider allows you to set the minimum difference in pixel values that indicates an edge where the sharpen must be applied. This means that you can protect areas of smooth tonal transition from sharpening and avoid the creation of blemishes on the subject's surface or water surface.

Using all three tools sounds technical and tricky to finetune, but basic playing around with the settings of the three will get you to what you want. Remember that it is your photograph and if you are happy with your settings then that is what matters.



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Humpback Whales

The fluked tail disappeared below the surface leaving a perfect ripple radiating out from the where the majestic male Humpback whale (*Megaptera novaeangliae*) disappeared into the blue depths of the Madagascan waters.

By Richard Lomax

A short while later the small boat started to vibrate. Below, about 20m down, the male Humpback hung motionless, face down, singing. The song is made up from low frequency sound waves that the male emits with incredible energy.

The low frequency, together with the loudness (energy), allows the sound to travel vast distances. Water is a wonderful medium for conducting sound waves – the sound made by the Humpback is amongst the loudest sounds made by animals.

The song is complex and is unique to a male Humpback. Currently it is thought that the song is generated to attract females – research from Hawaii on this aspect is inconclusive but research from Australia tends to support this theory. The male also only sings during the winter months.

Like most whales, we know so little about these giant that migrates past our shores each year on their way from the Antarctic to their birthing grounds in the tropics and back. Humpbacks born around Australasia will return to their birth places.

Genetic studies show that the groups are different, but what is intriguing is that phrases in songs from, say the east coast Australasia group, will find their way into the west coast group and with time across the Indian Ocean to the African population and from there across the Atlantic to the South American populations. The literature is unclear on whether the songs transfer between north and south groups.

Although for most of the year the Humpback is a solitary animal, it does gather sporadically in groups to feed during the summer months in the on small fish. This social interaction





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By Richard Lomax

involves a single animal swimming below a school of fish (anchovies, cod, sardines, mackerel, capelin) and emitting a stream of bubbles. The rest of the group emit sounds, and this combination of sound and bubbles congregates the fish into a vertical compact column. At some unknown signal, the group opens their huge mouths and lunge up into the column, scooping the compacted fish into their mouths.

It is behaviour not often seen in the animal world – a group of individuals gathering for the purpose of hunting and dispersing after the hunt.

If you think about how complex this activity is, one realises that the whale must have a well developed communication mechanism.

Apart from an individual locating the fish and calling other whales to the

scene, a member has to be selected to generate the bubble net from amongst the group whilst the others encircle the fish, and with sound, heard the fish into the bubble net. This herding happens well below the column of fish.

At a specific time a signal must be given that causes the whales to simultaneously heave up into the column and ingest the fish. Compare this to calling together a group of people in a shopping mall, and organising them into a soccer team, with the purpose of scoring a goal against an opposing team. And the whole activity lasts just 10 minutes.

The Humpback is a baleen whale, meaning that it has hair (baleen) rather than teeth in its mouth. It is a big animal with females averaging 15-18m in length. Like the Southern right whale it also is covered in callosities. Identification of individuals is based on



Giant Stride

Humpback Whales

By Richard Lomax

variations in the tail flukes.

It is the most active of the large whales, performing all sorts of surface activities, such as tail lobbing, sky hopping and breaching. The name 'Humpback' comes from the hump just forward of the dorsal fin.

It is the most studied of all the large whales. A BBC film crew from the Earth News series, and hosted by Dr. Ted Oakes, have just released footage taken around the Kingdom of Tonga of a group of male Humpbacks competing to mate with a female.

The footage gives a glimpse into what has before been part of the unknown mating behaviour of large whales. Surface activity was suspected as being mating behaviour, but this new evidence shows that mating is a very different activity.



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What stands out from footage is the number of males participating in the mating, in this case, 40 of them. The other point of interest was that the oestrous female summoned the males by slapping her tail, possibly releasing pheromones and possibly some yet unknown mechanisms. She hung around until she had a good number of suitors and then set off at a rapid rate, reaching speeds of 18km/hour.

The males followed, jostling violently to take up the winners spot just behind the female's tail. To take up the winners place required beating off the opposition with slaps from the pectoral fins, slaps of the tails, blowing air bubbles, vocalising, slapping the huge feeding pouch and even leaping out of the water onto the back of an opponent.


Because the birth of a whale is such an energy intensive exercise for the

female, she has to be sure that the male that impregnates her, is the fittest from the available pool of males.

We still do not know if this mating is a single event or whether it happens on more than one occasion and if the female is able to select the best sperm from a number of couplings.

The footage opens up so many doors relating to the behaviour other large baleen whales.

The documentary is well worth watching and one has to feel for the free-diver, Rodger Munns, who recorded the underwater footage.

Being in the path of a large number of 40 ton males whose only intent is beating the opposition with slaps, lunges and head-butts must have been pretty intense! 



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The Lost Underwater World

The desire of humans to explore the depths of the oceans has been in place for centuries.

It may surprise many of you to know that the first explorations of the vast undersea realm were not made in order to understand the mysteries of life beneath the waves, but as acts of war, treasure hunting and salvage. Amazingly, records of undersea exploits date back to as early as the 5th century BC.

These earliest explorers were really often no more than madcap adventurers possessed with more dash and daring than common sense.

With over 70% of the Earth's surface covered by water, it is not surprising that the inherently human urge to explore has led us from these early reckless attempts towards an age of true underwater discovery. In the first half of this century, the drive to dive remained pretty much in the realm of war, treasure hunting and salvage. With the advent of the autonomous

diving suit and scuba, however, and the emergence of recreational diving, the tables have turned. Of the millions of people diving today, the vast majority is there to view flora and fauna, not to explore and discover.

Only a tiny fraction of divers (and they are generally professionals) goes under water to seek an understanding of the past and to make new discoveries. Of these, the vast majority is either treasure hunters or archaeologists.

Very recently, however, scientists and recreational divers alike have begun to recognize a new area of potential underwater interest – underwater palaeontology. Perhaps surprisingly, this field of exploration has not emerged from the science of underwater archaeology, but largely from the activities of amateur fossil collectors.

The relatively recent recognition that the bottoms of lakes, rivers and oceans are in many cases littered with ancient remains – some with commercial value and others with only scientific or

intrinsic value – has led myself and a handful of colleagues from around the world to begin focusing our efforts on establishing just what is hidden beneath the waves. Many may find it surprising that what we are discovering are not just the remains of ancient marine organisms, but fossils of land animals as well.

The rise and fall of sea levels are a continuous process on this planet. We are at a moderately high sea level now. During ice ages, the Earth's oceans can drop by dozens if not hundreds of meters, leaving vast areas of land exposed around the margins of the existing continents. As sea levels rise, they cover this record, often leaving it intact just waiting to be found.

Familiar dive spots around the world are quite literally littered with ancient remains. The diamond dredges are pulling up hundreds of thousands of land mammal remains. Some reefs at some of our favourite dive sites, are actually fossil dunes tens of thousands of years old, and even the famous 'shark-teeth' of some sites are not what they appear to be.

I have recently discovered that the vast majority of these are not falling from the mouths of those placid sharks swimming around the area today, but are actually ancient fossils! In order to recognize them, you just have to look at the colour.

Those grey, black, yellow and brown teeth didn't come from any living shark, but fell from the mouths of fish that were swimming in the ocean years ago! And on some recent deep dives, below 50 meters, I have even seen dinosaur-aged fossils eroding right from seafloor. Why, you may ask, is this tale of undersea fossils important to you, the average recreational diver? The answer is multifaceted. Firstly, I have yet to meet a diver – either a 'newbie' on their first dives or an 'old salt' – who was not interested

in expanding their understanding of the undersea world. Very few of us are there to just blow bubbles.

Secondly, increasing your ability to recognize fossils underwater can assist scientists worldwide in our pursuit of understanding the past and the present, and applying this understanding to the future.

Remember that of the thousands of paleontologists around the world only a tiny percentage are divers. Thus, you can act as our eyes in this largely unexplored realm.

Finally, it's just plain fun. Being the first to discover something underwater means that you will very likely be the first human to touch that object since its death thousands of years ago! It truly is the ultimate form of treasure hunting and links you directly to the very origins of this activity we all so love.

So how do you learn more? Bone



By Professor Lee Burger

up (pardon the pun) on fossils and geology from the many fine books on the subject. Get certified in one of the programmes that make you a better and more natural history-oriented. And, most importantly, turn yourself into an aware diver.

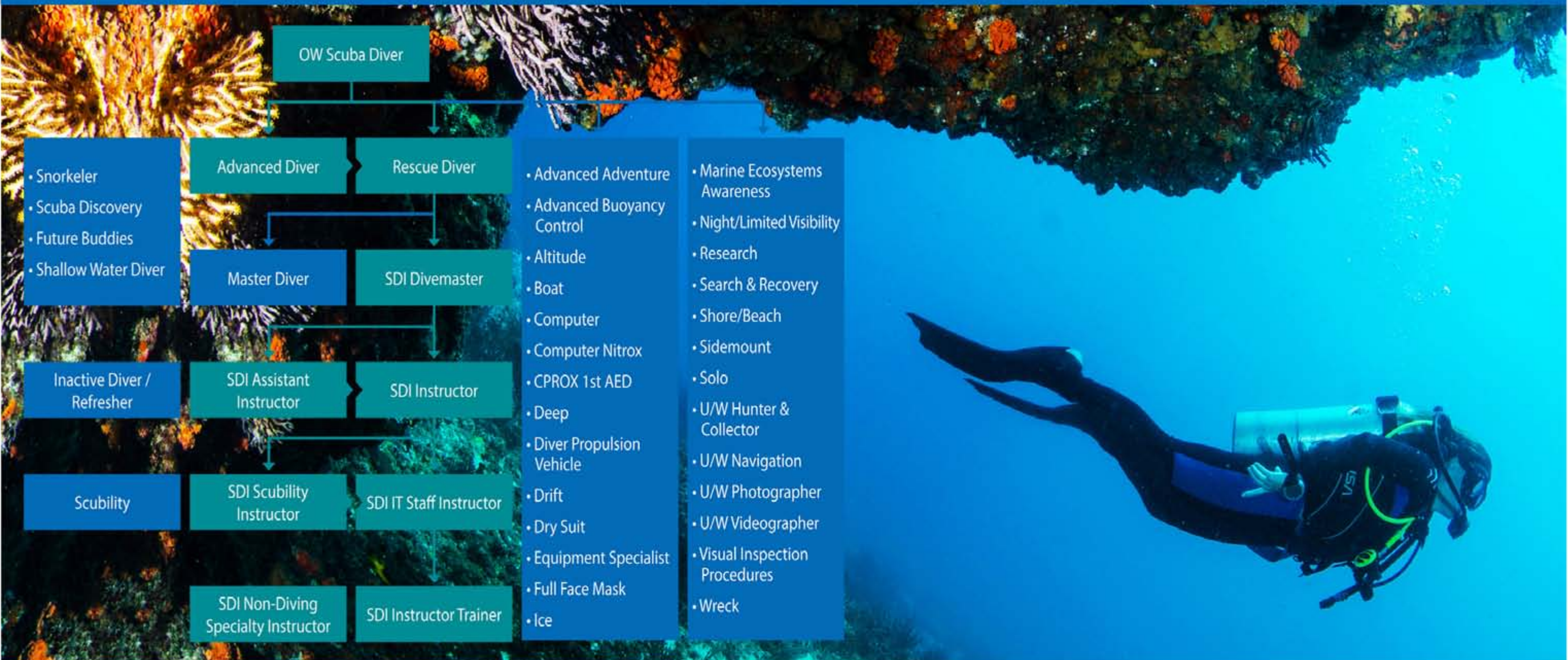
Take the extra time to look at all the underwater world has to offer. Spend some time on your next dive sifting through the sand on the bottom or examining the rocks of the reef. You never know what you'll find and you may quickly discover that there's more to diving than just fish. And who knows, you may be the one to contribute to the next big find.

Please remember, however, that laws about collecting fossils vary from place to place around the world, but that certainly doesn't stop you from looking and informing experts of your finds so that we can add them to our growing knowledge of the past. 🏊‍♂️





Scuba Divers Trained Here



Where does Helium come from?

Helium is formed when the nuclear decay of isotopes deep in the earth's crust takes place. Sound confusing? Then read on.

The atmosphere around us only contains five parts per million of helium and that makes it too low to recover.

Currently helium comes from natural gas and this seems to be the only economically viable source for the moment.

It is captured with the natural gas in a porous rock formation years ago and when the natural gas is withdrawn the helium is also released from the natural gas reservoir.

The natural gas – mainly methane – contains 0,5% or 5 000 ppm. This makes the recovery of helium more economical.

Helium, being such a small atom, can diffuse through just about any little pore. This fact is now used to separate the helium from the methane just by passing it through long lengths of specially prepared



polymer piping and the helium in the natural gas stream 'leaks' out and this concentrate is then captured and passed through another membrane system so that every pass through a membrane the concentration of the helium increases. Pressure swing absorption is also used with activated charcoal at liquid nitrogen temperatures.

This is done until the concentration reaches 99.9999% . This means that there is less than one part per million impurities in the stream, quite remarkable if you think that in the beginning of the process there was only 0,5% or even less helium.

This purity of helium needs to be achieved as the liquefaction process requires a very pure helium as it will become so cold that any impurity will freeze and smash the high speed turbines used in the liquefaction process.

Liquid helium is the coldest known substance in the universe. Helium is also

one of the lightest gases around and only 1,5 kg will fit into a 50 litre at 200 bar. This makes the distribution of helium so much more challenging as the cylinder weighs 70kg.

For this reason helium is shipped from the origin to the cylinder filling plant in liquid form and then pumped into cylinders. The helium is extracted in a few places in the world, namely USA, Algeria, Russia and Qatar – the largest contributors of helium to the world markets.

The container used to distribute liquid helium from the production source to the filling plants is a space-age piece of technology.

These containers must shield liquid helium at -269 C from any heat ingress from boiling away very expensive liquid helium. The container has a number of shields to do this and also makes use of a liquid nitrogen barrier that will absorb any heat before it gets to the liquid helium.



From the liquid form it is vaporised to gas and compressed into high pressure cylinders. These cylinders are compressed to 200 bar and this is then sealed and sold to customers. Helium has a few characteristics that makes it unique.

It is a very light gas and is used for this property in applications such as balloons and airships. It is also inert and a very good conductor of heat, which makes it ideal for welding of aluminium and titanium.


Helium is also used for high power lasers with applications as diverse as cutting metal and eye surgery. Liquid helium is used to cool the magnets of Magnetic Resonance Imaging scanners to superconducting temperatures.

This application has changed the face of radiology forever as soft tissue imaging can be done with a high level of resolution that was never possible before.

The property that it is best known for by divers is that it can dissolved from blood

faster than nitrogen found in air. This makes the decompression time about half of what it would be with air. When bottom time is valuable, helium will be the way to buy more time.

Helium is plentiful in the universe but on earth we only have a limited amount of helium available. The technology advances made in the last century, from lasers to space flight and Magnetic Resonance Imaging to titanium welding has certainly left us with a constrained reservoir of helium atoms. Today we are seeing saturation diving systems recovering helium, and also in MRI's we see recovery processes to conserve these precious atoms.

New wells are coming on stream and world demand for helium is being met with every challenge that is coming our way. Our relationship with helium is only beginning now and the technological future will most definitely be shaped by the supply of helium. 



Tips for tech divers.

Q & A

Nuno Gomes



The first step for any technical diver is to complete the Advanced Nitrox course (this allows divers to dive down to 50m). This is the basis of all further learning.

From there, a diver would embark on courses such as cave diving, wreck diving, gas blending

and trimix diving, to name but a few.

I feel that it is very important to understand and master all the techniques learnt in the Advanced Nitrox course. Even though buoyancy control was learnt in the basic open water courses, many divers still have problems with it, especially when dry suits and scooters are introduced.


Other considerations are the equipment that one buys – rental equipment is just not good enough.

This equipment will probably be used in further courses, therefore it should be of

excellent quality. Also important is the equipment configuration. It should remain constant for most dives so that the diver can locate the equipment in any given situation.

An understanding of the theory of decompression and a good knowledge of physiology are a must.

Even though a good technical diving computer is a very useful tool, it cannot think for you. Knowledge will allow you to have confidence and enjoy the diving much more.

Technical diving can be physically and mentally stressful, so stay fit – you will need it. 

Barry Coleman

Do you push your own limits wisely or foolishly?

Experienced divers push the limits with premeditated thought, building on the foundation, planning the extension with only a small push, allowing time to percolate the experience.

The foolish will jump – a reaction without consequential thought or understanding.




There are many times the results favour the uninformed and others follow suit, but the inevitable is unavoidable and it is simply a question of when and how serious will the injury be.

The irony of it all is that the more serious the injury,

the more public the event and exposure crowning the exploits of the individual and scorning the endeavours of the sport.

Pushing the limits to extend your own ego is looking for problems. Pushing the limits slowly to explore your own depth is the wise diver.

The old saying, "there are old divers and there are bold divers, but there are few old, bold divers," is so adept.

My advice? Push the limits in small steps over time. 

Pieter Smith



Do not start technical diving to soon – give yourself at least +100 dives and in various conditions/places and depths.

1. Ensure that you link up with a competent instructor that not only just wants to finish the course but is willing and able to dive with you and


to coach you well after the official training programme - as technical diving becomes a way of life.

2. Ensure you have the time, means and correct gear to qualify as a technical diver, and more importantly, to continue and grow further in technical diving after the course – it is a continuous learning curve and skills tuning journey, with initial training just a very small portion of it.

3. Dive regularly with your technical gear and especially depth, skills and drills to stay technically diving 'fit'.

4. Read, Google, discuss and share knowledge so that you stay in tune with techniques and technology and to contribute towards the sport.

5. Cave diving requires dedication from you in that you must dive caves regularly and not just one cave, but different caves (I dive one to two times per month).

6. If you don't enjoy it, don't do it! 

Pieter Venter



It is dangerous, take care. If possible, do your technical courses at more than one trusted training organisation.

No one training organisation is perfect, so keep an open mind and read a lot.


Beware of people marketing their brand as the 'only' way to dive. Dive with buddies with your skill level, who are safe and who you can trust. Take baby steps and do build-up dives towards deep dives.

Check and double check your gas mixes before a dive. Use two mixed gas computers or have a bailout table. Get used to your set-up and stick with it for most of your diving. Keep your dive set-up simple.

Make no more than one change to your diving set-up before a dive. If you are prepared and ready, deep dives are as stressful as a 10m dive on a tropical reef.

If you feel more stress, then be better prepared next time. Buy good diving gear that can be used for technical diving and do your homework before you buy.

Get to know your buddies equipment and dive set-up. Follow the deep, wreck and cave dive rules established over years of experience. Keep on learning.

Most of all, have fun. If it is not fun, why do it? 

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DEEP DOWN YOU WANT THE BEST

The Importance of Advertising

Advertising plays a critical role in today's age of competition and the electronic media.

Advertising has become a necessity for every business in today's day-to-day operation, be it the producer, the traders, or the client. Let's have a look at how and where advertising important is...

Advertising is important for the clients.

Just imagine television station, a newspaper or a radio channel without any advertisements. Yes, it might be nice if your favourite show is uninterrupted, but how will they pay to keep broadcasting? And if you are completely honest with yourself, you might even get bored without adverts and will never get to find out about the products and services offered in the market.

Advertising plays a very important role in

a client's life. Clients are the people who buy the product once they are made aware of the products available in the market. If the product is not advertised, no client will come to know what products are available, and they will not buy the product, even if it is for their benefit.

Advertising also helps people to find the best products for themselves, their kids and their family. When they come to know about the range of products, they are able to compare the available items and buy so that they get what they desire after spending their valuable money. Thus, advertising is important for the clients.

Think for a minute how you would know about any of the new and exciting scuba equipment on the market if it was not for

the advertising efforts of the companies selling and importing these products?

Advertising is important for the seller and producer.

Advertising is also vital for the producers and the sellers of the products, because of the following:

- Advertising helps increase sales by making clients aware of products and services and the benefits of utilising these.
- Advertising helps producers or the companies to know their competitors and plan accordingly to compete on the same level of competition or to gain a competitive advantage. This can be achieved through effective monitoring of advertising by competitors.
- If any company wants to introduce or launch a new product in the market, advertising will be the groundwork for such a campaign. Advertising helps make people aware of the new offerings by a business

so that the consumers go out and try the product or service.

- Advertising helps create goodwill for the company and gains client loyalty, especially is the advertising effort is informative and caters for the specific needs of the client.
- The demand for the product keeps on increasing with the help of advertising.

Advertising is important for the industry.

Advertising helps educate people. There are some social issues which also advertising, such as those dealing with child labour, liquor consumption, smoking, family planning education, etc., thus advertising plays a very important role in the entire industry.

With regard to the diving industry, a typical example of this would be making people aware of overfishing and the undesirable practice of shark finning. ◀



Dive Planning



When it comes to diving equipment, there is no such thing as one piece being more important than another. Each individual unit must function as required and when combined together as a whole, should allow for safe and enjoyable diving. In this article, we will be taking a closer look at the face mask.

This is one of the aspects of diving that is well practiced, but unfortunately in most cases is poorly executed. Dive planning is a tool that is given to divers to ensure their well-being and safe return to the surface, where all possible dangers have been identified and catered for in the form of a contingency plan.

For a sport diver to dive safely, his primary (and in most cases) only form of contingency plan is his/her buddy. I have seen it happen on just about every dive done through various charters, where John is introduced to Joe during the dive briefing and now they're suddenly dive buddies for the next hour or so.

The chance of them looking at each other just once while underwater is very good and this simply isn't good enough. One is busy taking photos, while the other prefers

to stay close to the buoy line – the fact is they are not there to assist one another should the need arise. When things go wrong underwater, time moves very quickly and if help isn't literally an arms length away, the diver is in trouble.

This is the first rule that should be adhered to at all times – stay with your buddy! By ignoring this, the other parts of dive planning simply become useless.

All divers are taught "plan your dive and dive your plan". And for good reason! To change the dive profile during a dive is not wise, as communication is limited and you can't always be sure that the same message is understood correctly by the entire group. Rather stick to the original plan and be safe while underwater.

Use of instruments and equipment

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Dive planning can be done in a couple of different ways, but the fool-proof one is the use of dive tables. Dive computer algorithms and diver input into computers vary and dive computers can malfunction. There are a number of different dive tables available for working out maximum bottom times, repetitive dive times, surface interval times and decompression times. During dive planning and by using these tables, a maximum bottom time is chosen depending on the depth of the dive. To make this method accurate and effective, the diver must have a bottom timer and depth gauge so they can be sure of when their bottom time is up and it's time to head for the surface.

Dive computers have changed dive planning considerably. Instead of choosing a maximum depth and a maximum bottom time, the agreement nowadays is to dive on the computer. Due to the fact that most dives have varying contours, the depth never stays the same throughout the dive. The computer is continuously recalculating an updated decompression time based on the time spent at the various depths. The advantage of this is that in most cases you will end up with a longer bottom time compared to what the tables would have allowed, as your profile is constantly changing.

Dive computers have various functions that come in handy for dive planning and dive logging:

- No decompression limit (NDL) for a time at depth – this is a tool that is used to determine the NDL for the depth and time at which you will be diving. If you are diving more than once, the computer will take this into account and adjust the NDL accordingly.
- Altitude setting – this function allows the user to set the altitude at which the dive is taking place so that the correct algorithm is used with regard to NDL and

decompression stops. Most computers automatically detect the correct altitude and adjust themselves to these settings.

- Decompression stops – this setting automatically detects when the NDL has been exceeded and the necessary decompression stops are displayed. These times will fluctuate and adjust depending on the time spent at the various depths.
- Safety stops – once the safety stop depth has been reached (usually between 3 and 5m), the computer will begin a three minute countdown so the diver can be sure that the stop has been adequately completed.
- Mixed gas settings – this is a setting that allows two gasses to be programmed into the computer. The first gas, say air will be mix 1 and the second gas, say 36EAN will be gas 2. When the decompression depth is reached, the diver can switch over to mix 2 and enjoy the benefit of a shorter decompression time.
- Dive logging information – all of the dive information is stored on the computer. The information includes water temperature, dive time, time entering the water, time exiting the water, the date, the speed of ascent and any decompression times. The number of dives a computer can store vary



from make to make and model to model, but this memory should only be used as a temporary measure and the information should be transferred to a log book.

- Dive profile information – each dive that is logged will also have the dive profile information saved with it. This will show you at what depth you were at a specific time during the dive.
- PC interfaces – some dive computers can be connected to your PC so that the logged dives can be transferred over. Software packages that indicate things like tissue saturation are also available.
- Audible indicators – sharp beeps that are easily heard underwater are sounded by the computer when there is something the diver should know about, like a fast ascent rate or a decompression stop. Maximum depths can be set on the computer and the diver will be notified when this depth has been reached.
- Nitrogen and oxygen build-up – some computers have indicators that will show how much nitrogen and oxygen build-up your body should have, depending on the type of dive that is being done.
- De-saturation time – this function shows how long the diver has been out of the water and how much time is still left before the diver is completely de-saturated. No-fly times are also displayed on some computers.

Emergency procedures will always be explained during a dive briefing. It should be every diver's responsibility to equip themselves with enough personal emergency equipment so that if there is trouble and help is not at arms length, a quick plan can be made.

A must for every diver is the emergency sausage (or "see me worm") which roles up and fits easily into a BC pocket. This can be used to signal for attention during a "diver lost" situation. They blow up manually, are between 1 and 2m in length and are usually bright orange in colour. The emergency

sausage is also used by some divers to indicate that they are surfacing, so that any passing boats can see the diver. The step up from this is a deploy buoy used in conjunction with a reel.

This is a very nice addition to a diver's equipment and it ups your personal safety considerably, because if separated from the group, the buoy can be deployed and is visible long before the diver reaches the surface. A word of caution though, if you haven't used a deploy buoy before, get proper training for the correct way of using it. If it's not used correctly and you're not competent in its operation, it could end up doing more harm than good.

Lastly, here are a few basic rules that encourage safe diving:

- Dive your plan
- Stay with your buddy
- Dive within you qualification
- Only start a dive with a minimum 200 bar in cylinder
- Check your equipment thoroughly
- Check buddy's equipment thoroughly
- Arrive well within time and don't rush kitting up





OZ DIVER



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CONTENTS

Regulars
3 - Editor's Desk
4 - The Team

Letters
7 - Log Book

Dive the Continent
9 - OZ News
15 - Port Kennedy to
Esperance

Weird and Wonders
31 - Manta Ray
33 - Climate changes
35 - Photographers

Dive Med
39 - Hypertension

Dive the Globe
41 - Global News
47 - Manta Mambo
61 - Ras Mohammad
73 - The Hilton

Wreck Explorations
77 - World War II - Part II

Through the Lens
87 - Photo Competition
91 - Photo School
93 - Editing School

Giant Stride
97 - Shape Up
105 - A last glimpse
115 - Micro infiltration

Technically Speaking
119 - Dive Planning
123 - Q&A - Backup

Instructor Diaries
127 - Log

Gear Talk
129 - Kitting Up
135 - Reviews

Safety Stop
139 - Funnies

Dive Operators
141 - Listings

COVER PHOTO

Manta Mambo - Page 47

FEATURE

Ras Mohammad - Page 61

FEATURE

World War II Wrecks - Page 77

FEATURE

A last glimpse of the world - Page 105

FEATURE

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Marine Species Guide –



Marine Species Guide



Johan Boshoff • Annatjie Rademeyer

A quick reference guide to the marine species found on coral reefs around the world

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.

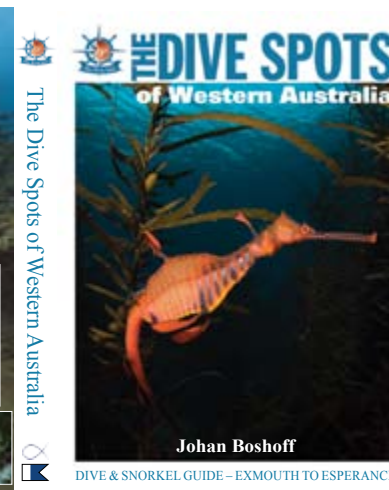
The book works very well in accompaniment with the Marine Species Slate, which can be taken underwater to help with fish identification.

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

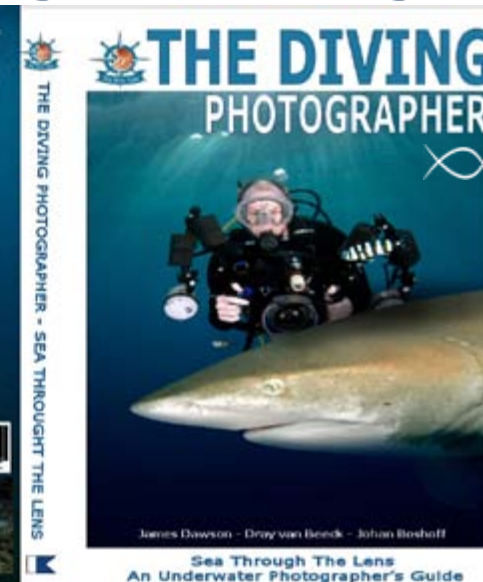
For more information visit www.thedivespot.com.au



Johan Boshoff

DIVE & SNORKEL GUIDE – EXMOUTH TO ESPERANCE

The Diving Photographer –



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

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

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

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

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



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.

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



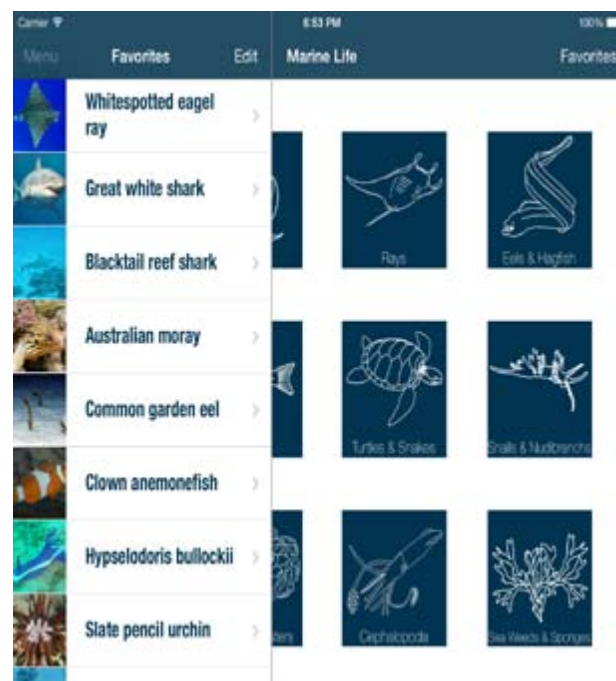
Biological Name
Caretta caretta

Identification

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

Information

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



EZYFLAG for all Divers

I first thought of the idea of ezyflag back in 2013 when I became frustrated with the current flag on the market. Finding it cumbersome and difficult to use, particularly when it come to retrieving it after a dive. So I began my search for a better, easier to use flag. I looked in Australia with no success, and then overseas, but with the same result.

There was nothing out there that I felt fitted what I was looking for and so began my journey to develop one myself. Designing the flag itself was a challenge, taking over one and half years alone, but producing the flag was equally challenging, and all the jigs and components have had to be specifically designed and engineered for the purpose, by myself. After a further year of design, engineering, testing and several prototypes, the final product is made of marine grade stainless steel, has a 600 x 500 uv resistance flag which has a cross-support to strengthen it and keep it visible even in no wind conditions.

It is also able to hold a flashing light for night divers (a glo-toob is used, you can find them in most dive shops) and an anchor weight, both of which can be supplied as optional extras. The real difference is the flag's ease of use. With the current flag on the market, the line has to be wound manually around the float, which can be difficult and time consuming. The ezyflag however has a reel mechanism allowing the line and weight to be wound up very easily. The design also means that the reel and release sit below the float, allowing the flag to stay more upright in the water, even in rough conditions. The ezyflag dive system looks very simple, but it has been two and half years in the making.

Now on the market, the flag is already proving a hit with local dive clubs and instructors alike.

Further details can be found at our facebook page www.facebook.com/ezyflag, or by contacting Kevin on ezyflag@gmail.com or call 0407589315. Look out for the new model coming out in 2017.

Testimonial

STEPHEN FOULIS. Guys I wanted to. Say a big thanks for my ezyflag. I purchased one a number of months ago now following a chance meeting with Kevin. I have used my flag numerous times, it's so easy to use and works so well. Being an instructor it's so handy to have a simple surface marker that's deployed quickly leaving me to direct students down the shot and on with their skills. Even night dives are aided as the no fuss deployment and retrieval adds to the enjoyment. Thanks Kevin, A must for all divers.




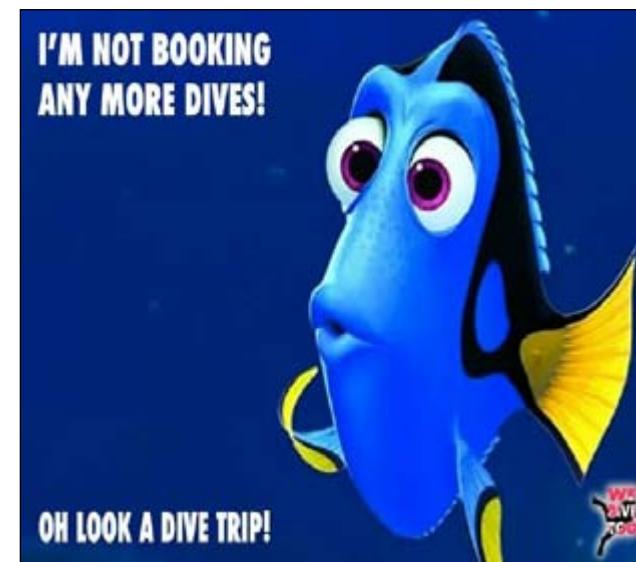
QUAD: WHEN HAVING A CLEAR VIEW IS IMPORTANT

This month sees the release of Mares newest product – the Quad Air. The most recent edition to the Mares family is a progression that builds on the success of the recently introduced Quad Computer.

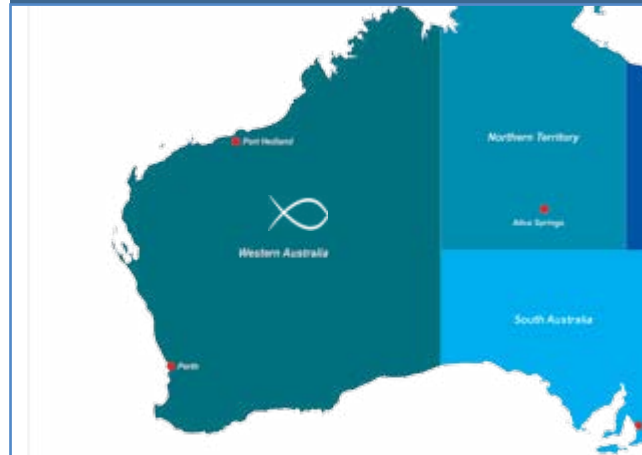
The newest model retains all the successful characteristics of the 2016 release. First and foremost, the Quad set out to provide the ultimate in readability. This is achieved by a combination of jumbo-sized information as well as a structured layout, which gives easy-to-read, clear, precise and intuitive information when you need it the most. Another of the design objectives when developing the Quad was that the unit should be user-friendly in its operation. Despite the many features that Quad boasts, such as three-gas switching and a programmable runaway deco alarm, the computer is the embodiment of simplicity when it comes to operation. Information is arranged into a three-row layout, typical of Mares computers. The four operating buttons have clear functions, and the menus are straightforward to navigate.

The exciting point of progress with the new Quad Air is (as you might have guessed) the introduction of Air Integration. The new Quad Air is now able to receive data directly from the dive tank via a wireless transmitter. A single Quad Air computer is able to integrate data from up to three transmitters!

The Quad can also use the "BLUELINK" Bluetooth system (sold separately) to record and share dive data directly to your smartphone, completing your wireless experience. With a long-life, user-replaceable battery, the future of effortless, user-friendly computer with all the trimmings is looking bright! 



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