

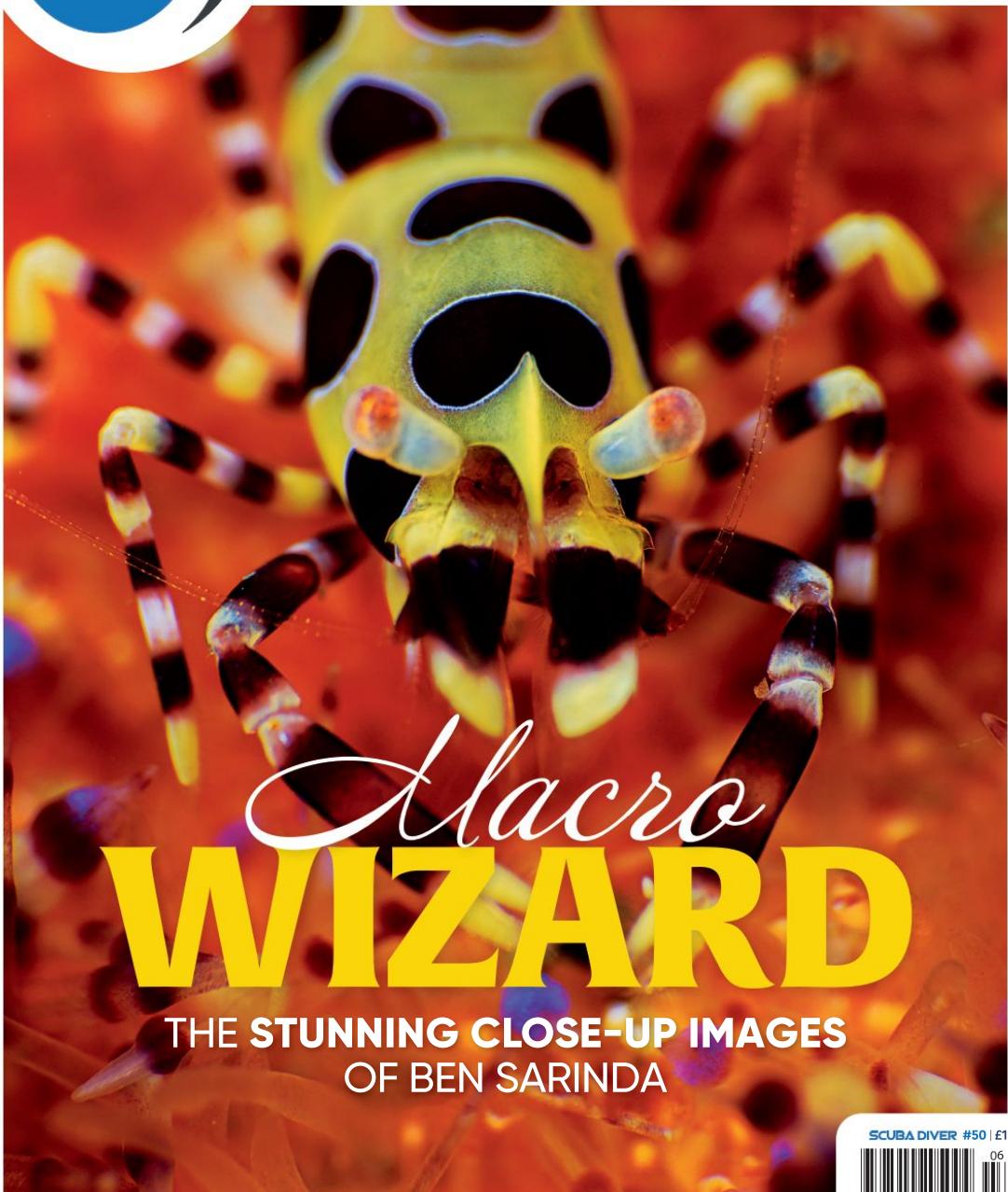


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SCUBA DIVER

SOMETHING TO LOOK FORWARD TO

As I write this, the UK is slowly but surely emerging, blinking in the sunlight, from its COVID-19 restrictions, and everyone is looking forward to getting back to some semblance of normality.

I have already got a trip to Lundy to dive with the seals booked for August for myself and Luke, and I am sure I will be getting into the water off the coast of North Wales in the not-to-distant future as well. The GO Diving Show, which had been postponed until September, has now been canned for 2021, and will return, bigger and better, from 4-6 March 2022. However, the GO Diving team felt that we still needed something where like-minded divers could get together, mooch around exhibitor stands, listen to inspiring talks, get involved with hand's on workshops and trydives, and just socialise - remember, like we used to do?

Enter the GO Diving (Road)Show at NDAC from 17-19 September. This event will encapsulate much of what you'd expect to find at a normal dive show - exhibitor stands, underwater photography workshops, technical trydives, interesting talks, you know the drill. However, the benefit of being located at NDAC means that the water is right there on the doorstep, tempting you in, so you can come to a dive show AND go for an actual dive or two as well! We are even going to host a BBQ and social event on the Friday evening!

Andy Torbet will be headlining the event, and he will be joined by tech gurus Phil Short and Mark Powell, and underwater photography experts Paul 'Duxy' Duxfield and Anne and Phil Medcalf.

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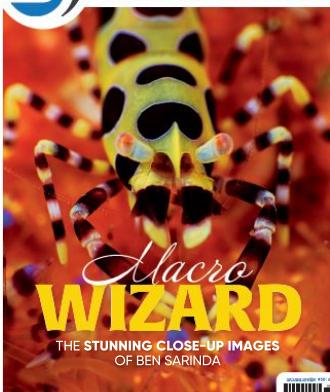


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Scuba Diver Editor-in-Chief Mark Evans discusses the advantages of owning your own equipment rather than renting when you are on your diving holiday, explaining all the reasons why you should invest, while trying to help you avoid some of the pitfalls we have all encountered when buying kit for the first time.



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Scuba Diver Editor-at-Large (Australia and New Zealand) Adrian Stacey rates and reviews the Suunto D5 Copper dive computer.



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The background of the poster is an underwater photograph showing a large tiger shark swimming towards the left. In the upper left, a manta ray swims away from the viewer. Various tropical fish, including yellowtail surgeonfish and blue tangs, are scattered throughout the scene.

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INDUSTRY NEWS

Each month, we bring together the latest industry news from right here in the UK, as well as all over our water planet. To find out the most up-to-date news and views, check out the website or follow us on our various social media (@scubadivermag) www.scubadivermag.com/news



THE GO DIVING (ROAD)SHOW AT NDAC

Individual divers, buddy pairs and clubs are invited to what promises to be the ultimate dive festival in 2021

With the main GO Diving Show being postponed until 4-6 March 2022, the team behind the premier diving event in the UK calendar decided the nation's diving fraternity deserved a get-together where people could check out the latest gear from manufacturers, have a go at different types of diving, take part in photographic and technical workshops, listen to some outstanding talks from a range of top-quality speakers and, most importantly, actually go diving!

Thus the GO Diving (Road)Show was born, based at the sprawling NDAC facility near Chepstow. The event will run from Friday 17 September to Sunday 19 September.

Adventurer, TV presenter, technical diver and all-round top bloke Andy Torbet will be hosting the event, as well as being keynote speaker on the Friday evening.

There will also be talks from tech legend Phil Short, who has a brand-new presentation about the B-17 Tulsamerican project, and Clare Dutton, who will be showcasing the unique Scuba Escape – the world's first underwater escape room, which is based in picturesque North Wales.

Popular underwater photography gurus Paul 'Duxy' Duxfield and Anne and Phil Medcalf from Alphamarine Photography will be running underwater photo workshops, and tech icon Mark Powell will be conducting in-water skill development sessions.

Want to dip your fin-tips into technical diving? Training agencies including RAID will be running trydives for those wanting to sample twinset and sidemount diving for the first time. Exhibitors confirmed so far include Fourth Element, O'Three, Roots Red Sea, BVI Tourist Board, Santi Diving,



Shearwater Research, Scuba Dive Store, PADI, Scubapro, Nammu Tech, Kent Tooling and Vivian Dive Centre/Duttons Divers. More will be announced nearer the time, and if you want to book a stand, contact: bookings@godivingshow.com

Of course, the best thing about being located at NDAC is that you can actually go diving as well! NDAC is one of the most-popular inland dive sites, and it offers depths from the shallows right down to full-on technical levels. Within the vast expanse of water, divers will find Land Rovers, cruisers, airplanes, helicopters, armoured cars, diving bells, gun turrets, hyperbaric chamber, double decker bus, a trawler and various training platforms.

The Friday evening will culminate with a BBQ and a social evening, where divers and exhibitors can mingle, chat about diving, and enjoy being out and about.



All are welcome, from individuals to buddy pairs and groups. In fact, this is the perfect club weekend – schedule your dive courses for the event, so that when you are having your surface intervals between diving, your members can wander the exhibitor stands or listen to a talk, and then on the Friday evening, you can all enjoy the BBQ and social evening. We have special deals for clubs – book 5 tickets, get 1 free, or book 10 tickets and get 2 free.

There is plenty to keep non-divers of all ages occupied too while you are enjoying yourself underwater – NDAC is also home to ziplines, a giant swing, kayaks, paddleboarding and the Atlantis aquapark. These can all be booked direct through NDAC.

PRICING

- Full ticket (Friday 17 September – Saturday 18 September) - £69 (includes access to talks, workshops, exhibitors, BBQ/social evening on Friday night, and diving in NDAC on both days).
- One-day ticket (Friday 17 September) - £45 (includes access to talks, workshops, exhibitors, BBQ/social evening, and diving in NDAC).
- Non-diving ticket (Friday 17 September – Saturday 18 September) - £25 (includes access to talks, workshops, exhibitors, BBQ/social evening on Friday night).

Not interested in diving or the workshops? Then you can come along to NDAC for free on Sunday 19 September to speak with the exhibitors. ■

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INDUSTRY NEWS

BAD TIMES FOR MARINE MAMMALS IN THE UK

May proved to be a sad period for marine mammals in UK waters.

WHALE IN THE RIVER THAMES

Despite the efforts of a host of organisations and groups, tragically, a juvenile minke whale that had stranded in the River Thames in early May had to be put down.

BDMLR, the RNLI, the fire brigade and Port of London Authority workers were all called into action on 9 May after the minke whale was spotted stuck at Richmond Lock.

It was believed to be the same animal that had been seen earlier in the day up river near Barnes Bridge.

It took several hours for the animal, estimated to be around three to four metres long, to be moved from the lock and, while it was the intention to move the minke whale to another location to determine its state of health and whether it was fit enough to be released, the animal had other ideas and slipped off the pontoon, and was last seen swimming off in deeper waters. Sadly, it was then seen swimming between Richmond and Teddington, then turned up again stranded once again.

Rescue teams said that the condition of the animal had deteriorated rapidly, and at 6pm on 10 May, a vet from the Zoological Society of London administered an injection to put it out of its misery humanely. A post mortem examination will now take place to reveal more as to why this young whale came to be in poor condition and lost in the river in the first place.

STRICKEN SEAL IN CORNWALL

A seal dramatically rescued by BDMLR in April after becoming stuck between rocks tragically had to be put down after her condition rapidly deteriorated.

The seal – nicknamed Hattie – had been entangled in fishing wires and line for more than two years, but no one was able to capture her. Then on 28 April, she became trapped between rocks on Gwynver Beach and was extricated from her



predicament by BDMLR volunteers just in the nick of time, as the tide was coming in and she would have drowned.

She was transported to the Seal Pup Hospital, where staff were concerned about her chances of recovery, as she had a 4cm deep wound around her neck from the wire and line, and was smaller than she should have been given her age.

Sadly, these fears proved accurate, and the decision to put her down was made after she began 'showing signs of a more complex, underlying illness going on'. Blood tests revealed the seal was likely to be suffering from major organ dysfunction, and as such, her chances of survival were extremely slim.

Staff at the hospital said: "We are comforted at least by the fact that her final days were in an environment where she was safe and well cared for."

ORCA CALF SPOTTED OFF SCOTLAND

After all that tragic news concerning marine mammals, some great news came along later in May – an orca calf was spotted off the coast of Scotland. It is rare to see a newborn orca, never mind off the Scottish coastline, but the baby, with a distinct orange tint on its belly, was seen with four older killer whales near Duncansbay Head in Caithness, in the Moray Firth.

Karen Munro, who is part of a group compiling IDs for killer whales seen around the UK, said she could not believe her eyes when the animals came within 20 metres of where she was standing on the shoreline.

She said: "They were swimming and using the tide to glide on the water. I was thrilled to get such a close-up, it was a pod we don't know a lot about. It was extra special to see a young wee baby amongst it."

The calf is believed to be part of the 169s group, which is occasionally seen in the area and is known to swim with Icelandic pods of orcas.

OCEAN BEER – BREWING FOR A BETTER PLANET

Ocean Beer, the premium craft beer uniquely committed to both a quality product and to the ocean, with 100 percent of profits going to ocean conservation and ocean clean-up, has launched in the UK and is available to buy now at www.oceanbeer.com

The Ocean Beer range is comprised of three craft beers: Ocean Lager (33cl, alc. 4.8%), Surfer IPA (33cl, alc. 4.8%), and Ocean Beer 0.0 (33cl, alc. 0.0%), each made from natural, high-quality ingredients, with product sustainability at their core and on a mission to connect people through a great beer that accelerates positive change in the ocean.

The story of Ocean Beer began in 2016 with three surfers in

Portugal – one Spanish, one Portuguese and one South African – who each shared the same two passions: beer and the ocean. The trio were becoming increasingly aware of the poor state of the waters they surfed in and so the idea was born – to brew and sell quality beer to fund the clean-up of their beaches.

In the face of a growing global climate crisis, this idea was the inspiration for Ocean Beer, which was launched in 2020.

Ocean Beer strives for low waste and sustainable production across all products, including labels made from 100 percent recycled materials, bottles made from over 70 percent recycled glass and all bottles and packaging being 100 percent recyclable. The full range is ethically brewed and vegan.

INDUSTRY NEWS

UK SHARK-FIN TRADE 'DEAD IN THE WATER'

On 12 May, the government signalled the end of the UK's involvement in the global shark-fin trade with an announcement that new legislation will require all imported and exported shark fins to remain attached to the shark carcass and only traded as a whole commodity.

The news has been welcomed by Bite-Back Shark and Marine

Conservation and its supporters, including wildlife TV presenter Steve Backshall MBE (and GO Diving Show headline speaker) and chef Hugh Fearnley-Whittingstall, who both endorsed the charity's No Fin To Declare campaign, calling for a post-Brexit ban of the personal import allowance of shark fins to the UK.

Before Britain left the EU, it had been bound by outdated legislation that permits anyone to carry up to 20kg of dried shark fins into and across European borders as part of their personal import allowance. According to Bite-Back, this loophole has been exploited by the shark-fin trade to legally 'smuggle' fins undetected for decades.

Graham Buckingham, campaign director at Bite-Back, said: "This news puts the UK at the forefront of shark conservation and represents a further blow to a global industry that is forcing sharks closer to the brink of extinction. We applaud the government for using Brexit to side-step this archaic EU legislation and instead lead the world in the conservation of sharks and the oceans. We hope and believe this announcement will encourage other European countries to impose similar constraints."

It's estimated that global fishing fleets hunt and kill 73 million sharks every year. As a result one in four shark species is now either endangered or threatened forcing populations of iconic shark species, including great whites, hammerheads, oceanic whitetips and threshers to a tiny fraction of those recorded 50 years ago.

Over the past decade shark fins – used as the title ingredient in shark-fin soup – have become one of the most-valuable seafood items in the world, a fact the charity says, has created a 'marine gold rush' to catch and separate sharks from their lucrative fins.

Shark-fin soup is widely regarded as a controversial dish. Not only are the cartilaginous strands from the fins tasteless, fishermen are known to cut the fins off the sharks they catch and throw the rest of the shark overboard to die.

Bite-Back first exposed the personal import allowance loophole in 2015. Alongside the detrimental environmental impact, the NGO also highlighted that no other item on the 'green channel' list compared in terms of volume or value. In fact, a 20kg consignment of fins is enough to make 705 bowls of shark-fin soup and has a black market value of around £3,600.

Spain, France, Portugal and the UK all feature in the top 20 shark fishing nations in the world. Remarkably though, for years, the UK has exported around 25 tonnes of shark fins to Spain for processing and onward sale to the Far East.

However, it will soon become illegal to import or export individual shark fins, making it extremely costly and inconvenient to buy and sell a product that is contributing to the decimation of vital shark populations.

Wildlife TV presenter and Bite-Back patron Steve Backshall MBE said: "This news is a fantastic outcome for shark conservation and the culmination of years of campaigning from Bite-Back. The government's decision to effectively ban the trade in shark fins will be significant in helping to restore the balance of the oceans. At the same time it sends a clear message to the world that shark-fin soup belongs in the history books and not on the menu."



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INDUSTRY NEWS

PADI DIVERS SET GUINNESS WORLD RECORD

On 28 April, the Atlantis Sanya Resort in China completed the challenge of the Guinness World Records title of 'The Largest Underwater Mermaid Show'.

Sanya Atlantis joined together with PADI, and with the combined efforts of 110 PADI Mermaid Divers and safety officers recruited from all over China, they completed the unprecedented challenge.

110 PADI Mermaid Divers were invited to gather, bringing an unparalleled beauty to the world. 90 percent of the mermaid performers were PADI Mermaid Instructors, and dozens of PADI professional safety officers escorted the underwater performers. Professional medical and rescue teams were also on standby.

The Sanya Atlantis and the PADI China teams completed the planning, execution and logistical support in the months leading up to the show. After intensive underwater training, joint rehearsals and exercises, and constant adjustments and corrections (from the director to the actors, security officers, camera team and logistics), everyone was ready. All involved displayed the most-professional ability and attitude.

The challenge was held in the most-distinctive area of Atlantis in Sanya – Ambassador Lagoon. The transparent acrylic viewing curtain wall is 16.5 metres long, 8.3 metres high, and 0.65 metres thick. It contains 13,500 tons of sea water – and, on 28 April, 110 mermaids. Performers needed to enter the water at the same time and successfully complete the challenge of the Guinness World Records title of 'The Largest Underwater Mermaid Show'.

On the morning of 28 April, all the participants had completed preparations. Ms Wu Xiaohong, the first Chinese certification officer of the Guinness World Records, read out the challenge rules, and under the witness of everyone, the challenge began at 9.30am. The changing formation, beautiful posture, and shocking performance created an atmosphere of amazement.

At the end of the performance, Xiaohong announced the challenge result: "Atlantis Sanya successfully challenged



the title of 'The Largest Underwater Mermaid Show' in the Guinness World Records!"

The PADI Mermaid programme, which was introduced in late-2020, is designed to provide water-enthusiasts an additional outlet for exploring their underwater passion. Today, there are more than 600 PADI Mermaid Instructors and 50+ PADI Mermaid Centres in China.

"Mermaid, in its root-grass form, has been around for very long, but it was not until recently (three to five years ago) that it started to become more systemized. It took off in China like wild fire," says Yan Lou, president of PADI China. "Within four short months after the official release of the new PADI Mermaid programme in China, mermaid now accounts for 30 percent of local PADI certifications in China."

INDUSTRY NEWS

DIVELIFE AND CANARY DIVERS ANNOUNCE COALITION

Oli van Overbeek from DiveLife and Kris Fearnley from Canary Divers have announced a collaboration between the two entities. As both stores have become a victim of their own individual success, it was decided to share resources and support one another's strengths, a model that Oli has been keen to push for some time now. In practical terms, DiveLife hereby takes lead in all retail sales for both stores, whereas Canary Divers takes lead in all recreational training and club activity for both stores and clubs. This allows an unparalleled offering in quality and customer support.

The combined entity offers:

- Cylinder testing
- Equipment Servicing for all major brands
- Recreational training at both facilities
- Wing and long hose available
- National and international club trips
- Access to two RAID instructor trainers, and a myriad of experienced instructors and Divemasters
- A comprehensive membership scheme supported by both stores (for one membership fee)
- All major brands – Santi, Halcyon, Mares, Apeks, XDEEP, Ammonite, Divesoft, Poseidon, Razor, Shearwater, Suunto, etc
- Technical and rebreather training available to instructor level

GALAPAGO'S ICONIC DARWIN'S ARCH COLLAPSES

Time waits for no man, or rock structure in this case – the iconic Darwin's Arch in the Galapagos has succumbed to erosion and collapsed.

Guests on the Galapagos Aggressor III experienced this unique event unfolding before their eyes at around 11.20am on Sunday 16 May. The fabled Arch stood off the coast of Darwin Island, and has been the focus of innumerable photographs over the years.

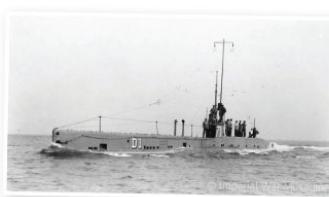
There are now only two pillars remaining, and according to Aggressor, some in the dive and travel industry are already referring to them as 'The Pillars of Evolution', while others have heard the title 'The Columns of Darwin'.

WORLD WAR ONE SUBMARINE GIVEN PROTECTION BY HISTORIC ENGLAND

The wreck of submarine HMS D1, which lies off the coast of Devon near Dartmouth, has been given protection by Historic England.

HMS D1 used to protect the coast around Dover at the start of World War One, before it was relegated to training duties. The submarine was then deliberately sunk in 1918 to be used as a training target for the Royal Navy, and was discovered – largely intact and upright on the seabed – by a team of divers who were looking for German U-boats.

Lead diver Steve Mortimer said: "Every diver dreams of identifying a historically important wreck. It's tremendous that D1 is now protected but divers can still visit."



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Ask DAN

DAN medical specialists and researchers answer your dive medicine questions

Q: Are deep stops always recommended for recreational dives?

A: The introduction of a deep stop at half of the maximum depth reached during recreational dives during the ascent phase seems to:

- Significantly decrease inert gas bubbles detected by a Doppler scan after a dive.
- Reduce tension of inert gas in 'fast' tissues, which is an important fact to correlate with gas exchange happening in the spinal cord.

Authors of scientific publications regarding this topic concluded that a deep stop can decrease the likelihood of suffering from decompression sickness for recreational dives within the depth of 30 meters and without mandatory decompression stops.

Q: I have a rhinoplasty surgery scheduled to repair a deviated septum. What can I expect for returning to diving after the procedure?

A: There are two types of rhinoplasty (commonly known as a nose job): cosmetic and reconstructive. Cosmetic rhinoplasty seeks to improve the nose's appearance and is generally less invasive than reconstructive surgery. Reconstructive rhinoplasty restores the form and function of the nose and corrects traumatic nasal injuries. A reconstructive procedure also treats congenital nose defects and deformities and breathing problems from a deviated septum or other nasal abnormality.

The average healing time before returning to diving after cosmetic rhinoplasty is about two months and about three months for reconstructive rhinoplasty, provided there are no complications. Your surgeon can give you an exact date based on how well the surgery goes and how well you heal. Discuss with your surgeon issues such as equalising the middle ear and sinuses, whether Valsalva techniques are permitted and the impact of wearing a mask.

Once your surgeon releases you to return to diving, start with several short, shallow dives in a controlled environment such as a pool to see if you have any problems equalising. Using scuba isn't necessary; freediving is enough to determine if your ears or sinuses will give you any problems after the surgery. If the initial trial dives go well, further diving shouldn't be an issue. Be prudent about your diving behaviour early in your return – don't plan your first dive trip after surgery to a remote location or where you are unsure of access to good medical care.

Your equalisation technique may change depending on how well you're able to equalise. If you prefer the



“ The average healing time before returning to diving after cosmetic rhinoplasty is about two months and about three months for reconstructive rhinoplasty ”

Valsalva manoeuvre, consider using a different technique in the beginning to avoid pinching a nose that's just been reconstructed. Many DAN members have reported decreased problems equalising after various types of sinus surgery.

If you have any difficulty equalising the first time back in the pool, your sinuses may not be ready to withstand the pressures associated with diving, so allow yourself additional healing time.

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TIGERS

In the final instalment of his three-part series about diving with three of the world's most-spectacular sharks in the Bahamas, Don Silcock heads to Grand Bahama to come face-to-face with majestic tiger sharks

PHOTOGRAPHS BY DON SILCOCK



Tiger Beach is firmly established as one of those global diving destinations that almost everybody has heard of, with that fame largely derived from the many published images of its most-celebrated visitor – the tiger shark (*Galeocerdo cuvier*).

Tigers are considered one of the 'big three' most-dangerous sharks and, along with the great white and bull shark, are believed to be responsible for the vast majority of unprovoked attacks on humans.

Renowned for their inherently predatory behaviour where, much like their terrestrial namesakes, they close in on their intended prey slowly and silently before pouncing with deadly efficiency, they are also infamous for consuming almost anything and are often referred to as the 'garbage cans of the sea' after inspection of dead tiger's stomach contents have revealed everything from sheep, goats and even horses to bottles, tyres, license plates and (believe it or not) explosives!

Tiger sharks are one of the ocean's largest sharks and typically grow to between three to five metres in length and weigh in at around 350kg to 700kg.

They are formidable creatures with an intimidating reputation – so how can it be that week after week in the

season, dozens of divers enter the waters of Tiger Beach for open-water, eyeball-to-eyeball encounters?

TIGER BEACH ISN'T A BEACH...

Physically, Tiger Beach is about a square mile in overall size and is located on the western edge of Little Bahama Bank, about 30km west of the town of West End on the north Bahamian island of Grand Bahama. And... the first thing you need to know about Tiger Beach is that it isn't one – it is actually a shallow sand bank that looks like there is a beach nearby.

The general area used to be known locally as Dry Bank and was first dived by Captain Scott Smith, of the Dolphin Dream liveaboard, back in the late 1980s. But who actually started the whole shark diving thing is the subject of great discussion!

Scott Smith would seem to be who started tempting sharks into the back of Dolphin Dream on those early trips and the first published tiger shark images apparently were captured from the boat, while the legendary Jim Abernathy, owner ►

HARKS

of Grand



BAHAMA

of the Shearwater liveaboard, seems to be the person who first took bait boxes into the water in late-2003. Jim is generally credited with starting the process of tempting tiger sharks into the bait boxes and was the person who renamed the area Tiger Beach.

Whoever did what does not really matter now, but what does is that we, as divers and underwater photographers, owe a significant debt of gratitude to Scott Smith and Jim Abernathy for creating what has become the premiere location in the world for tiger shark encounters.

UNDERSTANDING TIGER BEACH

The Bahamas are said to take their name from Baja Mar - Spanish for 'shallow seas' - because the archipelago of 29 main islands and roughly 700 cays that form the country reside on top of two main limestone carbonate platforms called the Bahama Banks. The Great Bahama Bank covers the southern part of the archipelago and Little Bahama Bank covers the northern part, with incredible channels as deep as 4,000m separating the two. Those channels are flushed with the clean rich waters of the Atlantic Ocean as the Gulf Stream makes its way through the Caribbean and then up the Florida



Tiger shark and the feeder

“ Tiger sharks are intelligent and curious animals that tend to approach divers because their sensory systems pick up the tiny electrical and audible signals emitted from our instrumentation and photographic equipment ”

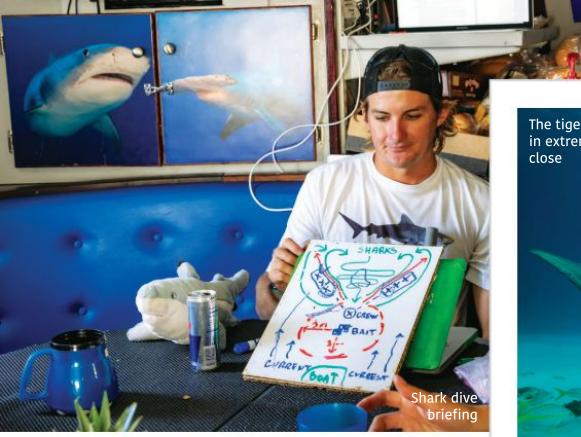


Grand Bahama has a colonial look topside



DON SILCOCK

In more normal times, Scuba Diver's Senior Travel Editor Don is based from Bali in Indonesia, but is currently hunkered down in Sydney... His website www.indopacificimages.com has extensive location guides, articles and images on some of the best diving locations in the Indo-Pacific region and 'big animal' experiences globally.



Massives of
sharks swarm
the bait box



coast. It is the combination of those rich waters and the shallow, sheltered cays and reefs of the Bahama Banks that make the area so prolific.

Satellite tagging of tiger sharks in Bermuda has revealed two really interesting facets of their behaviour – firstly, they spend a lot of time at the surface, which is believed to be related to feeding and hunting patterns, and secondly, their migration patterns are very consistent, with five to six months of the northern spring and summer months spent in the open Atlantic Ocean to the north and west of Bermuda, followed by a migration south to the Bahamas where they spend the autumn and winter months.

It is believed (but not yet proven) that the months in the open ocean are related to mating and feeding on the migratory loggerhead turtles that pass through at that time of year, while the time spent in the Bahamas is related to gestation, as most of the tigers observed at Tiger Beach are females and many of them are pregnant. Clearly, if the Tiger Beach area is the 'tiger shark nursery' it appears to be, it is incredibly important to the long-term conservation of these animals, which are currently on the IUCN Red List as 'Near Threatened' and have a declining population globally. ►

The business
end of a tiger





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“ The general area used to be known locally as Dry Bank and was first dived by Captain Scott Smith, of the Dolphin Dream liveaboard, back in the late 1980s ”

Tiger shark



Sharks on the surface pre-dive

EYE OF THE TIGER...

Arriving for the first time at Tiger Beach is somewhat of a soul-searching experience. Because it's one thing to read and hear about the sharks that congregate there, but quite another to actually be there preparing for that first dive. Particularly when there are up to a dozen two to three metre sharks circling the back of the boat and lots of others visible in the clear waters!

The briefings provided on these trips are both extensive and exemplary, with everything clearly explained in a logical and non-sensational way - from how to prepare to go in the water, how to enter the water and what to do when under the water. But the fact of the matter is that waiting for a gap in the patrolling sharks and then carefully rolling in among them is not something you do on a daily basis...

Once underwater however, nerves settle and an awareness starts to form for the sharks and their behaviour patterns. From the pushy way the Caribbean reef sharks approach

and tend to work in a bit of a pack, to the sneaky way the large lemon sharks come in low to the bottom with a leery look straight out of one of those horror movies. But that new awareness fades to grey when the first tiger shark arrives. Tigers have an incredibly commanding presence that indicates they know their place at the top of the food chain. They move slowly and carefully, checking out what is going on and the other sharks clearly defer to them.

The protocol at Tiger Beach is not to even worry about the lemons and reef sharks, as the only real chance of being bitten is if you break the cardinal rule of getting too close to the bait box.

Even then a bite is unlikely to be life-threatening, but you should always know where the tigers are and you should always face them - literally keeping the eye of the tiger in view at all times! ▶

Feeder in action





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YOUR NEXT
ADVENTURE!

“ Where you
can be in the open
water in ‘relative’ safety with
so many large and potentially
dangerous sharks? ”



Eye of
the tiger



The tigers
dwarf the
divers

Tiger sharks are intelligent and curious animals that tend to approach divers because their sensory systems pick up the tiny electrical and audible signals emitted from our instrumentation and photographic equipment.

They will tend to bump with their snouts as they investigate the stimuli further and there is always the chance that will use their mouth and, as their jaws are so powerful, even a gentle nip would be life-threatening.

So, photographers are instructed to use their cameras as a shield, with the strict instruction to let go if a tiger decides to do a taste test – but remember to press the video button...

PETTING ZOO?

Being in the open-water with so many large and potentially very dangerous sharks verges on a life-changing experience. It really is a big deal to be there and the first few days are a kaleidoscope of feelings – fear, awe, intimidation, excitement and an incredible sense of adventure at what you have done.

Then a degree of complacency starts to settle as you begin to think that maybe these animals have simply been

misunderstood all along and they are really just kind and gentle creatures...

This for me is when Tiger Beach becomes dangerous, because you are in a very special place where these creatures are both protected and well fed naturally, plus they get the snacks from the bait box.

So, you are not really seeing them in their natural environment and, in a way yes, it is a kind of petting zoo.

OR THE REAL DEAL...

Tiger Beach is quite unique in that there really is nowhere else like it. Where you can be in the open water in ‘relative’ safety with so many large and potentially dangerous sharks?

The relative in safety comes from the fact that the sharks at Tiger Beach have basically become accustomed to the presence of divers and, because they have plenty of other things to eat, they do not regard us as a principal food source.

So... while it is absolutely not a completely natural setting, there is simply nothing else like it if you want to see these creatures up-front and personal. It is the real deal! ■

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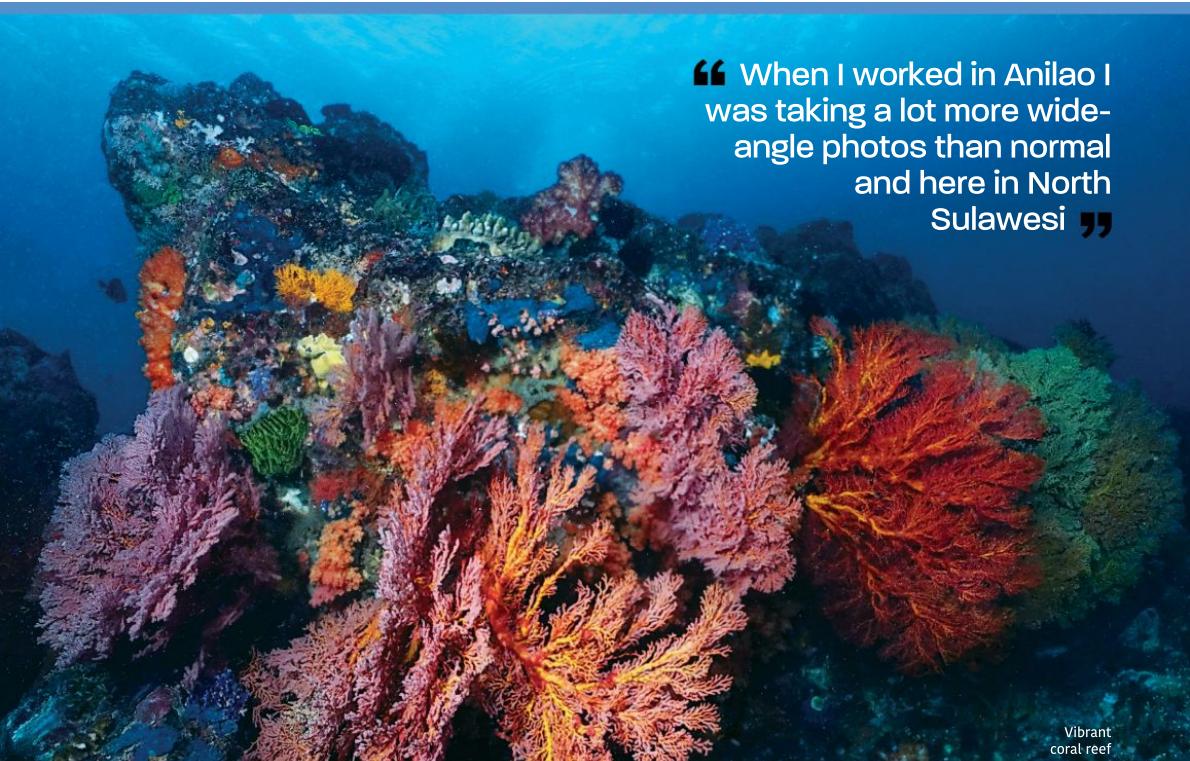
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Q&A: BEN SARINDA

From humble beginnings, Ben Sarinda has emerged as one of the hottest underwater photography talents in SE Asia. He talks to Scuba Diver about the challenges of finding macro critters, and how he made the leap from in-demand dive guide to world-class underwater photographer

PHOTOGRAPHS COURTESY OF BEN SARINDA

“ When I worked in Anilao I was taking a lot more wide-angle photos than normal and here in North Sulawesi ”



Vibrant coral reef



Gobies sheltering in glass



Hairy frogfish

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Ben heading off on a dive

Blenny



Mantis shrimp

Q: When we first met you many moons ago, you were already an expert dive guide at the famed KBR in the Lembeh Strait, but this is not where you started, is it. Tell us how you first became involved with the dive resort, and how you went from that to the diving side of things.

A: I started working at KBR in 1996 in the initial construction stage of the resort. Once the management discovered I knew about plants, they transferred me to the gardening department a few months later. In 1999, I moved to the diving department. Being an island person, I really had a big interest in learning to scuba dive and because my English was getting better, the resort gave me a chance.

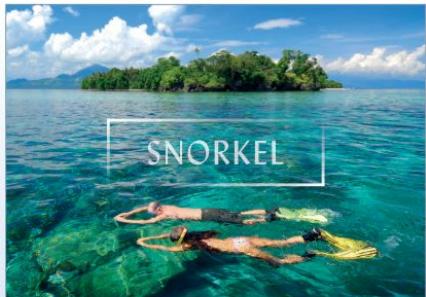
I started first learning the compressor and how to be a boatman, before starting my wonderful journey underwater on my way to becoming a dive guide.

Q: From that inauspicious start, you became one of the most in-demand dive guides in the region, and your ability to locate weird-and-wonderful macro critters became legendary. How did you hone your skills in spotting these tiny creatures?

A: Finding critters is not just about having good eyesight. There is, of course, some luck involved but you really need to understand their behaviour and what kind of environment they live in. When hunting for critters it is about going slow and when you find something, it is very important to study their actions. ▶



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*COVID restrictions may result in a change of operation dates.



Q: You accompanied many world-famous underwater photographers on their mission to capture epic images of rare creatures. Who has been your biggest inspiration and mentor?

A: I was incredibly lucky to have the chance to guide and work with many world-famous photographers and videographers. I learned a lot from Ned and Anna DeLoach about marine behaviour and identification, and it was a great feeling to be able to find many of the critters for their books. Working with David Doubilet and National Geographic was an amazing experience. This was before digital photography, so on every dive we would bring down 1214 cameras and housings. It was at this point I really decided that I also would like to take underwater photographs. I must also mention the very talented William Tan, because he taught me so much about macro and wide-angle photography, and I was very lucky to be involved in many assignments with him.

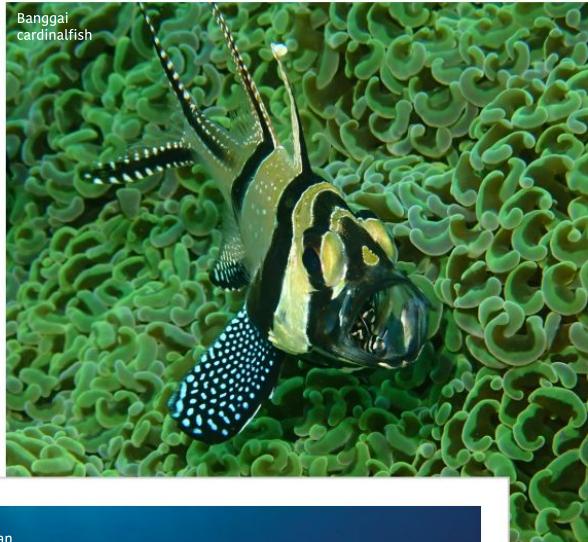
Q: What made you finally make the move from guiding photographers to actually taking the photographs yourself?

A: Once I was comfortable taking underwater photos, I found a real pleasure in teaching people how to do it. Because camera technology has grown so much it is now possible to get really great results with small compact cameras. I still do enjoy hunting for critters but now I usually have a camera with me. Most divers these days normally have a camera with them underwater.

I believe it is especially important to get across the message about how to take a photo without having a negative impact on the underwater world. ▶

“ I really enjoy making people happy. For a lot of our clients, it is a long distance to come to Lembeh ”

Banggai cardinalfish

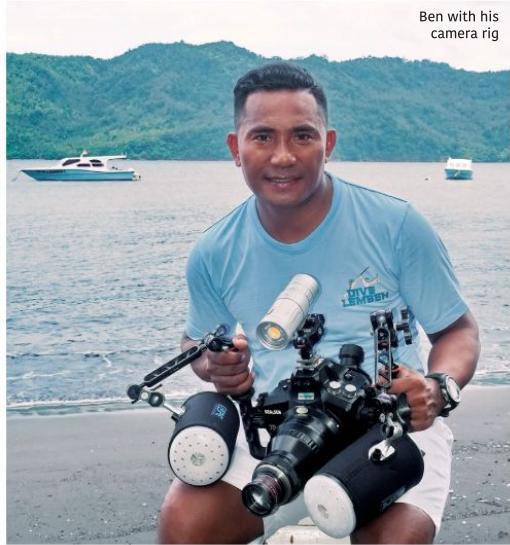


Cardinalfish swarm over an anemone





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Ben with his camera rig

Q: You are becoming increasingly well known for your amazing macro images. What is it about macro photography that keeps you interested?

A: Photography is an art and there are many ways to present a critter. I always look at different ways to take a picture. I am really enjoying using torches to light a subject rather than a traditional strobe. Sometimes I will use five different dive lights to take one picture.

Q: Is it mainly macro that captures your imagination, or do you dabble in wide-angle as well?

A: I do also enjoy taking wide-angle photos. When I worked in Anilao I was taking a lot more wide-angle photos than normal and here in North Sulawesi, the diving areas of Bunaken and Bangka are full of great wide-angle material. Before COVID-19 we opened our new operation, Dive into Raja Ampat, which has amazing colours as well as some big underwater subjects like sharks and mantas. I am looking to get my vaccine soon so I can get back there and get more wide-angle practise. The mantas are moving much more quickly than a nudibranch!

Q: As we always ask in a Q&A, what is your most memorable moment while diving?

A: My most-memorable experience underwater was when diving in Taiwan using a semi-dry wetsuit. It was a totally new environment and extremely cold to me - 16 degrees C was a real shock to my body, and I have never felt so numb in my life. I have total respect to all the divers in Europe who dive there every week. I really do not think I could do it.

Q: On the flipside, what is your worst diving experience?

A: My worst experience underwater was early in my photographic career. I was totally focused on a skeleton shrimp and accidentally put my knee onto a devil fish. The pain was unbelievable. From this point I realised how important it is not to have tunnel vision when taking photos and be 100 percent aware of your surroundings.

Q: You are currently juggling a dual role at the Dive Into Lembeh resort – resident Photo Pro and Guest Relations Manager. What do you enjoy the most about both positions?

A: I really enjoy making people happy. For a lot of our clients, it is a long distance to come to Lembeh. I feel it is especially important for them to have a smile on their faces above and below the water.

Q: What does the future hold for Ben Sarinda and Dive Into Lembeh?

A: I never want to stop learning. Even today I still learn new tricks and techniques about underwater photography. As I become more confident in my ability to teach different nationalities, I would like to soon start to run my own photography workshops here in Dive into Lembeh and Dive into Raja Ampat. ■





LUNA MINI TORCH



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WHY YOU SHOULD BUY YOUR OWN DIVE KIT...

Mark Evans discusses the advantages of owning your own equipment rather than renting when you are on your diving holiday, explaining all the reasons why you should invest, while trying to help you avoid some of the pitfalls we have all encountered when buying dive kit for the first time

PHOTOGRAPHS BY MARK EVANS

It has to be said, nothing compares with having your own set of diving equipment. There is just something comforting about slipping into gear that you know and are familiar with before heading off on your next underwater adventure.

There are lots of reasons why it is better to have your own kit rather than rent when you are at your dive destination. One, you know the equipment has been well looked after by yourself; two, you know you have had it serviced regularly – or you should have! – three, you know how it works and, where applicable, where all the controls are, and four, it will fit you perfectly. There is a fifth reason in these times of COVID-19 – you will be the only one who has used it! Just be sure to spend your cash wisely. Don't buy budget, as you will only outgrow it in a few years and be wanting to upgrade. You are far better off aiming for mid-range and above, so that you can get many years

of service out of it. I've said it before, but it is worth mentioning again – my mantra is 'buy once, buy wisely'.

Most rental equipment should be well-maintained and in good condition, but I have seen some shocking examples in all my years of diving around the world, and to be honest, I'd rather not wait until I arrived at a location to see if the rental kit is up to standard or not.

Even if the rental gear is up to spec, you will still encounter the issue that you will undoubtedly be using different equipment at every location you go to, as dive centres have their own brand preferences, and so on. You might be in a Scubapro BCD one place, an Aqualung the next, and then a Mares at another. This applies to every piece of kit, from mask and fins to regs, BCD, wetsuits, dive computer, etc. As well as the hassle of having to get sized up with all the kit on your first day, you will then spend the first few dives getting used to the fit and feel of the rental gear, learning where all the controls are, and perhaps more importantly, how well they work, whereas when you have your own familiar gear, you can hit the water far more confidently.

Let's look at particular pieces of kit. The humble mask. Yes, it is a basic piece of kit, but having a comfortable mask that fits you well and doesn't leak will make such a



difference to your diving experience. Often dive centres will have a selection to choose from, but having your own mask is definitely the way forward – and even more so if you are one of those people who needs glasses, and might require a prescription mask. I have yet to see any dive centre with those for rent.

Next, let's talk regulators. These are a core element of your diving equipment, as without it you are not going to be breathing underwater. You want a regulator that has a comfortable mouthpiece, breathes well, and depending on your personal preference, has controls such as a venturi lever and/or cracking resistance control so you can tweak the breathe to your liking. I have to say, I own regs that have no controls, and others that offer both, but to be honest, once I have got the latter set to how I like them, I rarely touch the controls. This is all down to personal choice. Most rental regs will be entry-level models, though I do know of places where good-quality mid-range regs make up their rental fleet. When it comes to your own kit, regs are one item that it is vital you know it has been regularly serviced and is working well – I have had some lousy wet and asthmatic breathes in my time, and it is not pleasant, especially at depth and working hard in a current, for example! You can also fit your own mouthpiece to your own regulator. I love the Aqualung Comfobite, but some people prefer those that mould to your own jaw shape, such as the SeaCure. With your own reg, you can customise as you wish.

Next up – BCDs. Whether you opt for a jacket-style BCD, a back-inflate BCD, or a backplate-and-wing, it is good to have one that fits you perfectly. Not only will your own BCD fit you properly, but you will also be instantly familiar with the pinch clips on the shoulder straps and waistband (if it has any), the operation of the integrated weight systems (if fitted), where the D-rings are, how to get into any pockets, the location of the pull dumps, and the controls on your power inflator. Some power inflators are rapid, others quite slow. Some dump valves vent extremely efficiently, others do not release gas so quickly. Some integrated weights use pinch-clips, others just pull free. Most rental BCDs will not have integrated weight systems, so you will probably end up wearing a weightbelt, and personally, I really hate these. Owning your own BCD and being familiar with its operation is probably one of the most-important parts of your gear arsenal, as you will be so much more relaxed and comfortable underwater on your dives, your buoyancy control will come more naturally, and at the end of the day, being at one with the fishes is what it's all about.

Let's talk fins. Fins are another vital component of your dive equipment set-up. Without them, you are not going to be going anywhere! You want a pair of fins



that offer a decent amount of thrust for the effort you put in, that give you a degree of manoeuvrability – back finning, frog kicking, and so on – and that are comfortable. Nothing worse than fins being tight on your feet – a sure-fire way to get cramp on a dive. Most rental fins tend to be pretty basic, and when the going gets tough in a current, ▶

“ Aim for lightweight travel-friendly regulator, BCD and fins to avoid eating up too much of your valuable luggage allowance, which seems to be ever-shrinking ”



you will definitely be happier having your own fins on your feet. Short, stumpy paddle fins are currently en-vogue, as they are the preferred fins for tech divers, but go with whatever works well for you. If you like longer paddle fins such as the Mares Avanti Quattro, go for it. Personally, I have been using Force Fins for over 20-odd years as my go-to fins both at home in the UK and abroad, but these are a real love-them-or-hate-them fin. The only fins I would say to steer clear of are freediving fins – I do see people scuba diving in these, but they are so long they offer no manoeuvrability and are next to useless in confined spaces, such as a wreck or a cave. Whether you go for full-foot fins, that you wear over a bare foot, or open-heel fins you wear with a boot, depends on personal preference and where you are going to be diving – if you are shore diving in Malta, for instance, you will want boots!

Next, exposure protection. Depending on where you are diving, rental suits can range from shorties to full suits, and even drysuits in certain places, like Iceland, for instance. But let's focus on wetsuits, as they are by and large what you will encounter in rental stock. Aside from the faff of finding a suit that fits you well, you are going to be wearing a suit that has been peed in. Remember, there are two types of diver – those who pee in their wetsuit, and those who lie about it. Now rental suits can be washed and rinsed to death, but I much prefer being in a suit that I know has only been peed in by me! Owning my own suits, I also like being able to pick and choose the right suit for a particular destination. I rotate between my 3mm full suit and a 5mm full suit. I am not a fan of shorties, and I don't like thick semi-drysuits of 7mm and above. Everyone has their own tolerances for being cold, but I prefer to be warm. I will wear my 3mm if it is 26 degrees C and above, I'll be in my 5mm down to about 22 degrees C, but anything below that, I break out one of my drysuits! A well-fitting suit can keep you warm and comfortable with minimal flushing, and nothing is worse than an icy blast of cold water hitting your lower back.

Finally, let's talk dive computers. More than any other piece of dive gear, you need to know how your dive computer works if you are going to benefit from it, gaining longer, more enjoyable and safer dives. If you end up with a different rental brand and model every time you go diving, you will never get the full potential out of it.



If you buy your own computer, you can learn how it works, discover all of the functions, get to know the menu, learn the navigation, get to grips with the screen display, and so on. I'd suggest getting something that can at least cope with multiple nitrox mixes and full decompression, so that you will not soon outgrow it. You might never end up using some of the functionality, but it is nice to know it can do it if you do end up tempted by tech, for instance.

So that's your mask, regulator, BCD, fins, dive computer and exposure protection suit. Other things worth building into your diving arsenal are a DSMB and spool or reel, a snorkel, a torch or two, a few cutting implements, a mesh bag, and of course, a dive bag to haul it all about in.

Obviously, one thing to bear in mind with all of the above is where you are going to be diving. If you are potentially venturing into cold waters, either at home or on a trip, then you will want a regulator that can handle freezing temperatures. If you are only planning on diving on foreign holidays, bear in mind the weight of your chosen equipment. Aim for lightweight travel-friendly regulator, BCD and fins to avoid eating up too much of your valuable luggage allowance, which seems to be ever-shrinking.

Now if you are in the market to start assembling your own diving equipment, you might be wondering where to begin, as not that many people go out and buy an entire arsenal of diving gear in one fell swoop. In a future issue, I'll let you know what I consider the first three dive equipment purchases for new divers. The UK is just starting to open up out of COVID-19 restrictions, and foreign travel is on



the horizon, so this is a prime time to do some research - chat to your local dive centre, get some advice from your instructor - and start assembling your own dive kit ready for when we are able to get out there and hit the water again, be that in this country or abroad! ■



“ Owning my own suits, I also like being able to pick and choose the right suit for a particular destination. I rotate between my 3mm full suit and a 5mm full suit. I am not a fan of shorties, and I don't like thick semi-drysuits of 7mm and above **”**

UNDERWATER **PHOTOGRAPHY**

WORKING THE SUBJECT

Following his last article on capturing subject behaviour in macro images, Martyn Guess provides some insight into, and also tips on, working the subject in order to get the best out of the photographic opportunities we find underwater

PHOTOGRAPHS BY MARTYN GUESS

How many times have you got back on the boat or to shore after a dive when you have just experienced a really amazing photographic opportunity and have been unhappy with the images you came back with?

I used to find myself saying 'if only I had taken the shot using a different technique or from a different position, or lit it better or in a different way...' By then the moment and the opportunity has passed. You might be lucky enough to go and do the same dive again and find the same opportunity, but most often this this just doesn't happen. Maybe the subject has moved on, the behaviour you were looking at has stopped, or the light is totally different and the experience of what you were looking at has become just a memory.

The best way to try and avoid these disappointments (once you have mastered the various ways you can shoot with your camera) is to really work the subject when great photographic opportunities arise. By this I mean to try different camera settings, different techniques and angles, different methods of lighting on the same subject or scene in order to try and record a series of different-looking images and make the absolute best image you can of what is in front of your lens. If you adopt this approach, your portfolio of images of the same or similar subjects or scenes will be more diverse, with many different-looking images. You can then pick out what worked best and is the most pleasing to you. Rather than sticking with the same angle of view, camera settings or lighting for example, you are mitigating the risk of ending up with images that all look similar.

You will also be minimising the chance that the images you took on the dive all display potentially similar creative issues, such as poor lighting, distracting backgrounds or poor composition. By taking a series of shots with different settings and techniques and moving your position, you will have hopefully made the best of the opportunity.

The way that I adopt this approach is to plan ahead of my dive what I want to try and achieve in the limited time

Image 1 – Slow motion panned shot of a Grey Seal pup



that I will have underwater. Most of the time I will know what I intend to try and photograph. A shark or seal dive, a particular reef scene or I will have planned a particular time of day for different light, or a macro dive with specific subjects common in the area, etc. If you think beforehand about what you might see on your dive or what you want to look for, you will have the preparation time to be able to choose the best lens and lighting set up and maybe take the right equipment with you be it diopters to magnify or off camera strobe set ups, snoots, etc.

I also look avidly at other photographers work in books and magazines or on social media and if I like something in particular, I will think about how they captured their image, and this might then form part of my dive plan. I often write messages to myself which I stick to the back of my camera housing to remind myself when I am immersed underwater!

As an example of this approach - when I went to photograph some seals last summer, I had in mind capturing them as part of the underwater reef scene rather than

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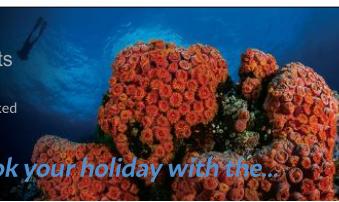




Image 2 – Slow speed 1/8 sec and front curtain sync

just close up (my portfolio of seal images seemed to be mainly close-ups of their delightful faces). I also wanted to experiment with some motion blur, slow speed images of the fast-moving pups as I hadn't seen much of this technique with this particular subject (image 1). Also, as there was the opportunity to be very shallow at times during the dive, I planned to take some available light shots, which give a very natural colour to the images.

It is easy to forget the plan once you have a subject in front of you, hence the clear messages on my housing! As soon as the first seal arrived in front of me, I started taking standard settings images, as I am always keen to get a shot in the bag. After the first few minutes when the seal moved away, I had a chance to think about my plan for the dive. I set up my camera to a low speed of 1/8th sec, a relatively small aperture and a lower ISO and strobe power to compensate for the slow speed and the consequential amount of light that would be hitting the camera's sensor. I set the flash to front-curtain sync - to make sure the blurred movement streaks went backwards from the subject - and prepared to swing or pan the camera through the seals as they approached to try and capture their movement (see image 2).

After a spell of this and getting some reasonable results, I moved on and thought about another approach and I noticed that there were quite a few seals doing a fly by in the medium distance before coming in closer. The seals doing

Image 4 – Scenic shot – no strobes, with Seals in the distance



this were in shallower water, so I thought this would give me the opportunity to take some natural light images of the reef scene, with the seals as a focal point, but further away than I normally shoot them. I looked for a view that was reasonably photogenic and turned off my strobes and played around with my settings to get the best exposure of the reef scene lit only by available light. In this type of shot I set the camera for maximum depth of field with an aperture of around F16 and quite a fast speed to capture the moving seals. My ISO had to be adjusted up to around ISO800 to compensate even though I was quite shallow. I then simply waited and every few minutes a seal came into view. The camera shutter was set up for eight frames a second so that I could continuously shoot as the seals flew past (See image 3). When the seals moved in closer, I was able to continue with available light shooting without any strobe lighting to get some very natural colours lit by the strong surface sun light (see image 4).

After a while, the sunlight disappeared, and it became quite overcast so I resorted to close up shots of the seals using more traditional strobe lighting with the strobes positioned at 9 and 3 o'clock and relatively close to the housing as I intended to get close to the subject. ▶



Image 3 – Ambient light – no strobes



Image 5 – Blue Ribbon Eel, backlit with torch and slow speed and Snoot light on the front of the subject



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UNDERWATER PHOTOGRAPHY

Image 6 – Snoot lit with high speed and small aperture to create black background



Image 7 – Open aperture F7.1 to soften the background



When I got back to the boat and looked at the images I had captured, there was a wide range of different types of images. I skipped through the close-up shots quickly as I have seen loads of these before and quickly homed in on the slow motion and wide-angle reef scenes and out of this dive two or three of the images have done well in competitions or have been published.

I had the same plan when last in Bali with a group of photographers. There is one site where there are common sightings of blue-ribbon eels and I have dived it many times – Batu Niti, close to the Seraya resort. As I knew what to expect on the dive, I decided to do just a blue-ribbon eel dive and told the guide that was my plan and I prepared myself mentally to what I was setting out to achieve. The idea being to try some different lighting techniques, snooting and backlighting as well as full-on face shots and open and then closed apertures to either blur the often-distracting background - the eels live among the debris of the sea bottom on the edge of the reef, or to darken the background to hide it (Image 5 shows the subject backlit with a torch while using a more open aperture and a snoot light at low camera speed which enabled the background to show). By varying the speed the background became darker with a higher speed (image 6). I also shot some images with an open aperture of around F7.1 which gave a nice bokeh background and softer subject (Image7). I then altered my position to get some full-on face shots combining this angle with either a small or open aperture to get different effects (see image 8).

The next time you dive with a camera, think before you go about what sort of shots you want to achieve and then during the dive really work the subjects or scenes you come across – it will be really worth the effort! ■

Image 8 – Open aperture to create an “arty” bokeh shot – full face



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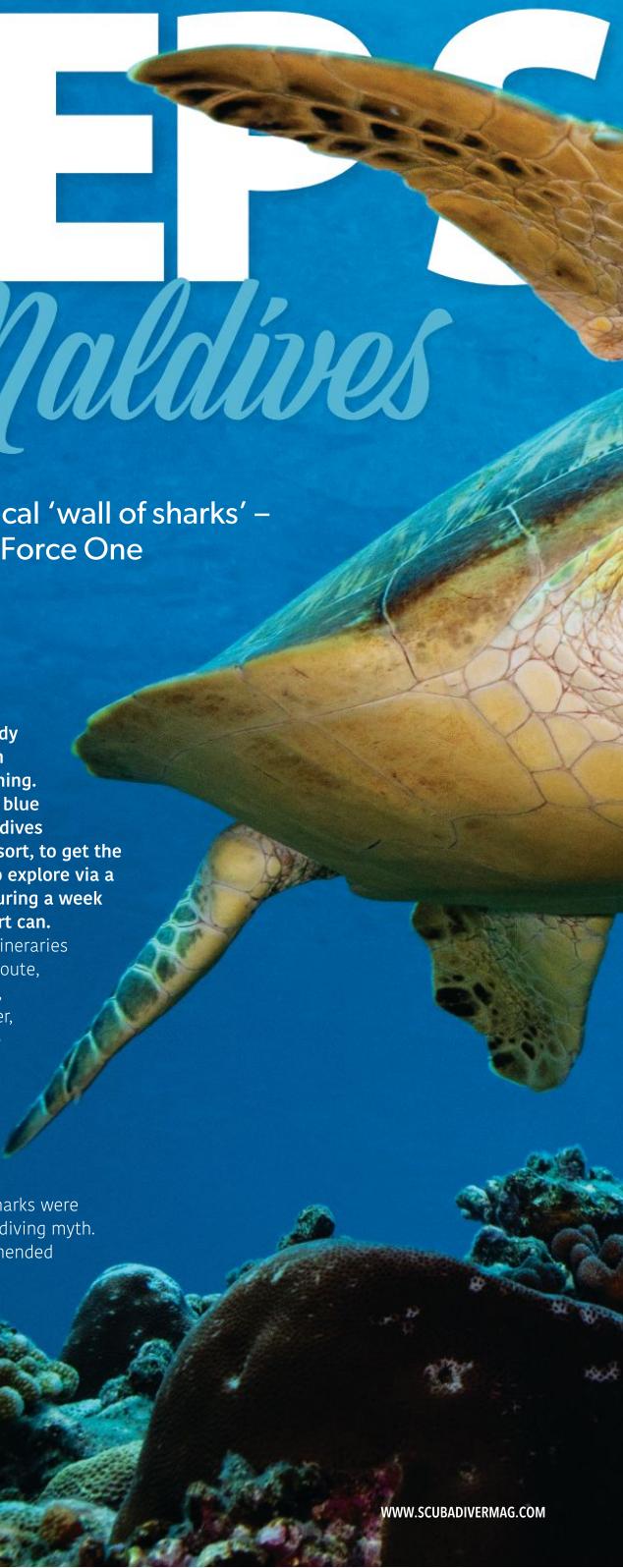
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DEEP *in the Maldives*

A large green sea turtle is the central focus, swimming gracefully over a vibrant coral reef. The turtle's head and front flippers are visible, showing its textured skin and strong musculature. The background is a deep blue ocean, and the reef below is composed of various hard and soft corals in shades of orange, yellow, and brown.

Byron Conroy heads to the Maldives in search of the mythical 'wall of sharks' – would his week on the luxury Blue Force One liveaboard be a success?

PHOTOGRAPHS BY BYRON CONROY

When people think of the Maldives, they immediately think of paradise – white sandy beaches and blue oceans. The resorts with over-water bungalows and all-day sunbathing. However, for a diver it's all about what lies beneath the blue ocean surface. I have stayed in island resorts in the Maldives before, and while the diving can be very good from a resort, to get the real true taste of variety the Maldives offers, it's best to explore via a liveaboard. The sheer distance a liveaboard will cover during a week will offer much more from the diving than any one resort can.

Dive seasons in the Maldives are around two different itineraries – last time I was there I took the classic 'Best of Maldives' route, the diving was great and we saw a wide variety of subjects, including everyone's favourites, sharks and mantas. However, after discussing the trip with the local guides, they told me that if I wanted lots of sharks and the elusive whale shark, then the time to come was February/March on the Deep South route.

The Deep South route runs for about eight weeks, as this time of year the inward currents bring nice clear water into the atolls along with big currents, and this in turn brings in the sharks. Rumours of walls of 100 sharks were something I had heard for a long time, but thought were a diving myth. Currents on this itinerary can be strong, so it's only recommended for advanced experienced divers. ▶

OUTH

“ The Deep South route runs for about eight weeks, as this time of year the inward currents bring nice clear water into the atolls along with big currents, and this in turn brings in the sharks. Rumours of walls of 100 sharks were something I had heard for a long time, but thought were a diving myth ”

Healthy hard coral reef



Moray eel



To get to the Deep South, you need to take a domestic plane on arrival in Male to the southern atoll. Trips are run Saturday to Saturday on Blue Force One, a luxury dive liveaboard that's based in the Maldives all year around. On arrival, you take the domestic flight to either Koodoo or Gan, as the boat rotates between these two locations depending if it's running a trip South or North. My starting location was Gan, in the deep South of the Maldives, at the very southern end of the Addu Atoll. We were met at the airport by the dive team and escorted via the diving dhoni to our home for the next week.

Blue Force One was awarded the 'Best Maldivian Liveaboard' in 2018 and is a luxury boat purpose built for diving. After a short introduction to the boat and a welcome drink, we were shown to our cabins. I have been on a few liveaboards around the world and the cabins on Blue Force are among the best I have ever seen. A large double bed and lots of room to store all of your photo equipment, along with multiple charging points. The bathroom was rather special for being on board, a huge bathroom with large shower was going to make a week's diving in salty water very pleasant.

The boat also features a large sundeck, full service outdoor bar and an outdoor eating area where all meals are served. On both the sundeck and the bow there are also jacuzzis for watching the sunset. There are also a large selection of kayaks and stand-up paddleboards for surface intervals.

The dive supervisor was David, a Spanish national with a huge amount of diving experience from all over the world, and an encyclopaedic knowledge of the Maldives. Briefings from David were amusing and always entertaining.

People looked forward to the briefings and the chance to hear David's jokes and get the inside track on what we would see underwater - he was always willing to share his knowledge with all of the guests.

My guide for the week was Xille, a Maldivian local who has been diving the Maldives all of his life. It was great to know the groups on board were small, with usually just four divers per guide, and it was also nice to know we would get the same guide for the duration of the trip. It's nice to get familiar with your guide and also to understand each other - on a liveaboard this really adds to the diving experience, you know what you are going to get and you can bond with your guide.

After dinner on board and meeting all the other guests, a plan was formed for the following day's diving. The first dive

would be a checkout dive on a nice reef, then off to a wreck for the second dive.

The first dive was Vilingilli Bayru, a beautiful reef and great for a checkout dive. One thing that really surprised me about the dive was the quality of the corals. The Maldives is not famous for its corals, with many of the areas in the North and Central suffering from bleaching and wipeouts. The deep South, though, was a different ballgame, rich hard corals interspersed with many different selections of small reef fish was a pleasure to see. The reef was colourful and vibrant and a perfect checkout dive.

Wreck diving is unusual in the Maldives, people come to see the big stuff, but the British Loyalty wreck was a very nice addition to the trip. The wreck is a former British oil tanker and sits on its port side in around 30m of water. The starboard side is around 15m deep and is covered with hard corals, and hovering above are huge schools of fusiliers which dance in the sunlight, making beautiful shapes, and blue trevallies come darting in and out trying to pick them off.

The mythical 'wall of sharks'





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Whaleshark



As we made our way to the stern of the boat, we then dropped down the back to see the propeller, which is still perfectly in place. On the stern there are nice coral bushes, glassfish and lionfish, making for lovely photographs. We headed back over the boat and completed our safety stop in among the fusiliers.

The deep South is not famous for mantas, as it's a shark-based trip, however we did dive the only locally known manta station in the afternoon. The dive at Maa Kandu is a drift dive and a great chance for everyone to try out the reef hooks that we would be using a lot during the rest of the week. We drifted along a shallow reef for around ten minutes before arriving at an underwater coral mound that is a cleaning station for manta rays. As we drifted over the tip everyone then hooked in on the other side down current waiting for the mantas to arrive. Unfortunately for us none arrived, however the drift along the reef was lovely, with lots of fish and more beautiful corals. Mantas are usually seen around 50 percent of the time, but you can't predict nature.

After dinner the boat started to make its way from the Addu Atoll into the Foamullah Atoll around eight hours north.

“ The whaleshark was gently sipping the water directly under the light, sieving out the small plankton that was the staple diet of such a huge animal ”

Over recent years, Foamullah has become famous as a place to see tiger sharks. These illusive creatures have started to come to the island as the local dive centre there feeds them. Blue Force has a strict no-feeding policy, but this is one place on the planet where tiger shark interactions are almost guaranteed, so an incredible opportunity.

The next morning the atmosphere on the boat was intense, people were both excited and nervous to have the opportunity to dive with tiger sharks. After a thorough briefing from David, everyone boarded the dive dhoni.

Upon entering the water the visibility on the wall was ▶



Tony shrimp on
crinoid



Frogfish



Mass of hard corals

incredible - the plan was to drift along the wall and to the harbour mouth, where the tigers would be. There was no current and conditions were sublime. After getting to the harbour wall, we dropped to 20m depth where from a distance we saw the first glimpse of a tiger shark in the blue. I have seen quite a few sharks around the world, but this guy was on a whole other level, measuring at least four metres in length and having a huge torso and head. The classic black stripes of the tiger shark were clearly visible along with its distinctive square jaw.

Then another appeared, we now had two tiger sharks in sight. For the next 30 minutes we stayed with the tiger sharks, they kept coming in and out of the blue water, approaching as close as ten metres away from us. Along with the tiger sharks were silvertips and silky sharks - these are not small sharks themselves, but when compared to a tiger shark, they were dwarfed. On arrival back to the boat, everyone was so excited to have seen such amazing animals. Peoples' opinions of nervousness had disappeared as they realised what graceful and peaceful creatures tiger sharks were. For the second dive we did the same dive again, and the peoples' respect for the amazing sharks only grew. While there are some moral issues

with feeding live animals, there are some major benefits for conservation and preservation. To get people talking so positively about such a feared animal and for them to take that message home to friends and family can only be a good thing.

After completing an afternoon reef dive in lovely sunset conditions, the boat began to make its journey four hours north, where we would begin our drift diving looking for the mythical 'walls of sharks'.

Our first wall channel dive was on Mareeha Kandu. The idea behind channel diving is that you find an underwater channel that goes between two islands. When the inward current is pushing clean water to the centre of the atoll, this causes huge currents where all the water is trying to force through a relatively small gap. To complete the dives is pretty exhilarating. You drop in the ocean open side of the atoll in benign conditions, 40 metre visibility and almost no current. As you slowly drift towards the channel wall it will appear from the blue, then as you get closer the current picks up, and the closer you get the stronger it becomes. As you get closer you prepare a reef hook and drop down to around 30m and hook into the top of the channel and edge of the wall before the current blasts you away. Some of the currents on the top

“ I have seen quite a few sharks around the world, but this guy was on a whole other level, measuring at least four metres in length and having a huge torso and head ”

of the wall were up to eight knots in strength, making it even hard to raise your camera.

We hooked in at a depth of 30m, and sat and watched what appeared form the blue. Channel diving can be all or nothing, which is part of the excitement - either you get the big action or you just see a few sharks and then drift off. On this dive we saw around ten sharks, an incredible experience but not the mythical wall. As you get close to your no deco limit, you unhook and go for a roller coaster ride as the current pushes you over the reef and channel in towards the centre of the atoll. Drifting at these speeds is pretty exciting and you see plenty of animals in the blue - barracuda, turtles, trevally and sharks.

Over the next few days we usually did channel diving in the morning and some beautiful reefs in the afternoon. Some of the corals on the afternoon dives were absolutely world class, featuring a mind-blowing number of small fish and amazing macro and fisheye wide-angle shots. On the channel dives in the mornings, we would see around ten to 20 sharks on each dive.

On our third morning of channel diving, we headed for our morning dive at Vilingilli Kandu, a famous channel. We dropped down into the blue and began our drift to the wall. Before the wall was in sight we heard the sound of people trying to signal. As we looked around the sharks began to appear... first one, then two, then ten. As we dropped to 30m and hooked in to face the blue water the action began. Before we knew it there were at least 100 sharks cruising in the blue water effortlessly working against the strong current. The wall of sharks was not a myth, there they were right in front of us!

The sharks were cruising in and out of sight, but there were always at least 60 up to 100 right in front of you. We stayed until our NDL was close to 0 and regrettably had to leave, and as we drifted away the wall of sharks disappeared from sight. I reflected on what we had seen, it was truly one of the wonders of nature. I also felt so privileged to see it in such a natural environment. There was no feeding or anything like



Paddleboarding on an evening

Tiger shark



that, this is just what nature does best when left to its own devices.

The Maldives has had a ban on shark fishing since 2010 and that has allowed shark populations to flourish. All around the world we kill over 100 million sharks per year, so it was incredible to finally find a stronghold where such wonders could still be seen. Over the next few days of the trip the diving was incredible. We often dived Vilingilli Kandu in the mornings as it was performing so well for the sharks. Afternoon dives were on thilas and reefs where coral life was abundant and small fish life were vivid and colourful.

One afternoon we had a BBQ on a private island. The local staff onboard had been serving up some amazing food throughout the trip, but when it came to the BBQ, they really surpassed themselves. The staff carved a whale shark into the sand on the beach and took everything we needed for our own private island party. Sea kayaks and paddleboards were bought over and we could paddle around the paradise island while the sun set. The BBQ was amazing and served to us on a bench and table hand carved from sand and made to look beautiful with candles and tablecloths. The conversation around the table was all about the diving though, and the amazing sharks we had seen. ▶



Sea fan

Beach barbecue



The next day after a great channel dive with reef sharks we headed to a place called Spinners, a wall where we were told we could see spinner sharks, a new type of shark for me. As we jumped into the water and headed down along the reef wall, the sharks suddenly came out from the blue. These were big sharks at around three metres in length and unlike some of the others we had seen, they were very curious, almost touching us as they cruised past. There were around 20 of them and they would come in and stay with us for five minutes before disappearing, then coming back in again for another look.

As I swam along the wall I heard the telltale signal from a guide alerting me that something special was in the water. As I looked down to the bottom I could see a guitar shark, a very rare type of shark with a distinctive guitar shape when viewed from above. I managed to fire off a couple of shots before it disappeared into the blue.

Throughout the last few nights, the boat had been putting out a large light over the back deck pointing down into the sea, the idea being that the light would attract the plankton to the back of the boat, which in turn would attract the whalesharks. We had not had any luck over the last couple of nights but, on our final night, the magic happened at 1am. We were awoken by Carlos the boat photographer, who was as excited as we were to see the amazing creature just at the back of the boat.

Blue Force One
and diving dhoni



The whalesharks that frequent these waters are usually young males and of a medium size, however to me he looked far from medium in size at around six metres in length. The whaleshark was gently supping the water directly under the light, sieving out the small plankton that was the staple diet of such a huge animal. After putting my fisheye lens over the edge of the boat to get some shots, the amazing creature was still very comfortable and happy to be around us, so the time came to get in the water. We gently edged over the side of the boat and into the water. This really was a gentle giant, and to be up close and personal with such a majestic animal that was so gentle in its movements was an experience that will stay with me forever. We got to spend the next two hours with him, taking photographs and just generally relishing such an incredible experience. The next day it was time to disembark. We had already had our COVID tests taken on board the day before, with our negative results waiting for us. The pre-disembarkation testing is a great service by the Maldives, and really takes away a lot of the testing hassle with travel during the pandemic.

As we sat around the breakfast table for the last time, it was a chance to chat with our new friends and review photos and subjects we had seen. I had come here for sharks and came away with more than I ever thought possible. By the end of the trip I had managed to see silky sharks, tiger sharks, grey reefs, whitetips, baby hammerhead, spinner sharks, blacktips, guitar sharks, nurse sharks and of course, the awe-inspiring whaleshark. And all of this in just one week while being surrounded by five-star service and complete luxury offered by Blue Force One. ■



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DAN EUROPE PHYSICIANS' FIELD EXPERIENCE REGARDING DIVING AFTER COVID-19, PART TWO

There is still much we do not know about COVID-19, and information about the virus and its impact on divers is still evolving. For that reason, in addition to republishing the consensus medical recommendations compiled by the various diving and hyperbaric medical associations, we reached out to a number of DAN Europe physicians and asked them about their experience in the field dealing with divers wanting to return to diving after having had COVID-19.

Specifically, we queried the following physicians; Oscar Camacho (Portugal), Peter Germonpré (Belgium), Ole Hyldgaard (Denmark), Jacek Kot (Poland), Anne Räisänen-Sokolowski (Finland), Adel Taher (Egypt), Ulich van Laak (Germany) and Jürg Wendling (Switzerland). These doctors have each treated from two to 20 divers who suffered COVID-19. Dr Germonpré has only treated military divers, while Dr Camacho has treated commercial as well as recreational divers. Here is what they had to say.

Any specific advice for divers experiencing 'Long Covid' in its various manifestations?

OC: Divers should have a pulmonary function and cardiac evaluation if they have cardiac problems or previous heart disease.

PG: As no specific treatment exists (except physical rehabilitation programs and time), it is important for divers to be patient, and refrain from scuba diving until cleared by

their diving medicine specialist. Swimming pool training may be done, although a pulmonary function test would have to be normal for any training using compressed gas, even at very shallow depths because of the risk of air-trapping.

OH: They can resume diving with normal lung function testing and ECG-stress test combined with diving medical advice.

JK: Due to unknown long-term consequences of COVID: divers should conduct more conservative diving and less exercise underwater

ARS: A diver's physical condition needs to return to pre-COVID levels; a thorough evaluation of cardio-respiratory system is mandatory

AT: I did not see cases of 'Long Covid' here in Sharm.

UVL: Our recommendation for two cases of severe and 'Long Covid' was not to dive for six months and get a cardiovascular and lung-focused diving medical check beforehand.

JW: As far as known at this moment, the Long Covid syndrome is mainly a deconditioning that happens centrally, which means that it represents kind of a somatoform evolution with symptoms but no signs. As such, an early involvement of a psychotherapy is important—a multimodal approach to the rehabilitation!

Some patients with Long Covid have somatic sequelae (lung and heart) and they will not pass the fitness to dive examinations as per the Swiss flow chart.



Under what circumstances, would you recommend that a diver who had Covid-19 seek an additional consultation with a DAN diving physician (a membership benefit) in addition to their medical doctor?

OC: If they were hospitalized regardless of the severity. If they have previous chronic respiratory disease regardless of the severity or have been or not hospitalized. If they remain symptomatic after Covid-19.

PG: I don't believe an actual (in-person) medical consultation is part of the DAN membership benefits. However, obtaining remote advice on the results of the medical examinations performed by or prescribed by their medical doctor, can be done in all cases of doubt.

OH: Patients with pulmonary symptoms or symptoms beyond normal influenza like symptoms should have spirometry and possibly HRCT 12 weeks after infection.

JK: In any case of hospitalization due to COVID-19 with symptoms either pulmonological, cardiac or neurological.

ARS: Always.

AT: In any case where their medical doctor has not examined covid-19 cases before or is not knowledgeable regarding the possible effects that COVID-19 can have on diving.

Uvl: Any DAN member who had symptomatic COVID-19 should discuss his/her case with a DAN diving medical officer if possible.

JW: People who have suffered the COVID-19 infection and want to resume diving should contact and see a diving medicine physician for consultation. In Switzerland we have a network of competent diving doctors that covers our area, so that additional consultation with the DAN diving physician would only be indicated if a second opinion is requested.

What should divers look out for and or be concerned with after they begin to dive again?

OC: If they get easily tired and or have respiratory symptoms like shortness of breath.

PG: The dives should be built up gradually as there undoubtedly will have been both a lack of training/habits and a physical deconditioning.

OH: Exercise induced dyspnea (shortness of breath) should prompt further examination.

JK: Be aware about increased risk for pulmonary barotrauma, limitations for underwater exercise.

ARS: Lung injury, even in milder infections.

AT: Shortness of breath, especially when overexerting under the water and even more so, if not overexerting under the water! Divers should pay attention to their respiratory rate and breathing gas consumption. The degree of fatigue following a dive after recovery from COVID-19 compared to before the infection.

Uvl: A "Big" diving medical check. Body plethysmography and according to the results/pervious lung symptoms, an HR-CT.

JW: Divers must be aware of the potential hazards, especially concerning barotrauma, oxygen toxicity and DCI risk, where we do not know the real risk yet. To date, there is no publication showing any evidence of increased risk.

Is there anything that divers who have had Covid should know about getting vaccinated?

OC: A vaccination will not change or treat any sequelae that eventually exist.

PG: Vaccination is recommended even for those who have had COVID-19.

OH: No. Get vaccinated ASAP.

JK: Just follow the standard recommendation while waiting between COVID-19 and vaccination. Be aware that vaccination does offer a 100% guarantee regarding protection and transmission. Keep regular restrictions (distancing, disinfection, masks).

ARS: Follow the instructions of the Health Care Authorities of your respective country regarding vaccination after COVID.

AT: I would personally advise the divers receiving the first dose of the vaccine not to dive during the period until they receive the second dose and then wait until they test the antibodies. It is safer for them and for the others to minimize the possibility of being an *<innocent>* carrier.

Uvl: No advice currently.

JW: A vaccination is highly recommended as diving is a social activity where the necessary precautions for transmission of virus cannot always be followed strictly.

In your experience, is there a need for any updates to the Belgian Society for Diving and Hyperbaric Medicine (SBMHS-BVOOG) recommendations?

OC: No suggestions.

PG: No; they might be somewhat strict, but other (e.g. University of California at San Diego (UCSD) guidelines) are even stricter.

JK: Not at the moment; we need more data.

ARS: I think the recommendations are still valid

AT: I see that the flow of new information is quite impressive and that the amount of fake news is also overwhelming. So, I suggest that the SBMHS-BVOOG or DAN would issue a statement every three months, just stating whether there are any changes needed to be taken into consideration or not. The mutating forms of the Corona virus deserve our full attention.

Uvl: There is no validated data for an update.

JW: Yes: evidence from Swiss clinics and medical specialists show that those hospitalised with oxygen therapy need more than three months for full recovery and therefore we would recommend six months waiting before a reassessment to resume diving. It should be clearly stated that with regards to pulmonary overpressure syndrome risk, oxygen toxicity and decompression sickness, precaution is recommended based on a theoretical hazard; there is no documented evidence at the present time. Therefore, the risk (determined by probability and severity of complications) cannot be determined yet.

Concerning the assessment of divers with pulmonary involvement by COVID disease: The SUHMS workgroup declares CT-Scans as not useful in the assessment for resume diving. Therefore, we recommend to augment the lung function testing by adding tests for diffusion capacity and, to perform an ergometry to maximal capacity with oxygen saturation monitoring, which may be accompanied by a spirometry before and after tests. ■

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Project Baseline

Truk Lagoon

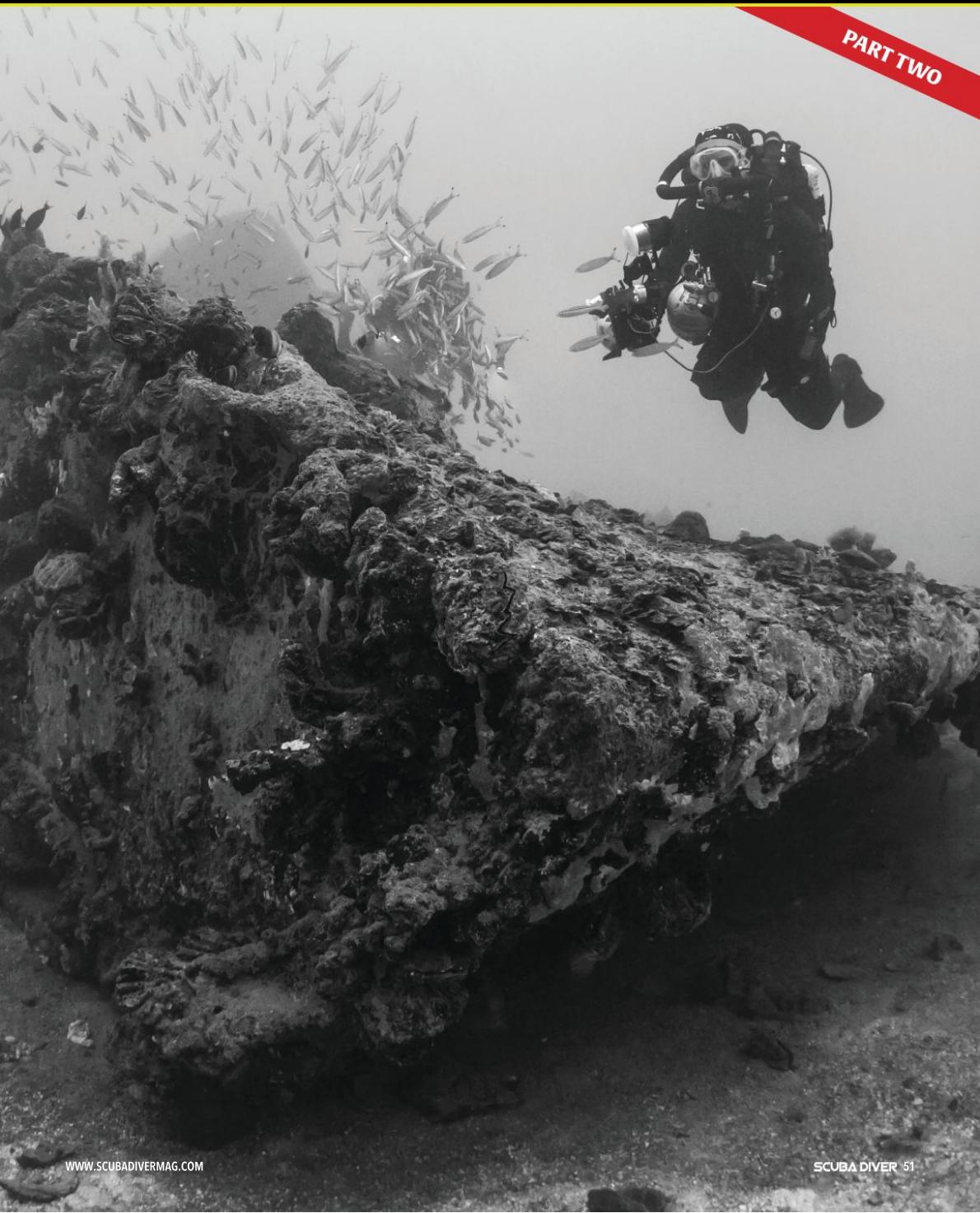
Marcus Blatchford continues his epic adventure on a mission to capture several of the iconic Truk Lagoon fleet via photogrammetry

PHOTOGRAPHS BY MARCUS BLATCHFORD AND PETE MESLEY /
WWW.PETEMESLEY.COM

“ There are many ways to fly from the UK to Chuuk, however all routes must go via either Guam or Honolulu. My journey ironically started on Remembrance Day and was London Heathrow - Inchon (Seoul) - Guam - Chuuk taking around 40 hours ”

We design, manufacture and retail scuba and rebreather equipment. We have fully equipped test and certification labs, and can pressure test large items in our vacuum chambers, as well as run fully automated leak test and dive simulations down to 400m. Our EMC and EMF lab is filled with state-of-the-art equipment for testing electromagnetic compatibility and electromagnetic fields. We also have a large in-house laser for cutting and engraving on plastics and metals. www.narkedat90.com

PART TWO



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The data capture is only the first of many steps to create a 3D model. For every hour of data capture, there could be a week or more of computer processing - far more than could be achieved while on the trip!

Thankfully, the processing divides into stages. I knew it was crucial to start the processing while there as it would be too risky to collect only data while there and do the processing at home. I knew I would have to complete the first two stages of processing on a day-to-day basis so I could see if any mistakes had been made or if I had to return to any parts of the wrecks in particular.

Foreseeing the huge workload, I bought a brand-new top-spec MacBook Pro which would be pushed to its limit for the entire trip. The first two processes are basic image processing and converting the files from RAW to jpeg, followed by image alignment. Basic image processing for a simple photo dive can be very quick, however when dealing with 3,600 or more images per dive, just transferring the files from cards to computer can take an hour.

Once the images had transferred, I performed slight colour correction and some exposure correction then exported to jpeg format. Many hours later, once the images were exported to jpeg, I was able to start the image alignment. To align the images, the processing software looks at every image for defining points (default is 40,000 per image), it then compares the defining points of one image with the defining points of the other images attempting to find matches. Once the defining points are found and matched, a very low-resolution 3D sparse point cloud is created. It is now possible to see how successful the process has been. Generally, the sparse cloud would complete during the morning dive the day after it was collected and the processing began. ▶

“ All was going brilliantly until 80 minutes into the dive my scooter stopped with what felt like a depleted battery ”

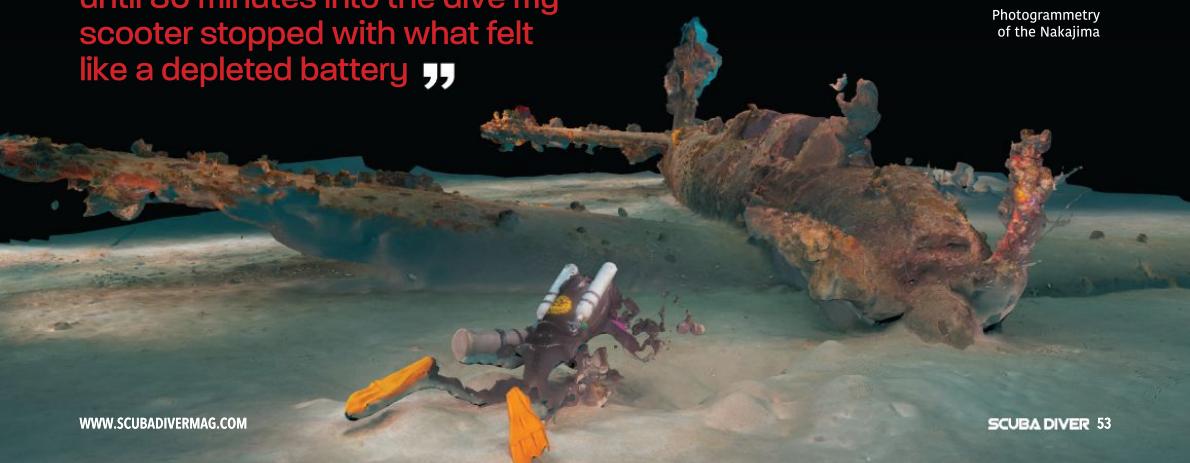


Using DPVs on the wrecks



Photogrammetry of the IJN Oite

Photogrammetry of the Nakajima





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Divers on the
Hoki Maru



THE JOURNEY THERE

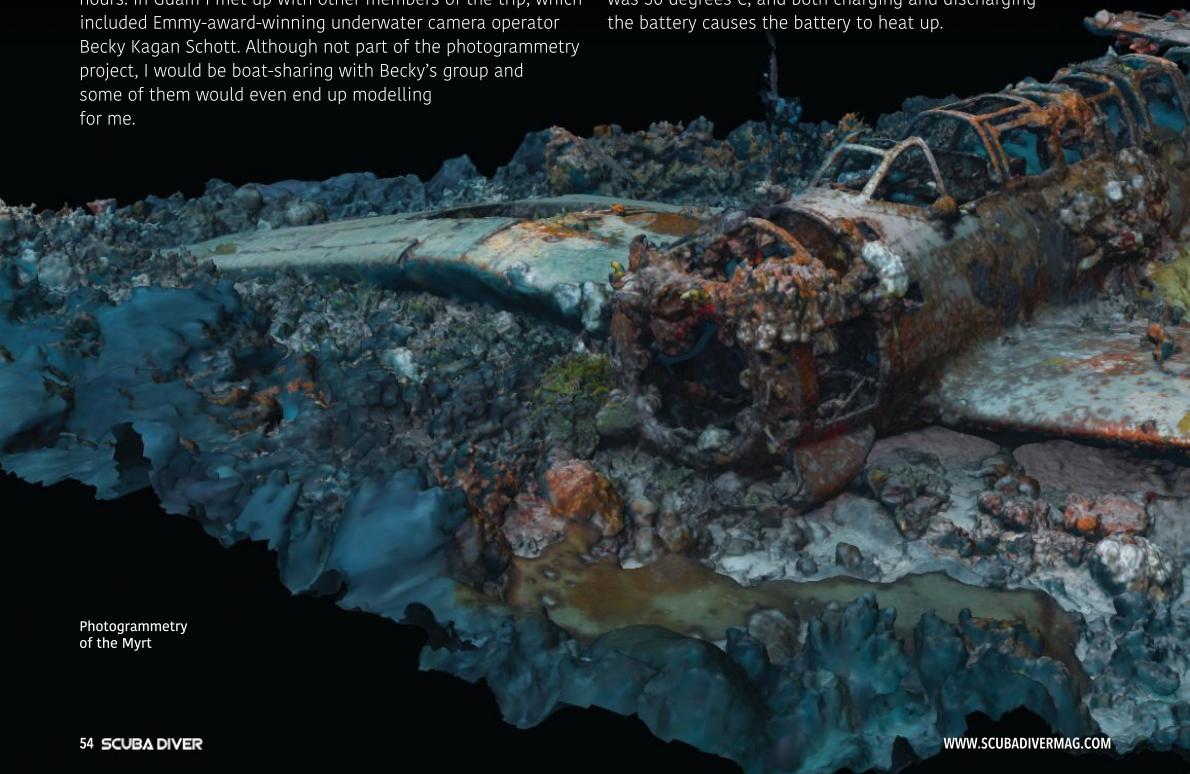
There are many ways to fly from the UK to Chuuk, however all routes must go via either Guam or Honolulu. My journey ironically started on Remembrance Day and was London Heathrow - Inchon (Seoul) - Guam - Chuuk taking around 40 hours. In Guam I met up with other members of the trip, which included Emmy-award-winning underwater camera operator Becky Kagan Schott. Although not part of the photogrammetry project, I would be boat-sharing with Becky's group and some of them would even end up modelling for me.

The descent into Chuuk is a truly mesmerising experience if you have a window seat, dark blue Pacific Ocean lightens to azure and turquoise with small linear specks of land making the outer reef. The small specks of land grow in size and are covered with a canopy of trees. On final approach you are low over the water, so low you feel like you could almost touch it. Then the water turns to tarmac and the plane touches down on terra firma.

Having just put our bodies through 40 hours of travelling and the trip doctor arriving later in the week, it was decided we would start things slowly. Our first shakedown dive was the much-loved and truly iconic Rio De Janeiro Maru. The plan was for me to do laps with the scooter scanning in bulk and for Pete to concentrate on the finer details of the iconic twin propellers and stern gun. All was going brilliantly until 80 minutes into the dive my scooter stopped with what felt like a depleted battery. This was strange as I knew I had charged it fully.

The next day's scooter dive, the scooter again stopped but at 75 minutes this time. I started to wonder if the 110v mains power meant the charge wasn't as good but couldn't see how that could be the case - the scooter is American and the charger is a multi-voltage charger. When I returned to Blue Lagoon, I took the scooter apart and removed the battery - it felt like it was as hot as the surface of the sun! I then realised what was happening - both the water and air temperature was 30 degrees C, and both charging and discharging the battery causes the battery to heat up.

Photogrammetry
of the Myrt

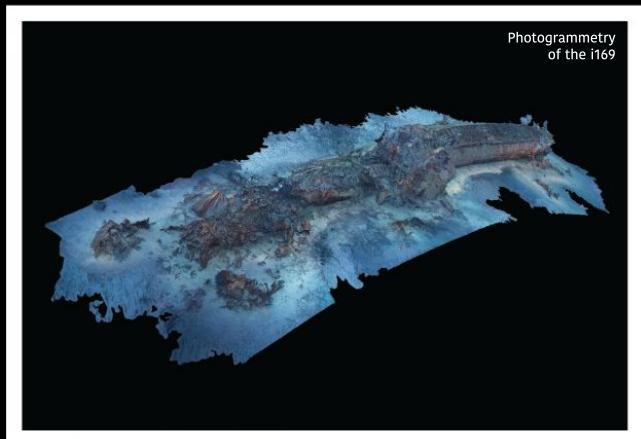


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“ Having just put our bodies through 40 hours of travelling and the trip doctor arriving later in the week, it was decided we would start things slowly ”

I had also been charging the battery inside the scooter nose, so the heat was unable to escape. That night I charged the battery out of the scooter and in front of a air-con blower. The next day performance improved greatly, still not the 120 minutes I achieve at home, but a respectable 105 minutes. ■

NB: Tune in next issue for the final segment of Marcus' article, as he dives on more of the Ghost Fleet of Truk Lagoon.



What's New

AQUALUNG SEAFLARE RANGE | SRP: £89-£270

Dive lights are an essential part of a diver's kit arsenal, from a small back-up light that can live in your BCD pocket for when it is needed, to a larger primary dive torch for night dives and inside wrecks, etc.

Aqualung has got you covered with the Seafflare range, which comes in three sizes – the Seafflare Mini, Seafflare, and Seafflare Pro. All are water-resistant down to 150m, and feature an anodized finish and a hardened glass lens to protect your light against corrosion, abrasion and scratches.

Large on/off buttons made from titanium are easy to operate, even wearing gloves, and these also allow you to swap between modes (low, medium and high power). Each torch also comes with a chunky elasticated lanyard.

Uniquely, the Seafflare range features glow-in-the-dark beam deflectors. These are made of silicone, so soft and collapsible, and have numerous roles – they help protect the torches against impacts, they reduce light pollution so you can see what you need to without blinding your buddies, and they make you easy to spot on night dives thanks to the range of colours available (blue, yellow, pink or glacier). Each torch comes with all four colour deflectors.

All three torches can be used on land as well as in the water, thanks to their electronic temperature regulation system.

The Seafflare Mini has 900 lumen power, and gives a burn time of three hours on high, four hours on medium, and ten



hours on low. The Seafflare has 1,300 lumen power, and gives a burn time of three hours on high, four hours on medium, and ten hours on low.

The Seafflare Pro has 2,800 lumen power, and gives a burn time of three hours on high, four hours on medium, and 12 hours on low. Each torch comes with spare O-rings, and has a two-year warranty.

www.aqualung.com/uk

GARMIN DESCENT MK2S | SRP: £949

Garmin has launched the Descent MK2S dive computer, which it describes as 'perfect for smaller wrists', but just as feature-rich as the Descent MK2. The Descent MK2S features a smaller 1.2-inch sunlight-readable sapphire display, 43mm case, and interchangeable bands (as per the MK2 and MK2i). It is available in three colour schemes – light gold with light sand silicone band, carbon-grey DLC with black silicone band, and mineral blue with sea foam silicone band. The Descent MK2S boasts Garmin's full suite of diving features, as well as encompassing all of the company's smartwatch and health features, including activity tracking, smart notifications, stress and energy tracking, menstrual and pregnancy tracking, and much more. The MK2S boasts superior battery life – up to 30 hours in dive mode, and up to seven days in smartwatch mode.

www.garmin.com





Suunto say that the

EON Steel Black is the ultimate dive companion for divers demanding the most.

The EON Steel Black is designed to give you the freedom to tailor your dive computer to fit your diving needs. Choose between different views or select dive details you want to see during your dive. Intuitive menus and a simple three-button layout make it very easy to use despite the many options available. Equipped with two dive algorithms – Suunto Fused RGBM 2 and Bühlmann 16 GF – and configurable ascent profiles, you decide what is your decompression profile for today's dive.

The Suunto EON Steel Black comes with a stylish brushed stainless steel bezel and a vivid high contrast screen – easy to read even in low light conditions. The long-lasting battery endures even the toughest diving conditions, and with a full charge, provides up to 40 hours of diving.

Put to the test in the toughest diving conditions by Suunto's internal dive team on hundreds of dives – the Steel Black is functional, accurate, and built to take a beating. The reusable storage case and user updatable software, Suunto EON Steel Black is your trusted diving companion for years to come. Transfer your dive logs easily over Bluetooth to your mobile phone. In the Suunto app, you can relive, and share your diving adventures, build an all-inclusive dive history by enriching your dive logs with photos, comments and dive location. Review and analyze your dive data including dive time, maximum depth, device settings and gas consumption (when using Suunto Tank POD).

Follow your gas pressure conveniently straight from your wrist. Get tank pressure on your display wirelessly by pairing your Suunto EON Steel Black with Suunto Tank POD before diving. You can connect up to 20 PODs.

www.suunto.com



What's New

O'THREE 90NINETY | SRP: £1,795



O'Three are renowned globally for their range of neoprene drysuits, but now they have branched out into the world of tri laminate. The 90Ninety came about from the realisation that many diving holidays are effectively mini expeditions to all corners of the globe. Thus, the team at O'Three set out to develop a suit that would be the ideal travel companion wherever your diving adventures took you, from 90,000 N to 90,000 S (hence the name).

The 90Ninety tips the scales at just over 4kg with 4mm neoprene Pivot Boot, or 3.7kg with soft boots. However, this lightweight does not mean O'Three have skimped at any stage. The 90Ninety is made from high-stretch, rip-stop tri laminate, in a front-entry full-telescopic torso design and with a YKK AquaSeal zip.

It features SiTech 'Quick' fast-replace neck ring and KUBI Dry Glove System, which are both silicone, latex and neoprene compatible, so you will never miss another dive due to a broken seal. The suit is equipped with Apeks low-profile auto dump and swivel inlet, with a carbon hose, and a pocket on the right thigh that has a built-in slate pocket, D-rings and bungee.

www.othree.co.uk

FOURTH ELEMENT BASEBALL CAP

SRP: £18.90

The sun is starting to poke its head out more often as we head into summer, so it is the perfect time to be thinking about protective headwear.

This 100-percent cotton classic baseball cap, with contrast Fourth Element branding, is great for shielding your eyes from the sun (though it does a fine job of keeping the rain out of your face when things go pear-shaped).

Available in blue and black.

www.fourthelement.com



FOURTH ELEMENT OCTOPUS POLO SHIRT

SRP: £34.95



The classic polo shirt in a modern sea-green shade. This polo is luxuriously soft, featuring an octopus embroidered on the chest and Fourth Element-branded tab on the sleeve for a smart take on the 'diver's uniform'.

Embroidered in the UK on 100 percent organic cotton, and packaged without plastic.

www.fourthelement.com

AQUALUNG SPHERA X | SRP: £54



The Sphera X offers the ultimate freedom for freedivers who want to focus on their breath, not their mask.

Developed in collaboration with professional athletes, this ultra-low volume mask combines the heritage of the Sphera line with the exclusive technology from other models.

The Sphera X mask features a lightweight frame, a soft silicone skirt that uses AFT (Advanced Fit Technology) to enhance the sealing of the silicone, and panoramic vision lenses – Aqualung state 'you will become one with the

underwater world and forget you are even wearing it'. Curved Lens Technology means you get 180 degree distortion-free vision, and the Plexisol lenses have a special anti-fog coating. To reduce plastic packaging, this minimalist freediving mask comes in a reusable zippered case to care for its Plexisol lenses when you are on the go.

It is available is black, navy blue, clear glacier, white/black, white/raspberry, and white/yellow.

www.aqualung.com/uk

CASIO ROYAL NAVY X G-SHOCK FROGMAN LIMITED EDITION | SRP: £799

Casio has launched the Casio Royal Navy X G-Shock Frogman Limited Edition, the latest timepiece from G-SHOCK's partnership with the Ministry of Defence. Designed in conjunction with the Royal Navy, the watch has been built to accommodate the hostile environments faced by naval personnel - at sea and on land - using a Carbon Core Guard structure. This, combined with world-renowned G-SHOCK shock resistance and ISO 200M diving water resistance, creates a structure that is highly vibration resistant and water impenetrable. Equipping the timepiece for below the water's surface, the Carbon Core Guard structure is combined with a carbon monocoque case that is completed with a back cover engraved with a bespoke naval version of the G-SHOCK frog character. Carbon fibre reinforced resin is used for the case material, offering high strength and low absorbency. In addition, six screws securely fasten the metal ring that is pressfit to the glass. Enhanced water resistance is facilitated by the button shafts' triple-gasket fittings. The special edition timepiece features design elements directly inspired by British naval history. The unique aesthetic takes inspiration from HMS Queen Elizabeth, the largest aircraft carrier ever to serve the Royal Navy. Here the Royal Navy's instantly recognisable colour palette of red, white and navy is used to striking effect, alongside the contrasting light grey which replicates the ship's hull. Other features include sapphire crystal, Tough Solar power, Multi-Band 6 automatic radio timekeeping and Bluetooth mobile link. There is also a tide graph, Neobrite luminescent hands, date and day display, stopwatch, countdown timer, daily alarm, dual time, LED light, and a diving mode with dive time, surface time measurement, and 30 log records.

www.g-shock.co.uk/navy



S Test Extra

SUUNTO D5 | SRP: £610

Adrian Stacey: The Suunto D5 was first released in 2019 and was Suunto's first foray into the dive computer/smartwatch arena. The design is undoubtedly sleek and elegant, and this is most definitely a computer that you could wear for day-to-day life. There is a range of colours, and the straps are interchangeable, so the look can be changed to suit the wearer's mood with ease. Earlier this year, Suunto released the latest version of this computer, the very stylish D5 Copper, which comes with a black body and strap with a copper bezel.

Having a computer that looks great and can be worn anywhere is fantastic, but its primary function is as a dive computer, so this is where its performance should be judged. After having tested the D5 on several occasions, I am pleased to say that this is a great device to use while underwater. The first test it passed for me was the ease of use. I like to have an intuitive computer that does not require me to read a manual to do the basics, like set nitrox or change the time and date. I also like to have an easy-to-read display with large numbers, and again the D5 ticks this box. The easy-to-use compass is a welcome bonus.

One complaint that has been levelled at Suunto in the past has been the conservatism of the algorithm. As a past user of the Vyper, I can attest to the somewhat limiting bottom time the Vyper allowed for, especially on the second or third dive. Suunto has spent a lot of time and money developing their own algorithm.

They now use their proprietary Fused RGBM 2 model, allowing shorter ascent times on deep dives and repetitive dives. This fused model takes the conservatism of a recreational computer and blends it with the less-restrictive parameters of a tech computer.

This means that if you are an instructor teaching an open water course, the computer will automatically become more conservative. However, if you have set the device to use trimix, it will assume that you know what



you are doing and will not penalise you for going one minute into deco, like the old Vyper used to. I also like the fact that you can manually set the computer to be more or less conservative, depending on your preference.

In keeping with today's digital society, you can download an app for the D5. Once you have synced devices, all your dive information will automatically be sent to your phone. From the app, you can add a GPS location of your dive, add comments, and even assign an image. You can overlay your dive data on the images and post this immediately to your social media platforms. This is a fantastic feature as it makes sharing your dive incredibly simple.

The app will display your standard details like depth time and temperature and will display a graph of your dive profile and list any alarms, like ascending to fast. This is a great teaching aid to an instructor who can easily show students what they are doing right or what they are doing wrong!

Like most dive computers these days, the D5 does not have a changeable battery and is powered up with a USB cable. This has its pros and cons. On the downside, you need to make sure that you keep your computer charged. However, the long battery life does help and gives you at least 12 hours when fully charged.

On the plus side, you never need to send your device away to have the battery changed, or risk flooding it if you change the battery yourself.



Image by Henley Spiers



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S Test Extra

SUUNTO D5 | SRP: £610



CONCLUSION

The Suunto D5 is a stylish dive computer that can easily be worn as a smartwatch, and it comes very reasonably priced. It is easy to use and has a well-thought-out simple display. It has excellent connectivity to social media, with an awesome app for collecting and sending dive data. Most importantly, the D5 is fantastic to dive with; it is reliable, robust, and safe to use without being too restrictive on bottom times, thanks to its new, improved algorithm.

www.suunto.com

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The image shows the front cover of Scuba Diver magazine issue #48. The cover features a large, close-up photograph of an oceanic whitetip shark swimming in clear blue water. Below the shark, the title 'Oceanic WHITETIPS' is written in a large, stylized font, with 'Oceanic' in white and 'WHITETIPS' in green. Underneath the main title, the subtitle 'UP CLOSE AND PERSONAL OFF CAT ISLAND IN THE BAHAMAS' is displayed in white. At the top of the cover, there are three columns of text: 'Q&A: STEVE LEWIS RAID'S DIRECTOR DIVER TRAINING TALKS CAVE AND WRECKS', 'MANATEE MAGIC DAVID JONES IS ENTRANCED BY THE MANATEES OF CRYSTAL RIVER', and 'AWESOME APO REEF HEALTHY REEFS AND MEGA MARINE LIFE COME TOGETHER IN THE PHILIPPINES'. In the bottom right corner, there is a small image of a sea turtle. On the left side of the cover, there is a vertical sidebar with the letters 'S' and 'B' visible, and a small green plus sign followed by the text 'Q&A: W...'. On the right side, there is another vertical sidebar with the letters 'L' and 'V' visible, and a small barcode with the text 'SCUBA DIVER #48 E1' above it.

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NEXT MONTH'S ISSUE



WELSH UNDERGROUND

Andy Torbet and Chris Jewell embark on an epic underground odyssey in Wales.

Q&A WITH RICK STANTON

We chat to the legendary cave diver about how he got into caving, and THAT cave rescue in Thailand.

PEER PRESSURE

Mark Evans discusses why you should never be afraid to call a dive, and offers up some useful hints and advice to avoid succumbing to peer pressure.

MEERU IN THE MALDIVES

Stuart Philpott continues his whistlestop tour of the Maldives, this time heading to the island of Meeru.

PROJECT BASELINE: TRUK

Part three as Marcus Blatchford and Pete Mesley showcase the wrecks of Truk Lagoon as never before using photogrammetry.

GEAR GUIDE: TEST EXTRA

Editor-in-Chief Mark Evans and the Test Team get stuck into a raft of new products coming on to the market in 2021.



USING PHOTOMOSAICS IN WRECK SITE INVESTIGATION, PART ONE

Project Director Mike Haigh looks at photomosaics – a vital tool of the diving archaeologist

There are certain problems that diving archaeologists face which our compatriots on land do not have to deal with. In my view, the three big ones are:

- The lack of time you have on the site, due either to the depth or conditions such as extreme cold.
- Limited visibility - many sites are by their nature in places of poor visibility caused by sediment, which has aided their preservation.
- The inability to 'show' the site easily to the general public, as most people do not dive.

An approach that can at least help to mitigate these problems is to use photomosaics. Photomosaics are produced by taking overlapping vertical photographs and joining the images together. Traditionally, archaeologists have used photomosaics in four main ways:

- An 'aide memoire' giving an overview of the site.
- A display item used for fundraising and publicity.
- As one of a number of complimentary recording methods.
- As the only recording method available in a genuine 'rescue' situation.

So how do you go about creating one? In some situations, the only practical method that can be used is simply to 'fly' over a site to make up a pictorial view. But this will not provide completely accurate information due to a lack of precision and the absence of control information.

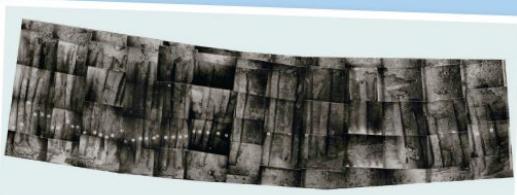
So, some form of physical structure is required to mount a camera on in order to produce images that will record the site accurately. This need not be a bulky construction; you simply need a photo tower and a set of 'rails' to run it along. The aim is to overlap each photograph by 40 percent to the



previous one. The base of the photo tower is often made to fit a one-metre grid. This is sensible as it mirrors the grids that the divers drawing the site will use and allows for comparison of the records produced. The tower holds the camera parallel so that a true plan (or elevation) view is obtained. As the tower holds the camera steady this allows slower shutter speeds and smaller apertures, improving depth of field. The tower base also provides an easy reference point for determining the overlap between each shot. Back in 1987, Andrew Bowley, myself and a group of students from Bournemouth Technical College managed to engineer such a structure without too much fuss.

In many ways getting the photographs is the easy part; the real trick is to produce an image that does not look like a load of prints just stuck together. Before the digital photographic era this was quite tricky. In those days each print was cut out, following the contour of some object, and then joined up. The edges of each print were peeled back so that they 'blended' into each other. For an even better result, the cut prints were soaked in water and the back peeled off so only the emulsion layer was left. The prints were then stuck to a mounting board with wallpaper paste. Today you can use the 'Photomerge' programme in Photoshop.

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