



GLOBAL EDITION  
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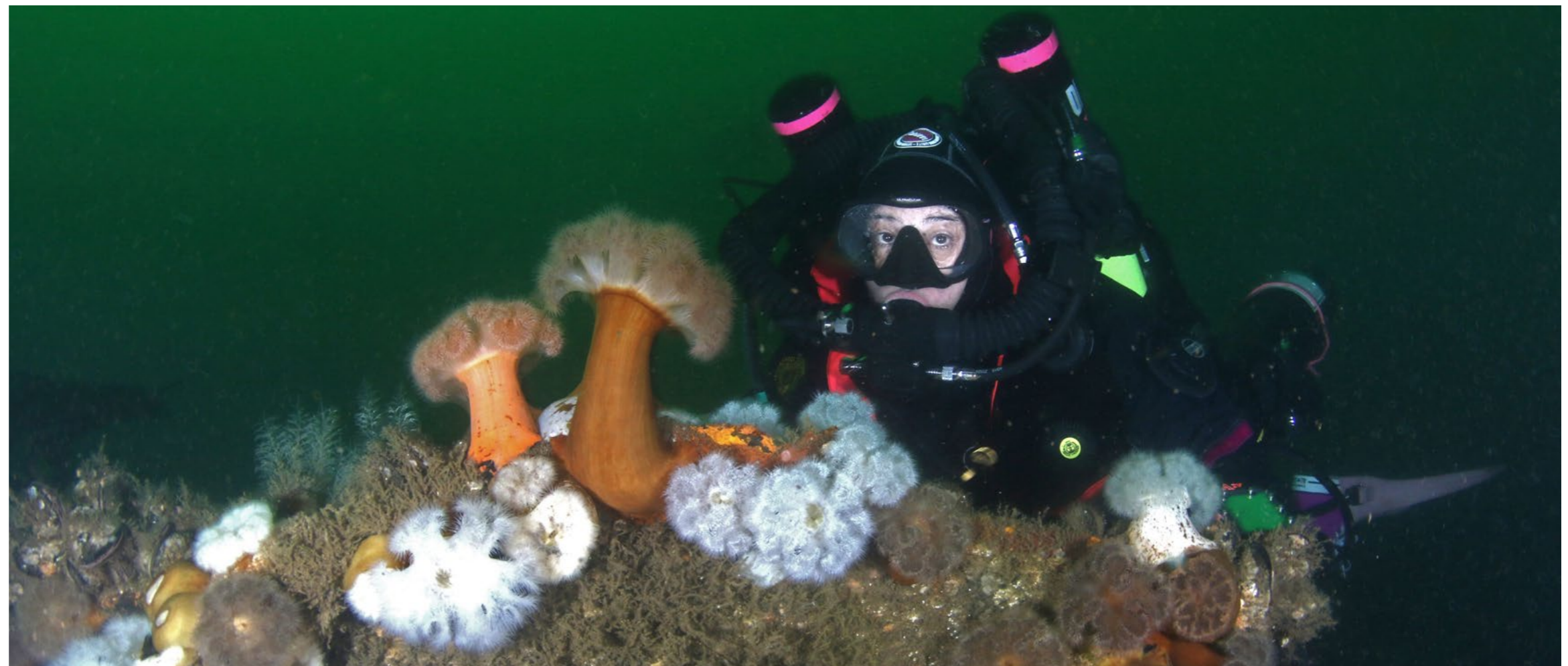
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Photo by Amos Nachoum

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# Underwater Photography: In Competition

Is it possible to compete in underwater photography? I find that question difficult to answer! What is a good picture? Is it an image of an unusual animal? Nice colors on a nudibranch? Capturing the incredible light on a wreck? An image in which I can see that there has been a lot of planning and work behind it? Or just an image of a diver, on some interesting dive site, where I get the feeling that I also want to dive there?

I have seen many underwater photos during my years as editor of the Swedish dive magazine *Sportdykaren*, which, before it was shut down, was one of the oldest dive magazines in the world. (The first issue was published as early as 1958, and the last was published in 2020).

But the pictures that impress me the most are probably the ones that have a model without any dive equipment. We usually do not think about the model, who does a lot of the work. Imagine being stuck with your foot in a fishing line at a depth of three metres, without a mask, and having to one-hundred-percent trust that your assistant or dive buddy will come with air when you need it. In addition, you have to look nice and relaxed in the picture.

But is it possible to compete in an underwater photo competition in a fair way, as everyone has a different opinion about what a good image is? Competing in photography is like competing in music; it is what the viewer or listener thinks is good that decides who wins.

That is what is so great about underwater photo competitions; you never know which picture will win. It is not always the one who has the most expensive equipment that stands on stage as the winner. It can also be the one who has a small compact camera; it can be very lucky too.

But as a famous Swedish athlete said in a TV interview, "The more I train, the luckier I am." While I am primarily a writer, I can honestly say that I am useless in taking pictures, not only ordinary pictures. But I know I can get better if I just practice and compete more.

Last summer, I participated in the Smögen Dive & Experience Photo Week. It is an underwater photo competition that takes place in July each year, on Sweden's western coast (see article on page 85). What is special about this underwater photo competition is that

everyone can participate, from beginners to those who have participated in the World Championship of Underwater Photography (CMAS).

Of course, we do not compete against each other; there are many different categories, so everyone can be in the category that best suits their experience, both in terms of diving and photography. But the most fun part of this competition is that friendships are forged after a week together.

We do not see each other as competitors, but everyone comes with tips and advice on how to get better pictures. It is a bit like a liveboard after a week, when everyone becomes friends with each other; it does not matter where you come from or what equipment you use.

We divers dive and socialize peacefully across all national borders, as I think our world leaders should do. Then, maybe we can see an end to the insane war in Ukraine.

— Lelle Malmström  
Associate Editor and  
Representative in Sweden



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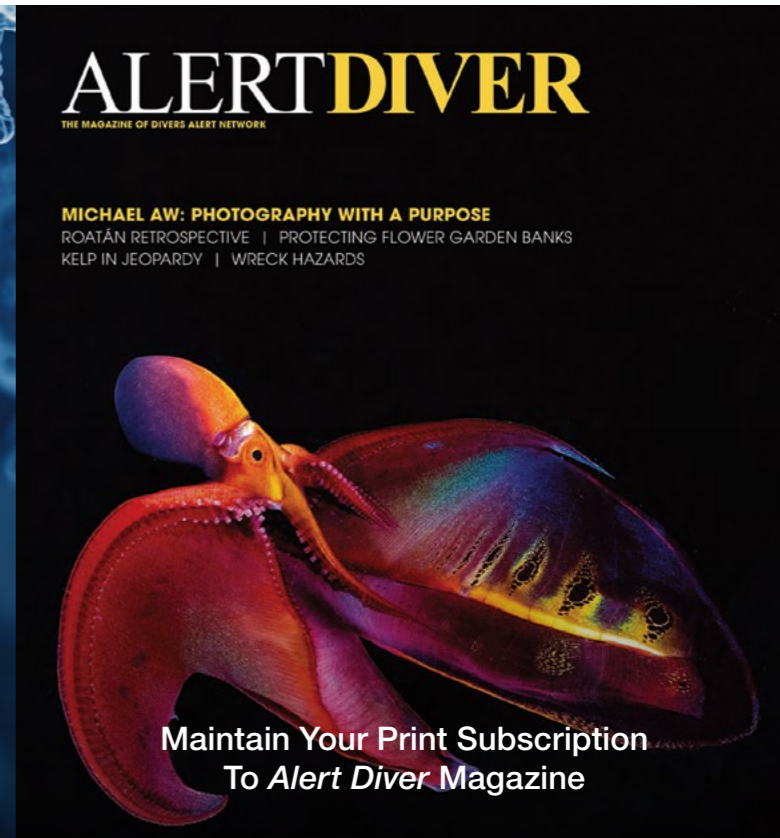
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# NEWS

from the deep

Edited  
by G. Symes

## Coral reefs could be protected from climate change by “mesoscale sanctuaries”

**More international collaboration is needed to safeguard the future of more than 6,000 coral species, according to a new study into controlling the effects of climate change on these organisms. To this end, the study's authors advocated for a network of “mesoscale sanctuaries” (large-scale protected areas) across borders.**

In the study, researchers reviewed some of the groundbreaking and recent coral-bleaching discoveries from an ecological, molecular and physiological viewpoint.

### Third option

According to the researchers, some studies claim that global climate change mitigation is the only way to save coral reefs, while others claim that efficient local management can also help coral reefs survive. As a third option for coral reef conservation, the study's authors proposed mesoscale sanctuaries. They stated that there are currently several mesoscale sanctuaries, such as the Micronesia Challenge,

although they are uncommon across national borders.

“Global warming is the No. 1 threat to coral reefs right now,” said Andrea Grottoli, co-author of the study and a professor in earth sciences at Ohio State University. “So, when we think about coral reef conservation, we cannot limit ourselves to arbitrary geographic boundaries.”

### Designing large-scale protected areas

To safeguard corals from local and regional disturbances caused by climate change, multinational networks of protected areas could be created and enforced, said the researchers. Localities, where reef corals can persist and potentially expand in the future, should be included in such mesoscale

sanctuaries, they added.

### Climate-proofing reefs

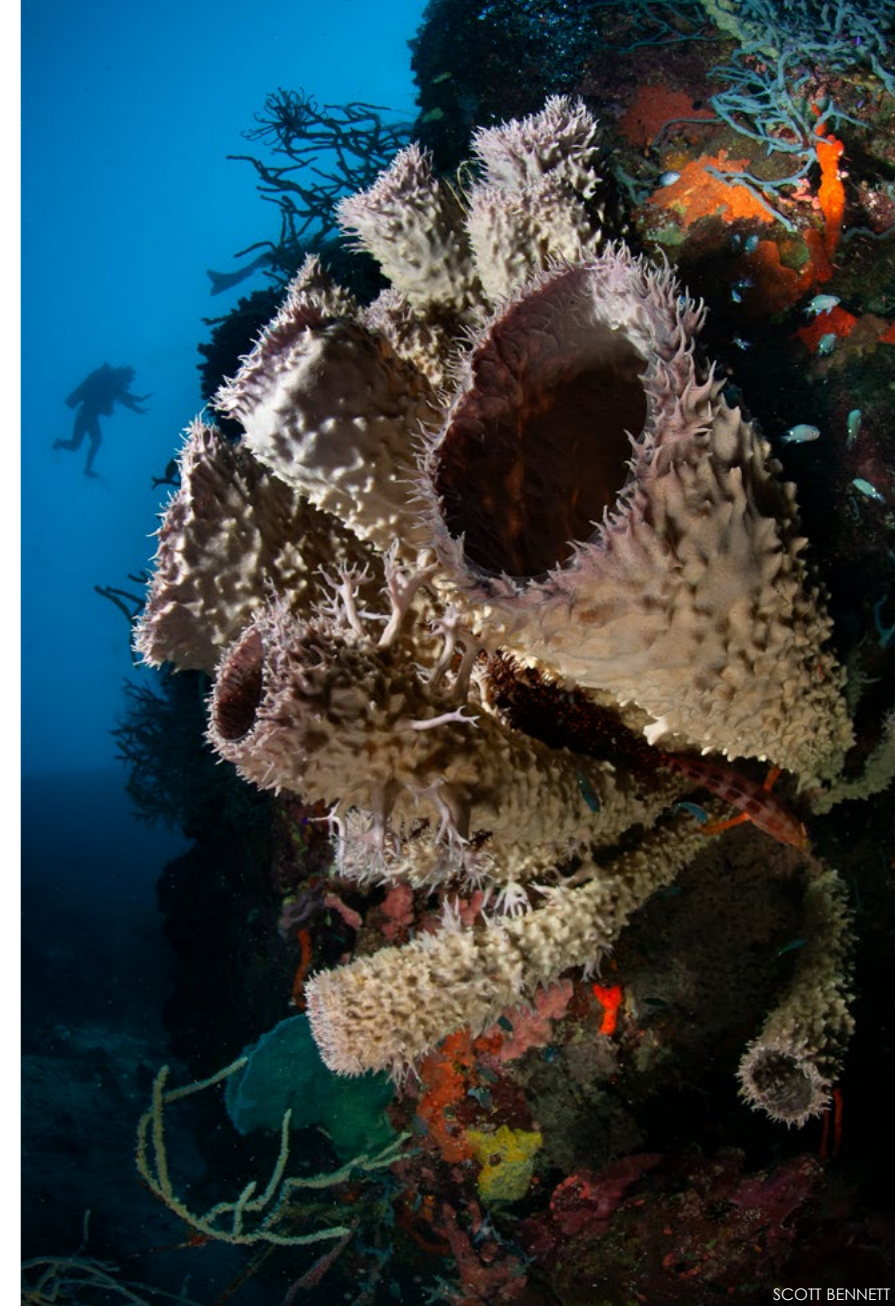
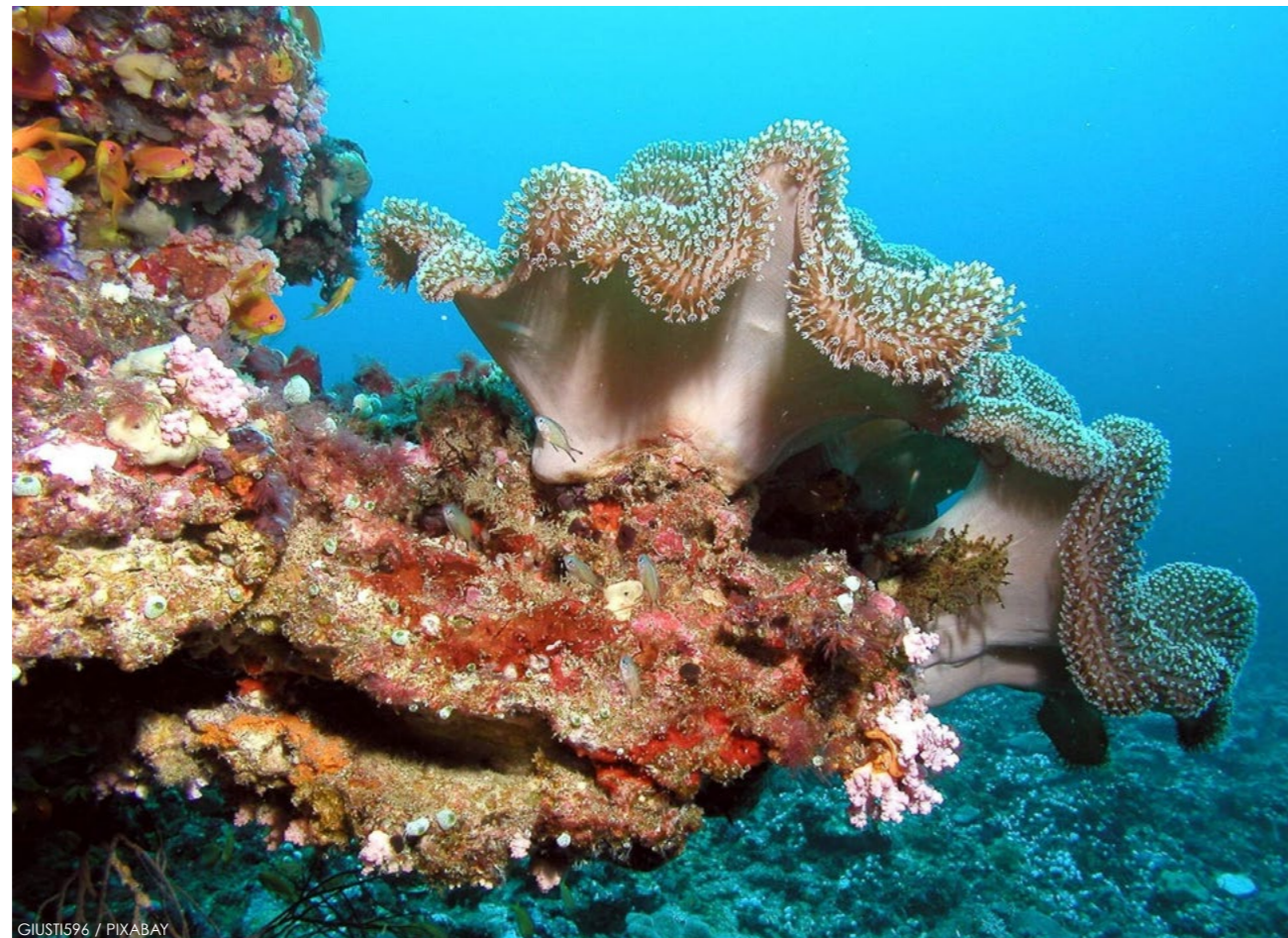
Reefs must be “climate-proofed,” according to the study, by preserving both coral-reef ecosystems and genetic variety, which can be used as a source of positive selection.

Although traditional marine reserves are intended to protect local biodiversity and prevent overfishing, the study's authors said that additional mesoscale sanctuaries may be required to preserve both the genetic diversity needed to fuel the evolutionary adaptation of corals (and the many other species living in or around them), and large enough populations to serve as a source of migrants across environmental changes.

In the study, which was published in the journal *Global Change Biology* and funded by the National Science Foundation, the researchers recommended international mesoscale sanctuaries (i.e., mesoscale networks that span national borders)

to safeguard various habitats and genetic variety, which will provide coral populations the best chance of surviving climate change. The scientists added that it is critical to understand which coral species and reefs should be protected first, based on their adaptive potential and natural resilience.

In the study, researchers also assessed which data and processes can help prediction models improve, and offered a conceptual framework that unifies observations across biological scales. ■ SOURCES: OHIO STATE UNIVERSITY, GLOBAL CHANGE BIOLOGY JOURNAL



SCOTT BENNETT

GIUSTI596 / PIXABAY

Edited by G. Symes



Spiny chromis on reef (above); Juvenile spiny chromis (left). Motorboat noise disrupts breeding behaviors of reef fish, such as "fanning" eggs with fins, which aids oxygen flow, ultimately affecting numbers of offspring.

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# Coral reef fish breed better with less motorboat noise

**A new study by researchers at the universities of Exeter and Bristol showed that "traffic calming" boosts breeding of reef fishes.**

For a whole breeding season, scientists implemented traffic calming on three reefs, decreasing the number of boats within 100m and reducing their speed.

They then followed the breeding of spiny chromis and discovered that 65 percent of nests on quieter reefs still had offspring at the season's end, compared to 40 percent on reefs with a lot of motorboat traffic. On quieter reefs, offspring were larger, and each nest had more offspring by the end of the season.

Some juvenile fish on coral

reefs exposed to motorboat noise have stunted growth and may be half as likely to survive as fish on quieter reefs, owing to the noise pollution altering their parents' caregiving behavior, said the researchers.

### Disrupting parenting behaviors of fishes

Noise interrupts the chromis' essential parental behaviors, such as "fanning" eggs with their fins to guarantee oxygen flow, according to aquarium research on the same species. The study was conducted near Lizard Island Research Station on Australia's Great Barrier Reef.

"With coral reefs worldwide facing multiple threats, the results of our experiment offer a way to help struggling populations," said Dr Sophie

Nedelec, lead author of the study. "Simply reducing boat noise at reefs provides fish with much-needed relief to allow successful reproduction.

"Moving boating channels farther away from reefs, driv-

ing slowly when approaching reefs, and avoiding anchoring next to reefs provide three simple changes that any boat driver can adopt.

"These solutions put the power in the hands of local people to

protect vulnerable ecosystems." Dr Nedelec added, "No one has attempted a field experiment like this before.

### Aquarium study

In a separate aquarium study, a few spiny chromis parents and eggs had natural reef noises played to them on speakers, while others were subjected to occasional boat noise. The researchers found that fanning was interrupted by the boat noises but proceeded unabated with natural sounds.

"The complementary lab study demonstrated that these improvements to breeding really are due to limiting noise pollution, and not other kinds of disturbance from the boats," said co-author Andy Radford.

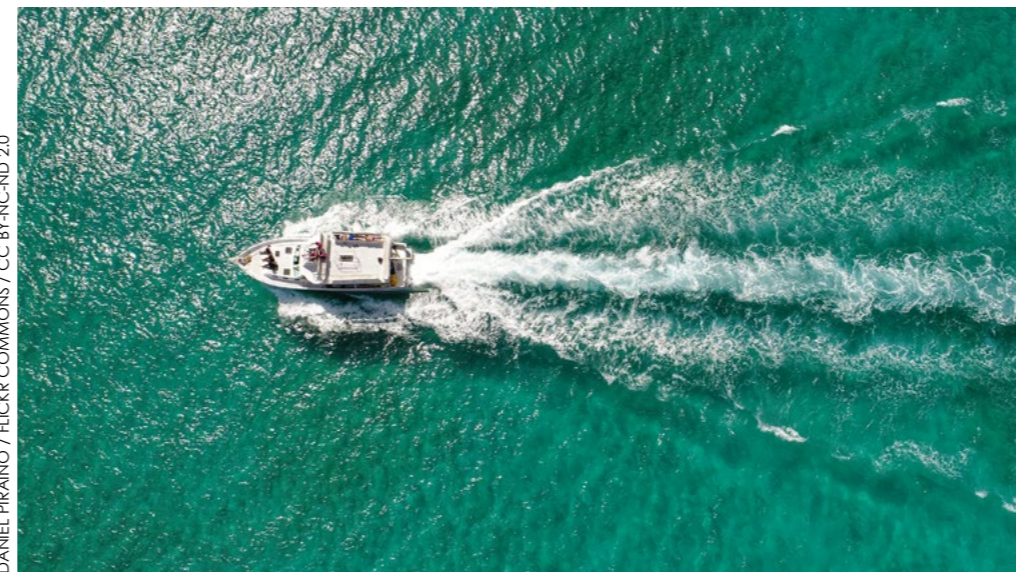
### Acoustic sanctuaries

Results from the two studies suggest that reducing boat noise could benefit reef fish populations, making reefs more resilient to change due to human activity or cyclones and bleaching, which are becoming increasingly common with climate change.

"While we try to tackle the biggest threat of climate change, we need simple solutions that reduce local threat, said senior author Professor Steve Simpson, from the University of Bristol. "Acoustic sanctuaries can build resilience on coral reefs and help give reefs more chance of recovery."

The research, published in the journal *Nature Communications*, was funded by the Natural Environment Research Council.

■ SOURCE: UNIVERSITY OF EXETER



Simple fixes can reduce boat noise for a period of time, such as moving boat channels, diving slowly at reefs, and not anchoring next to reefs, allowing reef fish populations to recover in number.

Edited by  
Catherine  
GS Lim



BRIAN GRATWICKE / WIKIMEDIA COMMONS / CC BY 2.0

## Study finds traces of pharmaceutical drugs in bonefish and their prey

**Florida's bonefish are falling prey to pharmaceutical contaminants that find their way into the state's seagrass flats.**

In the study, the research team sampled 93 bonefish, and discovered that practically all of the fish had traces of at least one pharmaceutical in their body, be it substances like blood pressure medications, antibiotics, opioids, antifungals, pain relievers or antidepressants, etc.

It was determined that the fish had been exposed to the pharmaceuticals through the prey they consumed or by inhalation (via the water or sediment).

On average, each bonefish had about seven pharmaceuticals in their body, with one having as many as 17. In 56 percent of the bonefish studied, the levels detected were above which we would expect negative effects, so these fish's body and behaviour were subsequently being

affected in some way.

There was evidence that pharmaceutical contamination on marine life did have negative effects mainly on the fish's behaviour, but it could also affect their ability to reproduce and their endocrine system as well, said Elena Fabbri, a professor at the department of biological, geological and environmental sciences at Bologna University in Italy.

The bonefish's prey were not spared either. Of the 125 prey animals in the study (like shrimp, crab, small fish, etc), all tested positive for an average of 11 pharmaceutical contaminants each.

### How did drugs end up in fish?

Since the bonefish and their prey are obviously not self-medicating or opting to get high on the drugs, the answer lies above ground.

There are some ways pharmaceuticals can reach the waterways and oceans: through manufacturing and rainwater run-off, as well as human

Bonefish (left and below); School of bonefish in area of seagrass (bottom right)



CHRIS HAAK / FWC / FLICKR COMMONS / CC BY-NC-ND 2.0

and livestock wastewater.

According to Rachel Silverstein, director of Miami Waterkeeper, an environmental organisation, wastewater can end up in the sea through sewage spills, discharge of treated wastewater into the ocean and malfunctioning septic tanks.

"Though most contamination is screened out at sewage treatment plants, it's very hard to remove some of these pharmaceuticals from the water," she said. In 2020, over several months, 800m litres (212m US gallons) of sewage was spilled into Fort Lauderdale's waterways, enough to fill 320 swimming pools.

Silverstein added that rising sea levels also prevented more than half of the septic tanks in Miami-Dade county from filtering waste properly. This made pharmaceutical discharge not a problem just

for marine animals, but an environmental and public health hazard as well.

### Possible solutions

Ozonation, a process of adding ozone to the water, can help to remove contaminants (including pharmaceuticals and pesticides) that have been missed by traditional wastewater treatment. However, to include ozonation in their processes, it would be necessary to retrofit existing plants.

Another solution focusses on the pharmaceuticals themselves, by making them greener so that they would break down faster in the environment.

"We cannot ban these substances because we need them, but we could favour or push pharmaceutical industries to find greener alternatives," said Fabbri.

### More barriers to overcome

Presently, there are no legal limits for the control of pollution from pharma-

ceuticals during its manufacture, use or disposal. And because they are not considered lethal, environment regulations generally do not take pharmaceuticals into account, said study co-author Nick Castillo, a PhD student at FIU.

In addition, much of the research into the issue of pharmaceuticals pollutants has been focussed on freshwater environments, rather than in the oceans. While there is insufficient evidence to link the bonefish's decline with pharmaceuticals, Rehage's study is one of the first studies to go into the marine coastal environments and over a large area to show that pharmaceuticals are indeed everywhere.

Fabbri reiterates that researchers should continue publishing about the subject to inform regulatory agencies about the need for regulations in the marine environment as well. ■

SOURCE: THE GUARDIAN



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Edited by  
Lelle Malmstöm

Canons on  
the *Blücher*  
wreck are still  
in position.

Text by Mattias Vendlegård  
Photos by Mattias Vendlegård  
and Daniel Kressin

**A joint group of GUE divers from Norway, Sweden and Finland, led by project leader Gunnar Midtgaard, documented the wreck of the *Blücher* in Norway, and its condition, during the summers of 2011 and 2012. Mattias Vendlegård, who served on the photo team during the project, has the story.**



# Blücher Wreck

— WWII German Cruiser in Norway



Historical photo of the WWII German cruiser *Blücher*

We slowly descended through the cold dark water. With every metre, the darkness became more and more dense, and the water slowly got colder and colder. Torchlight beams from our team were all pointing down into the darkness, all of us searching for the same thing—

the thing we knew was down there, the thing that had brought us all together, and the reason why we were here.

Suddenly, out of nowhere, *Blücher* appeared. Just a few metres in front of us, we saw her as a reflection of dark steel. *Blücher* was trying to hide her size

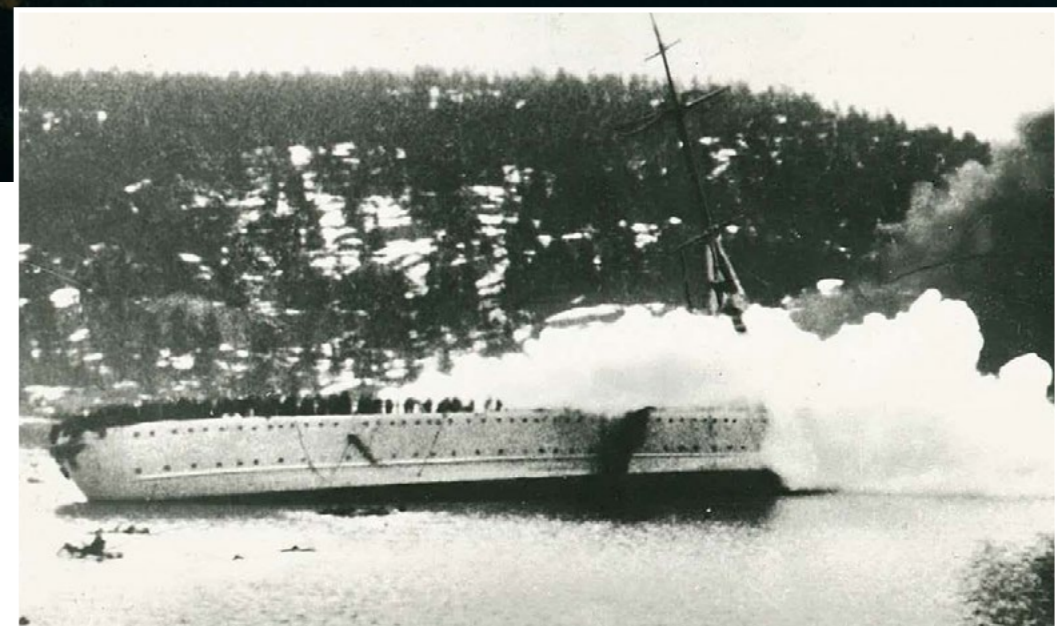
in the darkness, but we all knew that we were tiny compared to her—just tiny visitors at her final resting place.

When you land on the wreck like *Blücher*, a feeling always comes over you. This machine of war was sunk in battle, and when it landed on the





The dive boat reaches the entry point for diving the *Blücher* wreck (above); Torpedo on *Blücher*, still in position, ready to launch (right); Historical photo of the *Blücher* sinking in 1940 in Oslofjord (lower right); Support diver gathering stages and scooters (left)



NTBS KRIGSMARKIV, RA/PA-1209/UUD/L0073B/0004



bottom of the Oslofjord, *Blücher* did it while fighting, and that is the way she was frozen in time. History never feels as alive as when one dives a wreck that had fought for its very survival. One can see the traces

of the battle: empty shells, guns searching for a target, misshaped metal, and boots of sailors who never made it back to the harbour from which they set sail.

This is history in its most real and naked form. There are no signs or posters, tour guides, restoration plans or souvenir shops on wrecks. Wrecks are a frozen moment in time, a moment of panic and dismay. When the rest of the world moved on, time on *Blücher* stood still. Here it is still the 9th of April 1940. But nothing lasts forever, and slowly, this magnificent piece of history is disappearing.

Eventually, the harsh environment, which surrounds *Blücher*, will defeat her. *Blücher* was not made to be here; yet

again, she was fighting a losing battle. One day, nothing will remain of *Blücher*. That was why we were here, and that was why what our team did at this site was important.

### April 1940

It was the night of 8 April 1940. World War II had started only seven months earlier in Poland, and Norway was just about to realise that it was next on the list for Hitler's forces. As part of *Operation Weserübung* (code name for Germany's assault on Denmark and Norway), Germany's newest and most modern heavy cruiser, *Blücher*, was ordered to enter the Oslofjord together with the "pocket battleship" or Deutschland-class cruiser *Lützow*, the light cruiser *Emden*,

three torpedo boats and eight minesweepers carrying a total of 2,000 troops.

The plan was to invade the Norwegian capital, Oslo, in a surprise attack. This was *Blücher's* first mission, and the commander on board, Oscar Kummetz, believed that the heavily disarmed Norwegians would not have the guts or power to stand up against his modern heavy cruiser and the ships that followed her.

In the fjord, the Norwegians had Oscarsborg Fortress, but its commandant, Birger Eriksen, did not have much at his disposal to defend the capital. The fortress had only three 28cm Krupp canons

dating back from 1892, and north of the fortress, he had the Kaholmen torpedo battery, which was equipped with only a few 45cm Whitehead torpedoes made in 1906.

The fort was understaffed, and the few men they had were neither trained nor

experienced in combat. They were a mix of conscript recruits, chefs and medics, and none of them had ever seen or heard a Krupp canon in action before, and definitely had never fired one themselves. Commandant Eriksen's lack of manpower meant that he

MATTIAS VENDELGÅRD

The torpedo battery on the starboard side, where the teak deck is still in good shape

could not even run all three of his cannons and had to settle with just two.

"Incoming warship with lights off at Filtvedt!" This report reached Eriksen early in the morning, and he knew that the enemy now was just six nautical miles from his fortress. Eriksen knew that the fortress was more like a museum than a modern fort, but the sense of duty and loyalty to his country made him shout out the order: "Fire with full power!"

With Eriksen himself working on one of the canons, they fired as soon as they had *Blücher* in range. The first round fired hit *Blücher*. One of the shells hit an ammunition storage, causing a massive explosion that set the heavy cruiser on fire. Despite this

hit, a ferocious battle broke out between the fortress and the advancing *Blücher*.

But *Blücher* did not know about the torpedo battery at Kaholmen, and as soon as she came in range, they fired. Despite their age, the torpedoes did their job and hit her hard. At this point, *Blücher's* rudder had stopped working, and she had begun to keel. About 1,000m after she passed Oscarsborg Fortress, *Blücher* went down into the fjord forever.

The faces and screams of wounded sailors swimming for their lives in the mix of cold water and burning oil were terrible. The pocket battleship *Lützow* and light cruiser *Emden* now had the full attention of the Norwegians

and started getting bombarded. The emergency command of full speed astern was given, and the ship reversed away from the shelling, as they believed that *Blücher* had hit mines.

The sinking of *Blücher* caused a delay of the German attack on Oslo. Thanks to this delay, the king of Norway and members of the Norwegian government were able to escape, and so the Norwegian government therefore never surrendered to Nazi Germany.

### Present day

Today, the massive wreck of *Blücher* rests on the bottom of the Oslofjord at 90m deep. During the summers of 2011 and 2012, a joint group of GUE divers from Norway, Sweden





MATTIAS VENDLEGÅRD

and Finland, under project leader Gunnar Midtgaard, documented the wreck and its condition.

The wreck is almost completely upside down and rests on the port side and the bridge. Her mighty 2x20cm front canons are hidden in the sea bottom, and today, only the back corners of the canons can be seen. The two 2x20cm canons from the stern have fallen off the upside-down deck and now lie also upside-down on the seafloor.

All twelve of the 10.5cm canons, as well as all the anti-aircraft guns, are still in their original place on the ship. It is easy to get the feeling that there are canons and guns everywhere one looks when one

dives this mighty war machine.

*Blücher* torpedo batteries are still in place with some of the torpedoes that never got the chance to spread their destructive power. Here, you can also see that the teak deck is still in good condition despite spending more than 70 years in the waters of the fjord.

### The project

The goal of the project has been to document *Blücher* and its current condition. As mentioned earlier, the project has been run as a joint project with GUE divers from Norway, Finland and Sweden. The diving within the project was conducted in the summers of 2011 and 2012, with deep dive teams that took video footage

and photos of the wreck. The deep dives were conducted with teams of three to four divers, including two HMI lighting divers, one underwater photographer/videographer and a dive model.

All the deep dive teams were supported by a dedicated team of support divers in the water, assisting the deep dive teams with gas, nutrition and equipment. Fjords Underwater Explorers (FUE) from Norway hosted the project and managed the logistics, with boats and gas fills. The gas fills were a critical part of the project, and all dives were done with 12/65 and open circuit. This gave the deep dive teams a 25-minute bottom time, with a total runtime of 2.5 hours. Each



MATTIAS VENDLEGÅRD

Support diver picking up stages and scooters during a shallow decompression stop (above); Anti-aircraft guns on the *Blücher* wreck (left)

deep dive team did three dives, spread out over three days.

Even though all the dives were done during summertime, water temperatures at the bottom never rose over 5°C, or 15°C in the shallower depths of the decompression stops. Diving to these depths, for so long, in such cold waters, demanded a lot from the divers, their equipment and routines. All of the divers involved in this project were experienced in both cold-water diving and deep diving, a crucial requirement in order to keep the diving safe, while at the same time, producing the results that the project was aiming for.

There was no daylight present at the 90m depths in the Oslofjord, and *Blücher* lay in complete darkness. Even with two HMI lights per team, the visibility was never more than 5 to 10m, something

which demanded great team awareness and navigation skills from all the diver who tried to dive the wreck.

It is important to remember that *Blücher*, and the context in which she was sunk, is an important piece of history, as well as a gravesite for several hundred sailors. Anyone who dives this wreck should keep this in mind and always dive with respect.

To everybody interested in this project or the history of *Blücher*, we are very proud to announce that a documentary video was launched in 2013. The release date is not yet set but keep your eyes peeled, as it is well worth watching for anybody interested in diving and maritime history. ■

*Special thanks go to Fjords Underwater Explorers (FUE) who managed all the logistics of the project.*

### DIVERS OF THE PROJECT:

**PROJECT MANAGER**  
Gunnar Midtgaard

**SUPPORT MANAGER**  
Ronald Larsen

**VIDEO TEAM**  
Gunnar Midtgaard, Norway  
Fredrik Taule, Norway  
Martin B. Karlsson, Norway  
Bjørn Opperud, Norway  
Martin Nålund, Norway  
Hallvard Opheim, Norway  
Jørgen Birkhaug, Norway  
Anders Bertelsen, Norway

**SUPPORT DIVERS**  
Dan Morten Tryli, Norway  
Daniel Kressin, Sweden  
Erling Hoydal, Norway  
Kacper Rybakiewicz, Norway  
Aleksander Thomassen, Norway  
Edward Smith, Norway  
Garm Sätre, Norway

**PHOTO TEAM**  
Mattias Vendlegård, Sweden  
Bjørn Stubne, Norway  
Daniel Kressin, Sweden  
Erik Hultén, Finland  
Fredrik Gestranus, Finland  
Mattias Sjöström, Finland

## Dyngökoggen: Rare Centuries-Old Wreck in Sweden

— Interview with marine archaeologist Staffan von Arbin

Interview and text by Mimo Moqvist  
Translation edited by G. Symes

**Last autumn, maritime archaeologist Staffan von Arbin and his team discovered a very old wreck outside Dyngö, just outside Fjällbacka in Bohuslän (Bohus County). It later turned out to be a real find, but in fact, they were looking for a different wreck.**

“Yes, it is actually a slightly special story. We were really looking for a completely different wreck, from the 16th century. As early as 2005, I got in touch with a man whose father had found a wreck outside Dyngö when he was fishing for trout,” said von Arbin.

The father who found the wreck was no longer alive, but the son tipped off von Arbin about the find and told him that he had material that von Arbin and his team could see.

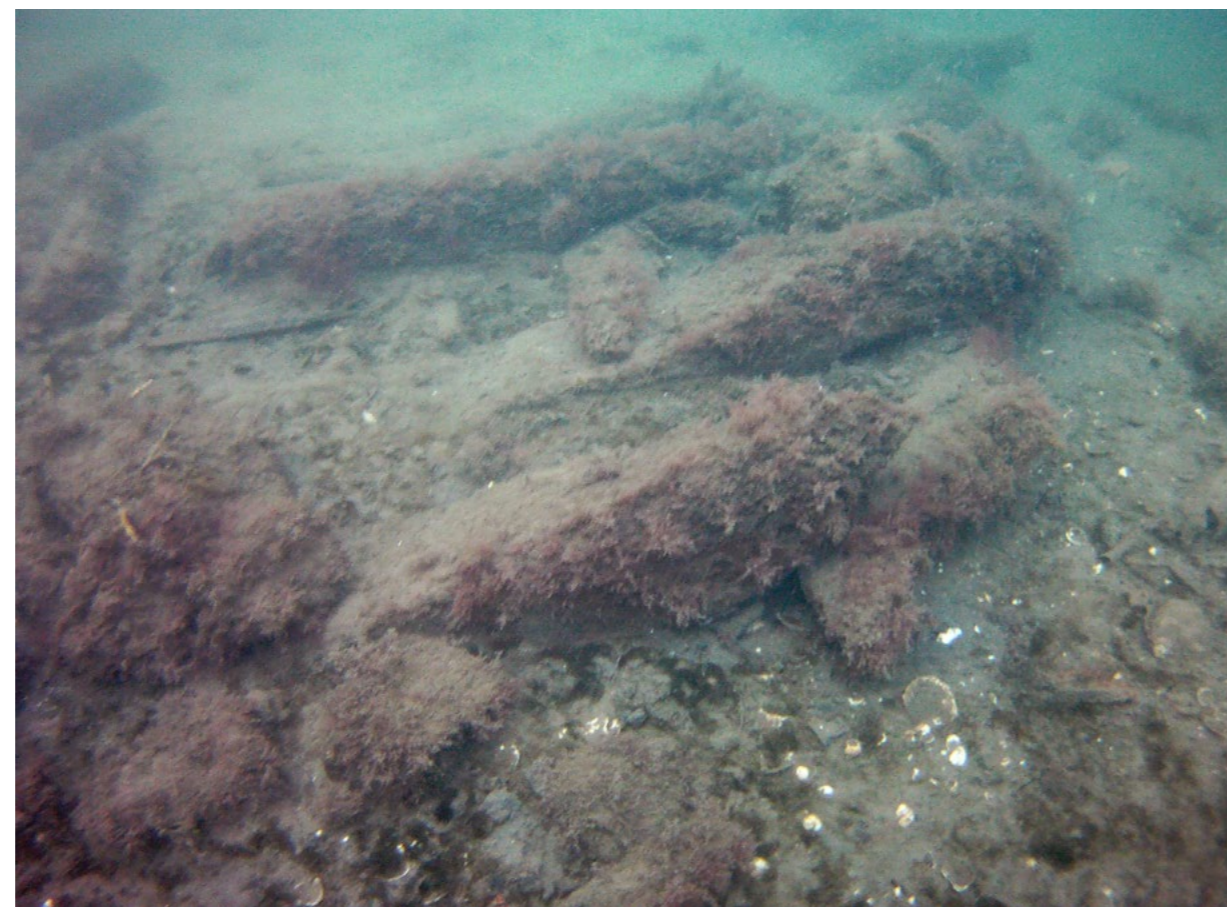
“His father had salvaged a large frame, which was lying under a tarp in the garden. We did a tree-ring dating of the wood, which indicated that it was from the early 16th century,” said von Arbin.

### Finding the wreck

In the fall of 2021, von Arbin and his colleagues dived at Dyngö to try to

find the wreck. By surveying the area with drones, they found a structure in the water that looked promising. They showed up at the scene and found a wreck.

“We understood quite quickly that it was not at all the ship we were looking for, but that it was at least as interesting as the 16th-century wreck—if not even more interesting,” said von Arbin.



Protruding ship timbers are heavily infested with shipworm, but under the sediment, the wood is well preserved. Photo by Staffan von Arbin, University of Gothenburg

### Permit and carbon dating

Shipwrecks dating before 1850 are ancient remains and may not be moved without a permit, so von Arbin contacted the county’s administrative board to get permission to take samples for a preliminary age assessment—which they received. A carbon-14 dating indicated that the ship could be as old as the 12th or 13th century. The method gives a rough

dating, so they applied for a new permit to do a more accurate tree-ring dating.

The sampling was done at the end of November and von Arbin got a little more data on the ship, as they got more samples. But they had to wait a few months before they got the carbon-dating results, which came in February this year. It turned out that the ship was built between 1233 and 1240, with wood from northwestern Germany.

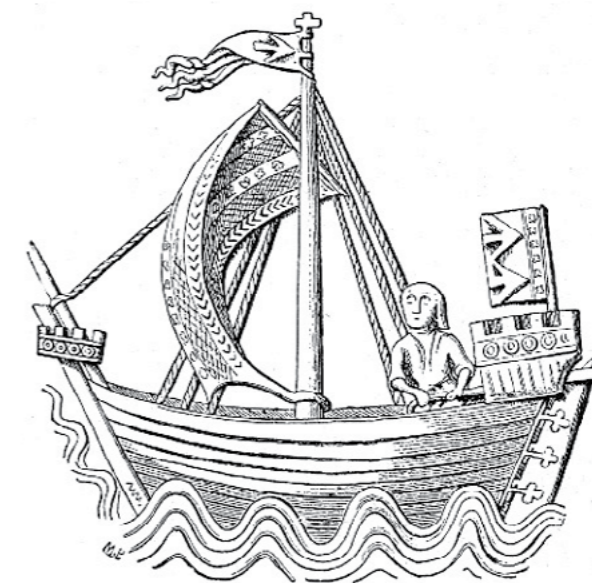
“Tree-ring dating, or dendrochronology, is a very good method for finding out the age and origin of a ship. There exist reference chronologies to compare with, and in general, there are very good references for oak, and to some extent pine, which is very fortunate, as most old ships are built of just oak,” said von Arbin.

“The whole wreck is full of charred wood, so evidently, it had been subjected to a fierce fire. Maybe that is why it is there. Shipworm has been hard on the parts of the wreck that are exposed, but it is a lot more preserved in the bottom sediment. The wreck is about 10 by 5 metres, but



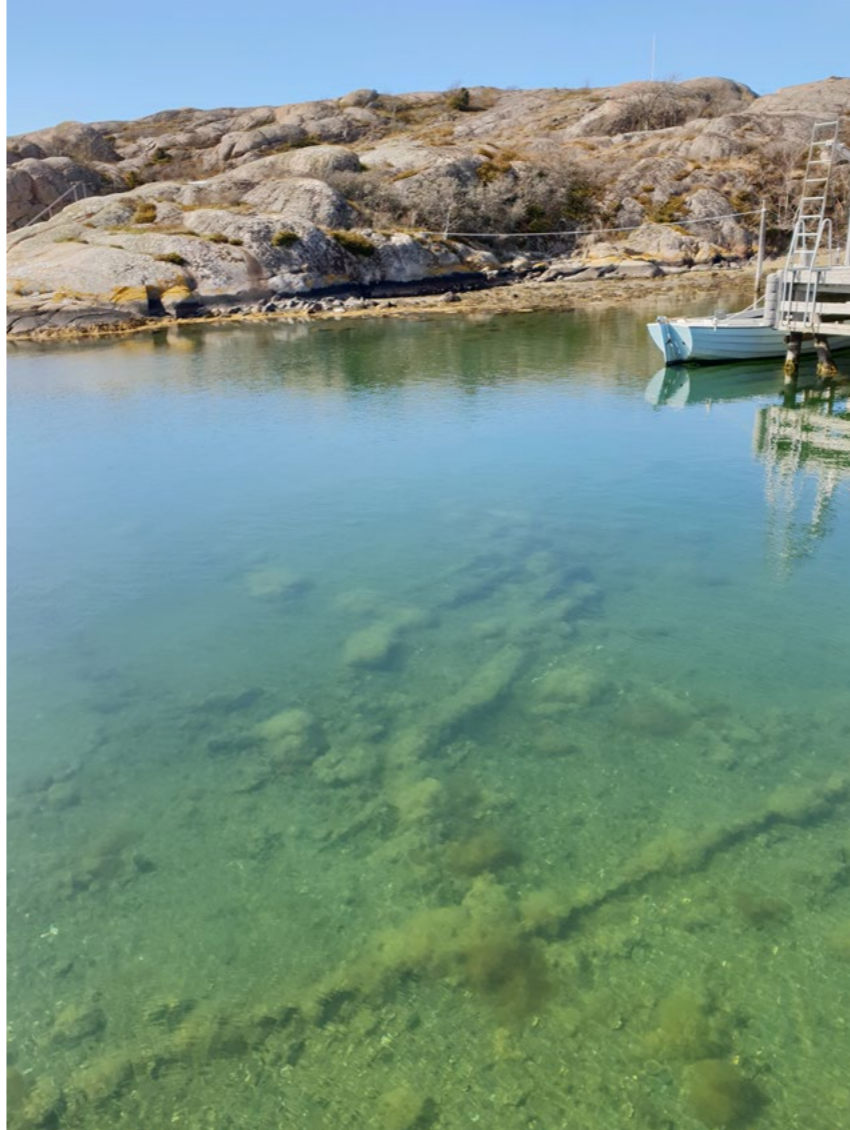
A diving archaeologist examines the sea bottom at Dyngö. Photo by Staffan von Arbin, University of Gothenburg

originally, we estimate that the ship may have been about 20 metres long, which is a fairly large ship for that time.”



Medieval depiction of a cog on a seal of Stralsund in Germany

The wreck is located near land, at a depth of only two metres, and can be seen from the surface, in clear waters. Despite this, it was not previously known by the locals. Photo by Staffan von Arbin, University of Gothenburg



## Further investigation

The hope is to eventually be able to make a larger investigation of the so-called Dyngökoggen (Dyngö Cog). But it requires a lot of planning, preparation and financing. It is not only personnel and equipment that is costly; during an excavation, the finds must not only be examined but also preserved. If it can be demonstrated that there is scientific value in an excavation, then

there is financial support that can be applied for.

"It will be an archaeological puzzle we put together, which gives us historical knowledge; we would, in part, get a better knowledge about the type of ship, which can help illuminate the development of the cog, because Dyngökoggen is one of the oldest found, and we might gain knowledge about why it is where it is," said von Arbin. "Even if it has

burned, we may be able to find out what was shipped, and based on that, we can deduce where it came from and where it was going."

Von Arbin has been working in maritime archaeology for more than 20 years but has mainly worked with contract archaeology (or rescue archaeology), which means that he conducts research before, for example, new ports are built, dredged or something similar—just as an archaeological survey is done before any big construction on land.

"But right now, I am also working on a doctoral dissertation,

on medieval shipping in Bohuslän. So, it suited me very well that I found this wreck right now," said von Arbin.

## Significant find

Dyngökoggen is one of his most significant finds.

"I have, of course, found a lot over the years, but never something this old," said von Arbin. "We may not have realized at first that it was so old and that it was a cog, but we understood that it was actually a really old find. These are the moments you live for as an archaeologist—when you get an exciting result or make an exciting discovery. That is what drives one, and to be able to solve this puzzle that I talked about. Then, of course, it was extra fun because it fits so well with the dissertation—to find Bohuslän's oldest wreck!"

The 16th-century ship they were actually looking for has not been found yet either.

"It would be fun to eventually find it too. But right now, the cog feels even more exciting to move forward with, of course," said von Arbin. ■

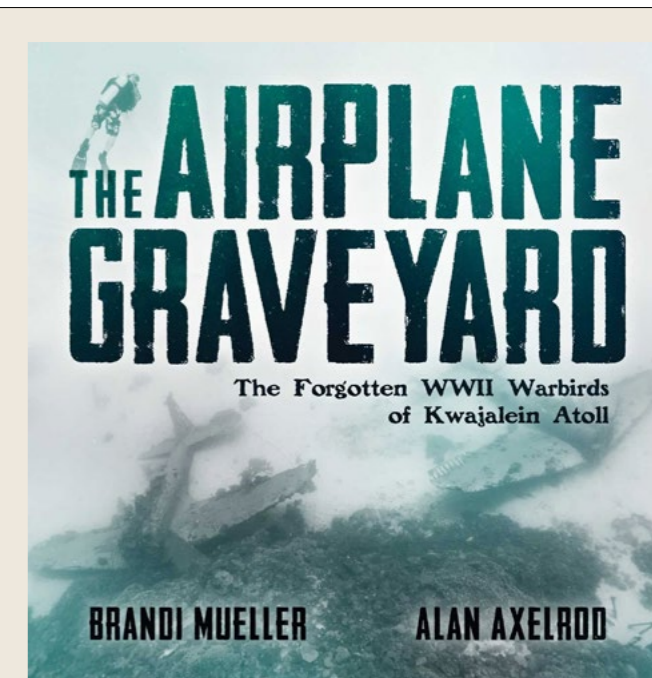
## FACTS ABOUT THE COG

The cog was a type of ship that dominated shipping in Northern Europe during the period from 1150 to 1450. It was characterized by a box-shaped, flat-bottomed and load-bearing hull, upright bow and stern, carvel-built bottom and clinker-built sides, and a square mainsail on the centrally placed mast.

It is often associated with the northern German Hanseatic League's trade successes during the Middle Ages. The type of ship is mentioned in written sources and is depicted on seals and paintings but is also known from about 30 wreck finds from all over Europe. The Dyngö Cog is one of the oldest cogs ever found and the seventh to be found in Swedish waters. ■



Archaeologist Staffan von Arbin with wood samples from the wreck. Photo by Anders Säldemark



Never before published in book form, see extraordinary images of the forgotten American WWII airplanes resting on the bottom of the Kwajalein Atoll lagoon, from award-winning underwater photographer Brandi Mueller. Available on: [Amazon.com](https://www.amazon.com)

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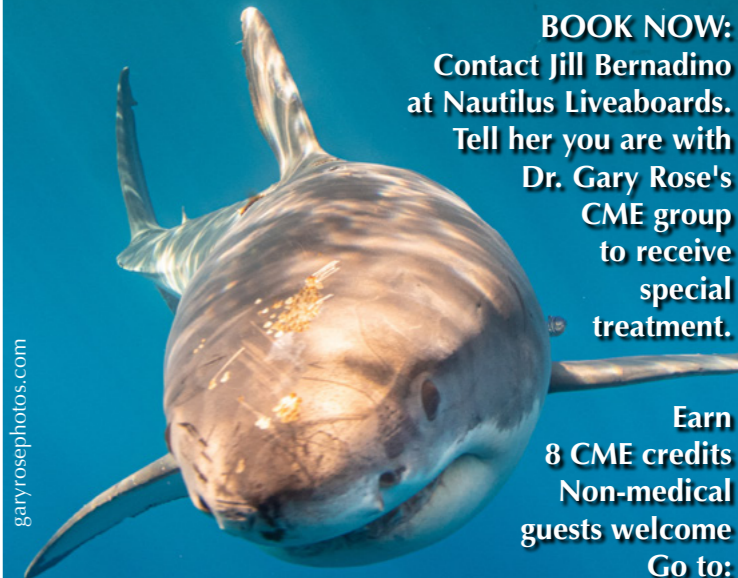
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American 19th-century painting of a schooner

## Shipwreck uncovered on North Carolina beach

**During a very high tide known as a king tide, a shipwreck believed to be from the 1800s was discovered on the beach in front of the Shoals Club on Bald Head Island.**

The club is located in Brunswick County to the south of Wilmington, North Carolina, USA. An archeological team visited the site. They determined that the wreckage was part of an old ship. Excited about the news, the Shoals Club posted on Facebook:

“History has been found on The Shoals Club beachfront! The king tide from earlier this year revealed the remains of a ship from the 1800s. This week, an archeological crew came out to examine and determine that it was a ship. We ask that all beachgoers stay away from these remains as we discover more. We do not have plans to remove it at this time. Stay tuned for updates.”

According to the National Oceanic and Atmospheric Administration (NOAA), a king tide is a popular, non-

scientific term that people use to describe an exceptionally high tide. There was a king tide earlier this year, but it is not known precisely when the shipwreck appeared.

“Finding the 12 x 60ft shipwreck on the beach was like finding gold at the end of the rainbow,” the Shoals Club said in a statement provided to *Newsweek*. “It’s a privilege to be a small part of the ship’s story—we look forward to learning more about it as the North Carolina Office of Archeology researches the remains further.”

Kevin P. Duffus, a maritime history expert, said the dimensions of the wreckage indicated that the ship was larger than a traditional fishing boat. Considering the iron fasteners and wooden timber, it appears the vessel is from the late 19th century and is most likely a large schooner.

Duffus stated that a common problem in identifying shipwrecks is that storms can transport the remains far away from where a ship initially sank. ■ SOURCE: NEWSWEEK, SHOALS CLUB ON BALD HEAD ISLAND

## Study reveals more clues to New England shipwreck of 1626

Since 1889, the Pilgrim Hall Museum in Plymouth has had 109 timbers from a shipwreck believed to be the *Sparrow-Hawk* that sank in 1626. In March 2022, an international, multiyear study on the timbers provided the best evidence that the wreckage is from the *Sparrow-Hawk*.

Based on where the timbers were found, it was long believed that they were from the 12-meter (40ft) ship. The *Sparrow-Hawk* is the oldest known shipwreck in British colonial America. Until now, there has always been some uncertainty about its true identity.

### Historical reference

The Plymouth Colony Gov. William Bradford wrote about a small ship bound for Jamestown, Virginia, that was forced ashore by a storm in 1626, near what is now the town of Orleans. The boat had many passengers and carried sundry goods. Bradford wrote how the vessel had been at sea for six weeks, the captain got sick with scurvy, and they ran out of water and beer. Passengers Mr. Fells and Mr. Sibsie had many Irish servants. Although

not by their free will, they were the first documented Irish colonists in New England. The Nauset tribe, who spoke English, helped the passengers. Local Pilgrims sheltered them for nearly a year before they found passage on other boats to Virginia to farm tobacco.

Meanwhile, the ship was buried by shifting sands until a storm in 1863 uncovered the well-preserved wreckage. Since the 1860s, the unknown ship has been referred to as the *Sparrow-Hawk*.



Sampling a crutch timber from the *Sparrow-Hawk* for tree-ring analysis



Central floor timber from the *Sparrow-Hawk*

### Wood analysis

The recent study, published in the *Journal of Archaeological Science: Reports*, was performed by maritime archaeologist Calvin Mires from the Woods Hole Oceanographic Institution in Falmouth, Massachusetts; Aioife Daly, an associate professor at the Saxo Institute at the University of Copenhagen, Denmark; and Fred Hocker, the director of research at the Vasa Museum in

Stockholm, Sweden.

They used wiggle-match dating, which is a form of radio-carbon analysis, and dendrochronology to narrow down when the ship was built. The tests showed that the wood used to make the boat was harvested between 1556 and 1646. Donna Curtin,

executive director of the Pilgrim Hall Museum in Plymouth, said. “But we can say with much more confidence than ever before that what we have is compatible with Gov. Bradford’s journal story.”

More scientific study is planned, and Curtin would like to use digital modeling to construct a 3D image of the ship. The plan is to put the *Sparrow-Hawk* back on public display in 2026. That year will be the 400th anniversary of the wreck.

For more information, go to: [pilgrimhall.org/ap\\_sparrow-hawk.htm](http://pilgrimhall.org/ap_sparrow-hawk.htm) ■ SOURCES: AP, JOURNAL OF ARCHAEOLOGICAL SCIENCE: REPORTS



Historical illustration of *Sparrow-Hawk* remains, 1865

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Edited by Scott Bennett



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## Mask mandates for planes and airports lifted in EU

**As coronavirus-related travel restrictions continue to ease, the European Union (EU) announced mask mandates would be lifted for airplanes and airports.**

According to the Associated Press, the European Union Aviation Safety Agency (EASA) and the European Centre for Disease Prevention and Control made the joint decision, anticipating it to be “a big step forward in the normalisation of air travel.”

In a joint statement, the two agencies said the updated guidelines take “account of the latest developments in the pandemic, in particular the levels of vaccination and naturally acquired immunity, and the accompanying lift-

ing of restrictions in a growing number of European countries.”

As of May 16th, mask mandates were officially lifted, although each airline can enforce the policies if deemed necessary. EASA Executive Director Patrick Ky said, “passengers should however behave responsibly and respect the choices of others around them.” Facial coverings will remain mandatory on flights to destinations where the rules are different.

### IATA

The International Air Transport Association (IATA) welcomed the EASA removing its recommendation that masks be required in-flight. “We welcome EASA’s recommendation to relax the mask mandate, which is another important step along the road back to normality

for air passengers,” said IATA Director General Willie Walsh.

“Travelers can look forward to freedom of choice on whether to wear a mask. And they can travel with confidence knowing that many features of the aircraft cabin, such as high frequency air exchange and high efficiency filters, make it one of the safest indoor environments.”

### CDC

In the United States, the Center for Disease Control and Prevention (CDC) announced that people traveling on public forms of transportation should still wear a mask for protection against coronavirus. The recommendation comes after a federal judge struck down the mask mandate in April. ■ SOURCES: AP, CDC, TRAVEL PULSE



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## Luggage company aims to save travellers from carry-on fees

**Removable wheels transform carry-on into free personal item.**

With some airlines now charging for carry-on bags, the price of a bargain ticket makes actual travel costs difficult to determine. To solve the problem, one US company has introduced Take OFF Luggage, a compact bag with removable wheels that transforms from a carry-on into a personal item, which passengers can take on board for free.

“Being a frequent budget airline passenger to save costs, I could not believe when they started actually charging me to roll my own bag to my flight and lift it up into the overhead bin,” said Take OFF

Luggage founder Stephen Davis. “Since under-seat bags are still free, I tried to find a bag that size that would still hold everything I needed to carry.”

Unable to find a solution, Davis decided to create one. The Take OFF Luggage bag measures 20in high by 14in wide by 8in deep and comes with four removable

360-degree spinner wheels, which, once removed, shortens the length of the bag from 20in to 18in, allowing it to fit under most seats.

Retailing for US\$119, the company estimates it can save passengers around US\$80 to US\$200 on one trip alone. For more information, go to: [takeoffluggage.com](http://takeoffluggage.com) ■



COURTESY OF TAKE OFF LUGGAGE

Take OFF Luggage bag with wheels off and on



An underwater photograph of a coral reef. The central focus is a large, intricate branching coral structure with a striking red and white color palette. The red parts form the main stems and primary branches, while the white parts form the delicate, feathery tips. This coral is surrounded by other diverse marine life, including various green and brown corals, sponges, and smaller branching structures. The water is clear and blue, with some small fish visible in the background. The overall scene is vibrant and detailed, showcasing the biodiversity of the reef.

# New Caledonia

*Jewel in the Southwest Pacific*

Text and photos by Pierre Constant

Edited by Catherine GS Lim





View of La Poule Couveuse at Hienghène (above); Grey-eared honeyeater, *Lichmera incana*, La Foa (centre); Outrigger canoe, Baie St Joseph (top right); Linderalik cliffs and the enclosed lagoon, seen from Wivaek Pass, Hienghène (far right); Large gorgonian, Pascaline dive site, Poindimie (previous page)

**Considered the longest continuous and second largest in the world, the reef systems of New Caledonia have some of the most diverse concentrations of reef structures on the planet, providing a home for a vast diversity of species, including 2,328 fish species (many of them endemic) and over 2,000 species of molluscs. It is an important site for nesting green sea turtles, and there are also large populations of dugongs and humpback whales. Pierre Constant shares his adventure to this southwestern Pacific oasis.**

It really started as one hell of a trip. I had originally booked a return flight to Wallis and Futuna—west of Fiji and Tonga—in the central-western Pacific, which would transit through Nouméa in French Caledonia. Unfortunately, it seemed I had to make an official request to the COV (Commission des Vols) for a special permit, provide documents and then wait a month to get a confirmation—which I received precisely one week before I left France.

In addition, it was also compulsory for me to spend a week in total confinement in Nouméa, before I would be allowed to fly to Wallis. It was no use to have been already vaccinated against Covid-19, with the compulsory booster shot, plus the

negative PCR test less than 72 hours before departure. Nope! One still had to spend a week in isolation, take an antigen test two days after arrival and again seven days after the completion of the “confinement.”

To make a long story short, I was denied access to Wallis and had to change my trip itinerary to cover only New Caledonia.

The week of confinement was boring, a total loss of time and a substantial loss of money too (1,000 Euros). By the time I left New Caledonia one month later, the compulsory quarantine was lifted to “boost tourism,” as they said. To say I was fuming would be an understatement. Welcome to a South Pacific “paradise”!

### Geography

Situated 1,980km north of New Zealand, 1,470km east of Australia, 630km south of Vanuatu and 1,350km west of Fiji, New Caledonia lies in the southern hemisphere at 21°25' South

and 165°30' East. Part of Melanesia in the western Pacific, this bone-shaped island is 400km long (250 miles) by 40km wide (25 miles), with a total land surface of 18,576sq km.

Known as “Grande Terre,” the





Le Bonhomme rock, off Bourail Beach

main island's highest summit is Mt Panié, rising up to 1,628m in the northwest. Four main islands are found to the northeast and southeast: Ouvéa, Lifou, Maré (these three islands make up the Loyalty Islands), and the Isle of Pines, as well as numerous smaller islets and myriads of coral reefs.

Located on the Indo-Australian Plate, New Caledonia is part of the mostly submerged continent of Zealandia. Orientated northwest to southeast, this landmass is a fragment of the ancient continent of Gondwana, which broke off from Australia about 66 million years ago and drifted in a northeasterly direction, to reach its present position 50 million years ago.

Driven by alternate plate colli-

sions and rifting, the rock formations range from 290 million years (Permian) to the present. These include igneous, metamorphic and sedimentary rocks. The Loyalty Islands ridge is seen as a volcanic island arc.

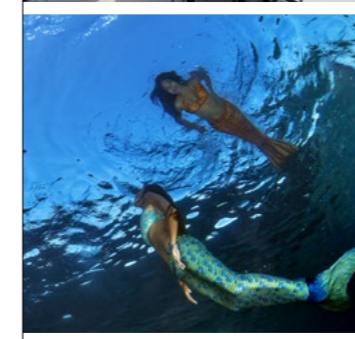
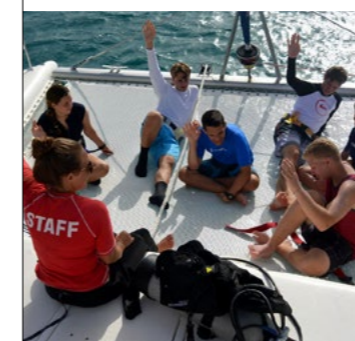
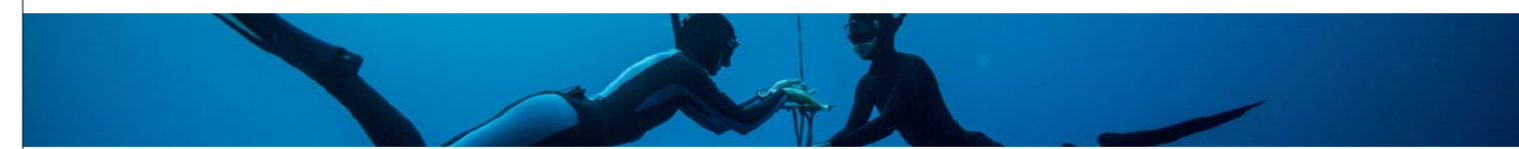
The subduction of the Australian Plate along the South Loyalty Basin was blocked by New Caledonia, resulting in "obduction" (when a continental plate goes under an oceanic plate, and not the other way around) during the Eocene and Oligocene.

Still a complex phenomenon to geologists, this nevertheless explains the occurrence of the Peridotite Nappe (part of the metallic rich Earth mantle) at Grande Terre. It is the altera-

tion of the peridotite rocks that transform into laterite. As a consequence, we have the nickel-rich content of the dark red soil, mined today in various parts of Grande Terre.

A central mountain range divides the mainland along its length, with the highest peaks of Mt Panié in the northwest and Mt Humboldt (1,618m) in the southeast. Exposed to the southeast trade winds, the eastern coast has lush green vegetation. The western coast is drier, with large savannahs and plains for farming.

Blessed with a tropical climate, the hot humid season extends from November to March. Temperatures average 27 to 30°C. Between December and April, tropical depressions and cyclones




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Kanak warrior in the days of the French colony (top left); Wooden carved totem, Tiendanite (top centre); Traditional hut of a Kanak chief, Goa Ma Bwarhat cultural centre, Hienghène (above); Nautilus stamp, street art, Nouméa (right); Illustration of traditional chief Kanak's house, after Élisée Reclus' *Géog. Universelle*, 1889 (left); Wood carving, Baie de St Maurice, Vao (far left)

pound the island with strong winds from 100 to 250km/hour and heavy rainfall. The cool dry season extends from June to August, with average temperatures in the 20 to 23°C range.

**History**

Early traces of human presence date back to the Lapita culture (1600B.C. to

500B.C.), when highly skilled navigators and agriculturists sailed from Southeast Asia, and across the Pacific, over a period of 2,000 years. Primitive settlements were concentrated along the coast (1100B.C. to 200B.C.).

The first European to sight New Caledonia was British explorer James Cook on 4 September 1774 on his second voyage. He gave his name to the famous Cook's pine (*Araucaria columnaris*) found everywhere on

the coral islands. French navigator Louis Antoine de Lapérouse sailed by Grande Terre in 1788. The Loyalty Islands were visited by whalers between 1793 to 1796.

**A dark past**

Later on, visiting ships were primarily interested in sandalwood. This resource would slowly be replaced by "black-birding" from French and Australian traders, when Melanesian and Pacific islanders (from New Caledonia and Loyalty Islands) were lured into slavery and forced into hard labour in sugarcane plantations in Fiji and Queensland. In the early 20th century, children from the Loyalty Islands were kidnapped to work on the plantations and mines of Grande Terre.

French counter admiral Auguste Febvrier Despointes officially took

possession of New Caledonia on 24 September 1853, in the name of Napoleon III. Grande Terre became a penal colony in 1864, and 22,000 criminals and political prisoners were sentenced to hard labour in New Caledonia. The same year, nickel was discovered and mined 12 years later.

Excluded from the economy and mining work, the indigenous Kanak people sparked a bloody insurrection in 1878, led by Chief Ataï of La Foa. A guerilla war resumed after many of the central tribes united together to fight the invaders, resulting in many deaths on both sides. Chief Ataï was killed.

A second revolt and guerilla war erupted in 1917. This slowly brought on the creation of the independentist movement (FNLKS) of Jean Marie



Tijbaou (once a priest) who would be assassinated in May 1989, by a Kanak from Ouvea.

This event and what followed triggered the deep resentment evident today against the French presence. This is despite three referendums confirming the attachment to France, which met an overwhelming Kanak abstention.



La Poule Couveuse lagoon and offshore islets, Hienghène (above); Cliffs of Linderalik and the lagoon, Hienghène (top left); 100 Franc coin, XPF (centre); Inside the Koumac cave and underground river (bottom left)



International Airport, followed the south-western coast to Kone. I was amidst the green hilly countryside, with the central mountain range on the right. A sinuous road crossed the main divide, as it gained in elevation among pine trees, bamboo groves and exotic giant tree ferns. Here was a reminder of New Zealand's rainforest landscapes.

### Arrival in Hienghène

It was a 390km or a five-hour drive from Nouméa, to reach Hienghène on the northeastern coast. The main highway, beyond La Tontouta

One hour later, the eastern coast was in sight, and the forever twisting road ran along the coast beyond Touho. A small sleepy village, Hienghène was the core of the inde-

pendentist movement, considering the number of FNLKS flags hanging in front of every house and property. This was a genuine tribal area where custom rules are the norm, so one is expected to behave accordingly!

Babou Dive Centre sat in a quiet location of the countryside. Founder Thierry Baboulène's assistant, Florent, had no knowledge of my arrival. "There will be no diving until the weekend, because of the weather and the dirty sea conditions," he advised, adding that it had been raining recently. The visibility was affected by the discharge of nearby rivers, with the swell and waves on top. This meant I had three days to kill in front of me.

### Land-based explorations

At the base of the black dolomite Linderalik cliffs, I found a chalet at the nearby Gite Kunwe Foinbanon. A stroll took me to the viewpoint of La Poule Couveuse.

A dark, sharply eroded black limestone islet jutting out of the lagoon, mimicking a nesting hen, it is the touristic symbol of Hienghène.

The following morning saw me climbing the trail, overgrown with high grasses, to Col de Ga Wivaek (Wivaek Pass), where there was a stunning panoramic viewpoint overlooking the Linderalik cliffs and back lagoon, La Poule Couveuse, and the mouth of the Hienghène River. A sweaty two-hour round trip.

After a fifteen-minute drive north of town, the road led to the Bac de la Ouaième, an old ferry barge on a metallic cable that transported vehi-

cles back and forth across the river. This remarkable piece of history is the only one left on the island. Farther away was the breathtaking multi-tiered Colnett Waterfall, a chance for another hike and a lovely dip in freshwater pools.

Set on tribal lands, the cliffs of Linderalik were enticing because of the existence of a cave tunnel that cut through the limestone, presently closed, unfortunately.

### Unintentional trespass

Passing by in search of it, I discovered with awe the sepulture of an ancient human, with bones and skull next to a conch shell, attribute of a minor chief. To my stupor, I was to find out later that the place was taboo—a former hideout of cannibals who, in the past, would lure their victims there.

If one had been seen there, one would have gotten into serious trou-





Gorgonian in swim-through (left), school of scalefin anthias on reef (above), paddletail snapper (right), and hawksbill sea turtle (bottom left) at Cathédrale dive site



ble with the local owners. I realised then that New Caledonia was no different from Papua New Guinea and the Melanesian Islands, where permission is needed to enter or trespass any land.

**Finally, the diving starts**

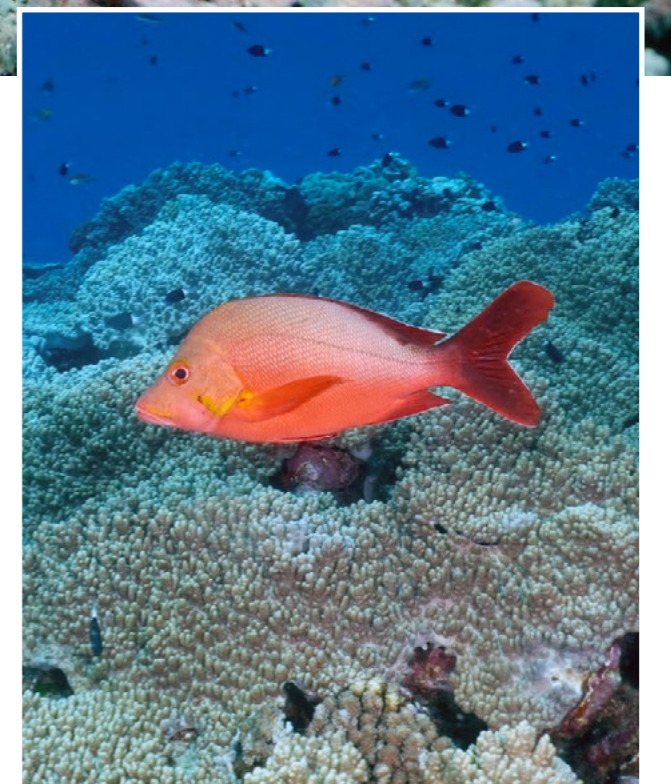
A Frenchman in his fifties, Thierry, the founder of Babou Dive Centre, had settled in Hienghène in 2000. Powered by a 300HP Suzuki out-board, the centre's aluminium

boat was rather full today, with eight divers on board.

**Cathédrale.** We sailed 12 miles out across New Caledonia's lagoon, one of the largest in the world with a surface area of 24,000 sq km. It was a 45-minute trip to the outer barrier reef. The dive site was Cathédrale. We submerged into a gully, under some arches and swim-throughs, with gorgonians. Thierry pointed out a pretty purple flatworm with an orange line along the back. Among the fish life, I

noticed one-spot snapper (*Lutjanus monostigma*), eye-stripe surgeonfish (*Acanthurus dussumieri*), Napoleon wrasses (both male and female), a wahoo, a black saddle coral grouper (*Plectropomus laevis*), two bluefin jacks and a grey reef shark.

**Pointe aux Cachalots.** The successive dive at Pointe aux Cachalots was a maze of gullies, swim-throughs and small tunnels in the reef structure, where openings in the ceiling created an amazing





Divers with large anemone at Pointe aux Cachalots (above)



Coral bommie with *Tubastrea* sp. green cup coral (above), sunbeams streaming through the labyrinth (top right), divers coming out of a swim-through (top centre) and entering the caverns (far left), at Pointe aux Cachalots dive site

detailed snapper (*Lutjanus gibbus*), a green jobfish (*Aprion virescens*) and an exhilarating school of smallspotted dart (*Trachinotus baillonii*) under the surface. A big silvery pompano with a scissortail showed up as well. On our way to the dive site, a joyful school of spinner dolphins (*Stenella longirostris*) gave us a welcome spinning show.

**Poindimie**

One hour southeast of Hienghène was the town of Poindimie, where I had planned a week of diving. Sadly, things did not go as expected. On the first dive, I went with a lady instructor and a few divers. She

spotted an attractive nudibranch at once, and so I changed the wide-angle lens to the macro lens.

By the time I set back the wide-angle lens on the housing again, the dive group had disappeared into the labyrinth of canyons and tunnels. I had no clue where to go. Instead of calling off the dive, I decided to swim around the block and shoot photos on my own. Fortunately, I caught up with the group before the end of the dive.

**Koumac**

My next port of call was Koumac on the northwestern coast, where I had heard of a dive shop. No answer

display of sunbeams and light. There was not much fish life here, besides a wandering grey reef shark. The water temperature was 27.5°C.

The next day was a repeat of the dives done earlier, with better visibility and more photo opportunities. Among others, there were the pad-



Colnett Waterfall, close up, at Pouebo (above); Parc des Grandes Fougères, big ferns, *Sphaeropteris novaecaledoniae*, at Farino (top right); The endemic New Caledonia friarbird, spotted dove at Kunwe Foinbanon, and the endemic "kagu" birds, symbol of New Caledonia, at Parc Provincial de la Rivière Bleue, Yaté (right to far right); Couple of white-breasted woodswallows at Isle of Pines (left)



**Natural heritage**

Being isolated for such a long time, after the separation from Gondwana, the flora and fauna of New Caledonia have evolved on their own for millions of years. Out of 3,400 species of plants, 74 percent are endemic—that is, 2,530 species. It is not only endemic species, but also entire genera and families. Out of the 44 species of gymnosperms, 43 are endemic. Out of the 35 species of *Araucaria* in the

world, 13 species are endemic to New Caledonia, including the renowned Cook's pine. Many species of tree ferns are endemic, like the giant tree fern (*Sphaeropteris novaecaledoniae*), over 10 metres tall, found in the Parc des Grandes Fougères (Giant Fern Park).

In regard to the 183 species of birds found here, 24 species are endemic, including a friarbird, a lorikeet, a parakeet, a cuckoo shrike, two honeyeaters, a myzomela, a

white eye, the goliath imperial pigeon and the red-throated parrotfinch, among others.

The most emblematic of all is the flightless, bluish-grey, 55 to 60cm tall kagu, which walks in the humid forest of the lowlands, in search of worms, insects and small reptiles.

I was unable to spot it at first at Sentier des Cagous, but in the Parc Provincial de la Rivière Bleue (Blue River Provincial Park), I fell upon a

couple by chance, one early morning, as they suddenly appeared in front of me, hissing like a snake to warn me of their presence! Distinctively charming and unique.

Eleven species of fish are found in rivers and lakes. A living fossil related to ammonites, the nautilus is found in waters

around New Caledonia. Last but not least, an extinct species of giant horned turtle with an armoured tail (*Meiolania platyceps*) from the mid-Eocene was discovered here. A full skeleton was also found



Seastar, *Fromia* sp., at Vertigo (above); Bubble coral at Ilot Gié (top left); Pacific green sea turtle, Vertigo (top centre)

Gorgonian at Pascaline (above); Dotted sweetlips, *Plectorhinchus picus*, at Kugié (left)

in a sand dune on Lord Howe Island, farther south.

**Isle of Pines**

My last week in New Caledonia was reserved for Isle of Pines, a celebrated island paradise and tourist hotspot, a half-an-hour flight southeast of Nouméa. Based in Ouameo Bay on the northwest of the island, Kunie Scuba Centre was the place to go.

Although I was hoping for a week of diving, I got only four days in the water. The weather was decent, but the visibility was not optimal. The year 2022 marks the 50th anniversary of the Kunie Dive Centre, the oldest dive operation in New Caledonia.

**Friendly reception**

Spotting a salt-and-pepper beard

and a ponytail, Pierre Emmanuel Faivre was an outgoing 38-year-old from the Jura mountains of eastern France. He took over the dive centre in 2015 with his Japanese wife. He welcomed me heartily with a super-friendly, laid-back attitude.

I was then introduced to his team of Kanak instructors, Narcisse and

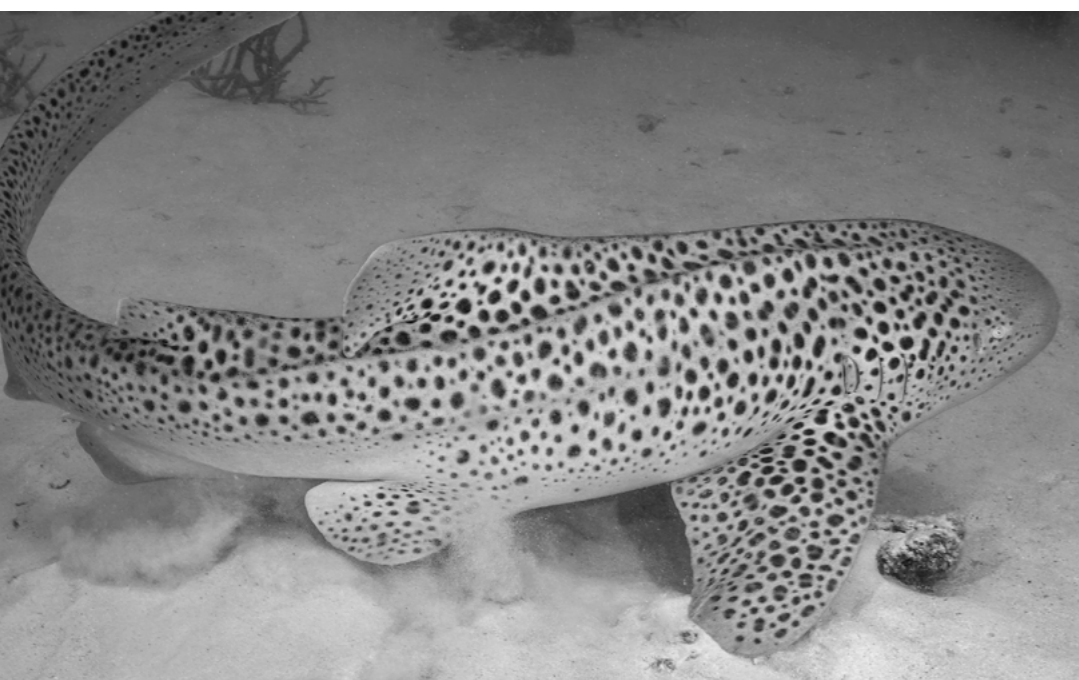
Nico—both great guys—as well as to tough, serious-looking Antoine, the stocky, muscular captain. A very wide and comfortable dive boat with matted benches, the *Naiad* is a white semi-rigid inflatable boat from New Zealand, with two powerful 250HP Suzuki outboards.

The diving was done at the coral islands of the Gadji tribe, which had given Kunie Dive Centre exclusive

access to the area ages ago. *La coutume* (custom) had to be respected at all times.

Crested with abundant vegetation and Cook's pines, the low-lying uplifted coral islands had their shores carved out by wave action. These dotted the turquoise blue lagoon like a collection of mushrooms, some even with arches. This was indeed an exotic landscape of the South Pacific.





Light show in the cave, Grottes de Gadji (top left); Gorgonians at Passe de Gié (top right) Striped hinge-beak shrimp at Grottes de Gadji (top centre); Zebra shark at Kugié (left); Japanese boarfish at Jardin d'Eden (right); Pink anemonefish in anemone at Vertigo (far right)



**Passe de Gié.** Diving Passe de Gié yielded a school of black snappers, rainbow runners, clown sweetlips, a whitetip shark resting on sand and the usual sight of pink skunk anemonefish (*Amphiprion perideraion*) and Clark's anemonefish (*Amphiprion clarkii*).

**Kugié.** The nearby dive site of Kugié was a haven for zebra sharks (*Stegostoma fasciatum*). I was fortunate to approach up to three of these awesome creatures. (Always approach them from the front, as to not

scare them). They were dozing off serenely on the white sandy floor.

A giant bell-shaped mangrove whipray (*Himantura granulata*) took off from under a veil of sand. The dotted sweetlips (*Plectorhinchus picus*) and the foursaddle grouper (*Epinephelus spilotoceps*) were also present, as were many specimens of elephant trunkfish sea cucumber (*Holothuria fuscopunctata*).

**Ilot Gié** was a place for schools of yellowband goat-

fish (*Mulloidichthys vanicolensis*) and gold-spot breams (*Gnathodentex aureolineatus*), peacock flounder (*Bothus mancus*) and—flying like a

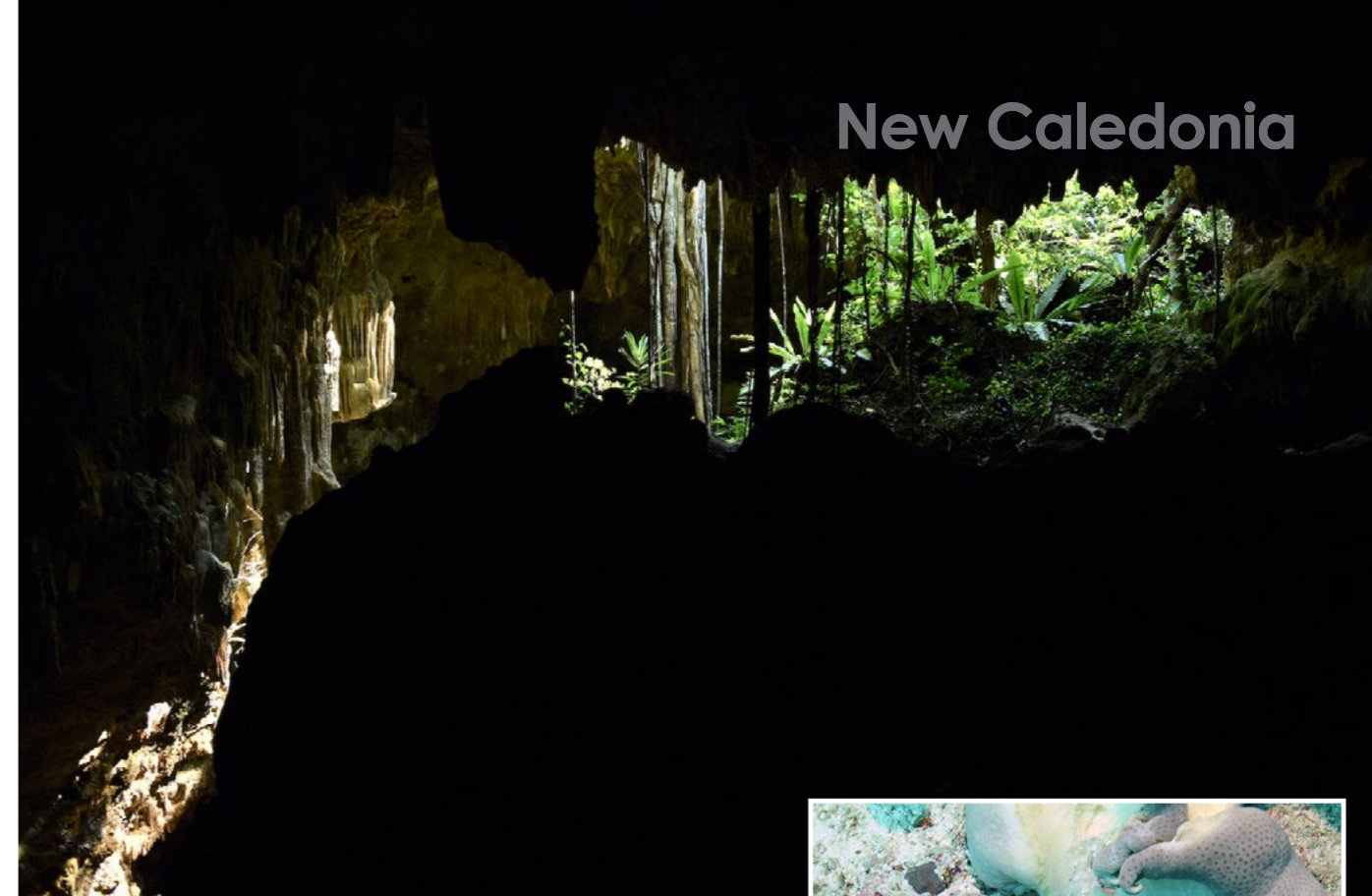
magic carpet over sand—the blue-spotted stingray.

The most amazing encounter, however, was that of the New Guinea wrasse

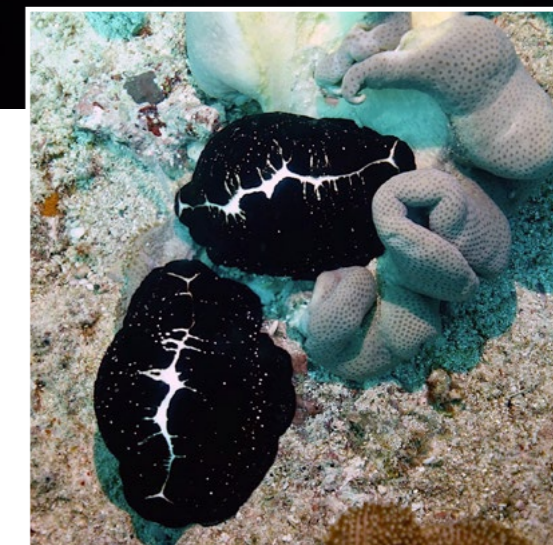
The water temperature averaged 26.8°C, but it did drop down to 25°C at times, forcing me to don a 3mm wetsuit, as I was literally shivering under-

water! I realised afterwards that there was a conspicuous upwelling in the southeast of New Caledonia.





Grotte de la Troisième at Isle of Pines (left); A window inside the cave at Grotte de la Deuxième (above); Two white cowries at Mur aux Pouattes (right); Slate pencil sea urchin, Grottes de Gadji (bottom left)



egg cowries (*Ovula ovum*) on Sarcophyton soft corals.

a fish bathed in bliss. Plenty of pronghorn spiny lobsters (*Panulirus penicillatus*) dwelled in the darkness as well as many striped hinge-beak shrimps (*Cinetorhynchus striatus*), red and white banded.

Despite the poor visibility, the experience was entertaining. "You should come in November or December, pure blue water and great viz," he disclosed. Thanks to Narcisse and Nico, I was truly satisfied with my experience and by the positive spirit of Kunie Scuba Centre.

One regret though... I missed out on diving the Loyalty Islands—and Lifou in particular—due to lack of time and the complicated schedule of the Betico ferry. Chances are, I shall have to come back one day! ■

Thanks go to Babou Côté Océan at Tribu de Koulnoué, Hienghène ([babou-plongee.com](http://babou-plongee.com)) and Kunie Scuba Centre at Ile des Pins ([kuniedive.com](http://kuniedive.com))

With a background in biology and geology, French author, cave diver, naturalist guide and tour operator Pierre Constant is a widely published photojournalist and underwater photographer. For more information, please visit: [calaolifestyle.com](http://calaolifestyle.com).

SOURCE: WIKIPEDIA.COM

25°C. Cruising grey reef sharks were common, and there were orangutan crabs (*Ocinopus* sp.) on some bubble coral.

An unusual sight was that of the Japanese boarfish (*Evistias acutirostris*), a large fish striped black and yellow, with a protruding trumpet nose and yellow fins. "There is only one left, as the other two have been wiped out by the last cyclone," lamented Pierre. It was also common on Lord Howe Island.

### Final day of diving

**Mur aux Pouattes.** Pierre offered a special treat on the last day: a dive at Mur aux Pouattes, at the oceanic side

of the barrier reef. "My favourite site!" he beamed. Indeed, this was where the big action was—not to mention pelagics too.

We encountered red snappers (*Lutjanus bohar*), schools of surgeonfish, a school of yellowtail barracudas (*Sphyraena flavicauda*), an inquisitive great barracuda (*Sphyraena barracuda*), streaming grey reef sharks (*Carcharhinus amblyrhynchos*), a farandole of big-eye jacks (*Caranx sexfasciatus*) and a surprising silvertip shark (*Carcharhinus albimarginatus*).

"You may even see silky sharks in the right season," Pierre added. To complete the experience, he showed me three

The highlight of the dive turned out to be the sight of three specimens of a species never seen before: painted anthias (*Pseudanthias pictilis*) sporting three colours—lavender with a red caudal peduncle and a red tail with a white band on it. Psychedelic for sure!

**Les Grottes de Gadji.** Upon conclusion, Pierre led me to one of his favourite spots: Les Grottes de Gadji (Caves of Gadji). This was a labyrinth of tunnels, arches, swim-throughs and tight passages, where openings in the roof created laser sunbeams and attractive light shows.

Torch in hand, he moved like



(*Anampses neoguinaicus*), endemic to the southern Great Barrier Reef, New Caledonia and Lord Howe Island.

**Jardin d'Eden**, on the outer slope of the barrier reef, had much cooler water, close to





# Sardine Run

*Marlins & More in Magdalena Bay*

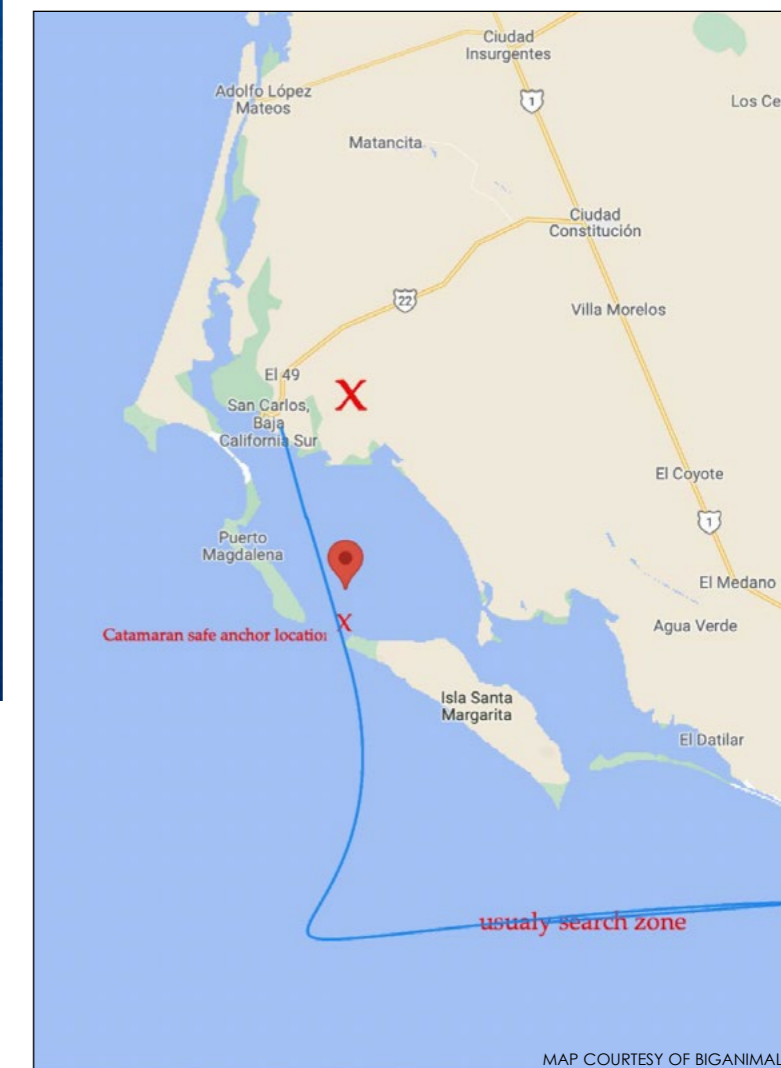
Text and photos by Amos Nachoum  
Topside liveboard photos by Dan Taylor



Striped marlin, up close. It missed me by inches, escaping from the sea lion's arrival (left); Authentic ball of thousands of sardines, before they were consumed by marlins, sea lions and Bryde's whales (previous page)

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**Although striped marlins (*Kajikia audax*) are slower than some of their billfish cousins, their 50-mph speed was plenty fast for me. I tried to swim alongside this stealth bomber of the sea as it worked a baitball to separate individual sardines from the silvery mass.**



While getting outpaced by sailfish and black marlin might be important to striped marlins trying to elude predation, they are so much faster than freediving humans that we do not usually get close to one. But the Mexico sardine run was not normal circumstances, and the marlins were not swimming away. They were swimming around, over, under and through a baitball. If you can stay with the baitball, you can stay with the marlins.

For this reason, underwater photographic encounters with marlins are now very popular in Mexico. It also helps that travel to Mexico is relatively easy, and the seasonal reliability of the sardine aggregations and the attendant predators provides a high probability of a successful encounter. It is the wild ocean and not an aquarium, so there are no guarantees, but divers and dive operators have refined the protocols for finding baitballs.

Sailfish appear off the coast of Isla Mujeres and Cancun from January through March, and striped marlins are accessible at Magdalena Bay (Bahía Magdalena) on the western coast of Baja California Sur from November through January.

Small pelagic fishes (sardines, anchovies and mackerels) travel within the California Current, and the timing and location of their congregations influence the upper trophic levels in the food web.

The North Pacific Current splits near British Columbia—the Alaska Current runs north to Alaska, while the California Current travels southward along the West Coast to Baja California. The small pelagics in the California Current are sensitive to environmental changes such as El Niño, making them susceptible to any resulting water variations.

Researchers have identified three prime locations along the southern part of Baja where the sardines

The adventure began at San Carlos, where one boarded the liveaboard vessel *Mango Wind*, which then sailed across Magdalena Bay to get closer to the staging zone, where the action was.



*Shaking their tails, the marlins sped toward the baitball and then executed an impossibly tight turn to close in on the terrified sardines.*

spawn, lay eggs, hatch and mature: Magdalena Bay, Golden Gate Bank near Cabo San Lucas, and Finger Bank, a seamount near Todos Santos. Protected from the Pacific Ocean by the uninhabited sandy barrier islands of Isla Magdalena and Isla Santa Margarita, Magdalena Bay spans 31 miles along the western coast of the Mexican state of Baja California Sur. By

autumn, the sardines have matured enough to attract large predators such as bonitos, striped marlins, Pacific sailfish, sea lions and even Bryde's whales.

#### **Hunting for a baitball**

Finding a submerged ball of sardines in the open ocean is extremely unlikely by happenstance. Successful encounters occur when divers adopt

the same protocols as the seasoned skippers of the sportfishing fleets, who travel 15 to 20 miles out to sea and typically 40 to 50 miles south of San Carlos. The frigatebirds follow the sardines, and we follow the frigatebirds. They are our eyes in the sky.

Frigatebirds search for a meal by flying high enough to see through the water's surface to the frenzied activ-

ity below. As the birds find the baitball, their flight posture changes, and they circle while skimming low over the water.

We approached and saw the disturbance on the water's surface as the swarming sardines jumped out of the water, creating shiny waves of spray and a cacophony of swishes and splashes as thousands of sardines

sought to escape the striped marlins below, only to be scooped up by the frigatebirds above. The sardines' bad luck was our good fortune as we embarked on an extraordinary dive adventure.

#### **Diving**

"Go, go, go!" the divemaster screamed at us. I jumped into the

Precision feeding—marlins will remove one sardine at a time from a bait ball, while avoiding collisions with larger seals or whales.

warm water and searched left, right and below. The visibility was at least 80ft, but I did not see anything until a dozen or more striped marlins suddenly appeared out of the blue. I continued swimming and kicked harder in the direction the marlins were going. Tracking the marlins was tiring, but I kept swimming, confident they knew where they were going even if I did not. Then, at the edge of my visibility, I saw something big, round and dynamic.

As I closed the distance, the sphere coalesced into

a frenzied, swirling mass of small silvery fish. The marlins were already on the attack. One after another, the marlins raced toward the prey, raising their sails, with their bodies streaming silver and blue, and reflecting dabs of yellow from the fading afternoon glow. Shaking their tails, they sped toward the baitball and then executed an impossibly tight turn to close in on the terrified sardines. The full power of their fearsome bills was on display as they bisected the baitball and collided with the helpless fish.



Mexico

*The full power of the marlins' fearsome bills was on display as they bisected the baitball and collided with the helpless fish.*



The millisecond before the striped marlin swallowed the poor sardine

I was glad digital photography did not limit me to only 36 shots, as film did. How could I possibly pace myself with all the constant action? Gratefully, I did not have to, so I kept photographing the scene.

Some sea lions joined the hunt and helped the marlins with corralling the sardines close to the surface to make feeding easier. The marlins were more cautious about attacking the baitball when the sea lions were around and searched for space between the sea lions' attacks, perhaps as a precaution to avoid breaking their fragile bills by dashing them against the sea lions.

As more sea lions arrived and gorged themselves on the sardines, the marlins withdrew to search for another baitball. Fortunately, many other such aggregations were in the open ocean outside Magdalena Bay.

### Ecotourism

You might think there would be competition between freedivers who wanted to see a marlin underwater and the fishers who wanted to catch and land a billfish. However, as diving with marlins has grown in popularity among in-water enthusiasts, tourist dollars have benefitted the local San Carlos fishing community. Many skip-

pers there have joined together and created a union. Fishers have turned to ecotourism, through which they can make more money than before, putting less pressure on the billfish populations, and ultimately are becoming more aware of conservation and sustainability.

The area now has an influx of people from all over the world. The action attracts commercial and sportfishing yachts, television and movie productions, and pure nature lovers. You will see a range of cameras from smartphones to large digital single-lens reflex and mirrorless cameras. The action occurs in shallow water, and most shoot-

ers do not need strobes, making for less resistance in the water and greater ease of getting in and out of the *panga* (a small, open, outboard-powered, fishing boat). During the peak season in November, half a dozen to a dozen vessels might be relatively nearby, but they will not all be at the same baitball.

### Cooperative operators

Local operators work together in a loose tourism co-op and communicate via marine radio, inviting others to share their good fortune when they find a promising baitball. With their collaborative mindset, it is almost certain that all visit-



The *Mango Wind*, a 45ft by 24ft catamaran, is BigAnimals' exclusive liveaboard operation. It has three cabins, offering guests prime comfort and easy access to the action.

the baitball without being intrusive. Marlins will leave when people get too close to the baitball, so the objective is to observe without pressuring the marine life.

Local panga operators follow safety protocols, including staying in radio contact with their home base and each other, always returning to shore before nightfall, and reporting when they leave the action zone. They generally travel back to port together in a loose flotilla at the end of the day, which is a prudent arrangement for small boats with single outboard motors, 40 miles offshore.

**Luxury liveaboard**

Now, after years of experience and continuous search, I have set up a new liveaboard option for experienc-

ing this adventure in comfort and luxury. Introducing the catamaran *Mango Wind*. The vessel is 45ft long and 24ft wide. The vessel offers three large cabins, with one queen-size bed, private head and shower, and individually controlled air conditioning. The vessel has a water maker and all the latest navigation and communications equipment. The crew on board includes a chef, dive-master, skipper and BigAnimals expert expedition and photography leader. We offer the luxury catamaran adventure to only three unaccompanied guests or a mix of a couple and a solo guest.

Safely approaching a baitball without being intrusive—marlins will leave if people get too close to a baitball, so the objective is to observe without pressuring the marine life.

ing tourists will return home with stories and images to share. The local guides work hard to train their guests on how to safely approach

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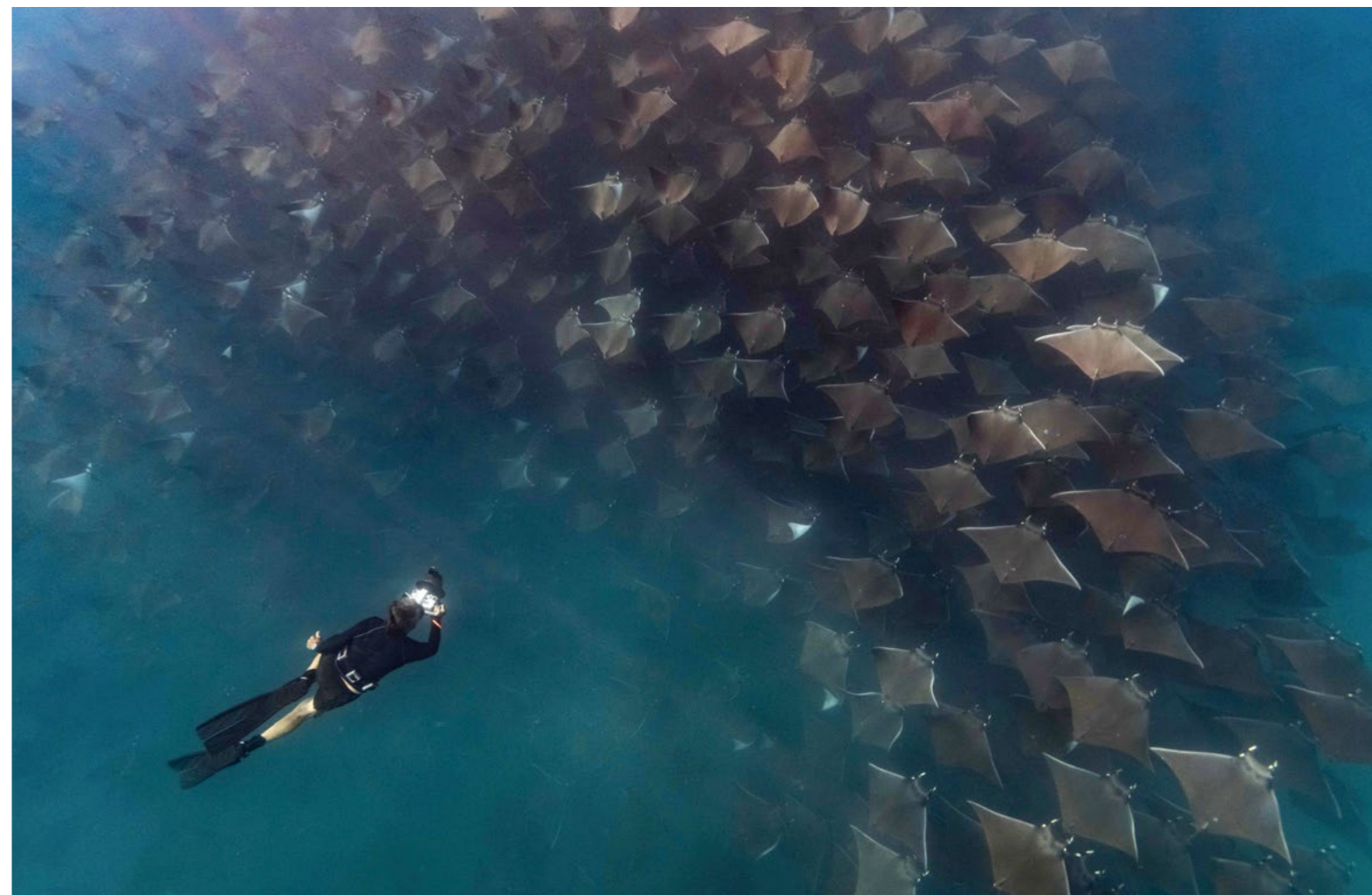


Mexico

Mobula rays lept out of the water, breaching often, in the mornings and late afternoons (left). Although we do not why they did this, we did know where the shoal was (below).

Panicking sardines create moment of fine art (far left).

January, the baitballs attract wildlife other than marlins, including tiger sharks. Tiger sharks change the vibe, so we stay vigilant and take the precaution of turning off bright video



View from above, via drone, of a diver filming a large shoal of mobula rays

enjoy the beautiful warm light just before sunset.

**Conditions**

Weather plays a crucial role in dive travel to this remote area with limited rescue services. Operators will sometimes suspend their trips, particularly when there are strong winds. Instead of heading out to sea, the skippers will operate within the more protected waters of Magdalena Bay. While it may not be the intended destination, the bay can also offer fascinating encounters. An extensive

sand dune zone on the northwestern corner of the bay has elaborate water channels and a healthy mangrove habitat. There is a vibrant population of fish, cormorants, pelicans and other bird species. You may even see a coyote or a bald eagle. This mangrove wonderland might not be the hook that brings you to Magdalena Bay, but the time you spend exploring the mountainous Isla Magdalena and Isla Santa Margarita will inspire you.

**Tiger sharks**

From November through

lights. The sharks are quite possessive of the baitball, and we are deferential to our place in the food chain.

**Orcas**

A pod of orcas visits two or three times during a season, generating much excitement. Once, while we were sitting in the panga, a burst of rapid conversation lit up the airwaves. Several pangas left their baitballs to rendezvous with the fisher who spotted the orcas and alerted his buddies. It was extraordinary to swim for two







In harmony with a Bryde's whale, which also arrived to feed on the sardines (left); The heart-shaped Bird Island (bottom left) is a great place for an early morning excursion to see the sunrise and observe thousands of cormorants and pelicans (below).

## HOW TO DIVE IT

**GETTING THERE:** From Europe via Mexico City, there are flights directly to La Paz, and my team will pick up arriving guests at the airport. From the United States, flights are available to San Jose del Cabo, and my team will pick up arriving guests from there too. Check with your tour or travel agent for the best flights.

**SEASON:** The prime time for the Mexican Sardine Run is November through December. We avoid the weeks when there is a sport fishing tournament, due to unfair and risky competition in the water.

**ACCOMMODATIONS:** BigAnimals expeditions offer the one and only liveaboard dive operation with exclusive service for three guests.

**DIVE OPERATORS:** We accommodate our guests onboard the 45 Catamaran *Mango Wind*, with the support of a local fisher and its own panga. The advantage of the liveaboard operation is that we save four hours daily crossing through Magdalena Bay to reach the action zone. We reach the action early every day and stay with the action after everyone leaves, to catch a glimpse of the sunset light.

**GEAR:** Bring at least a mask, fins and a snorkel. Freediving fins are not a must but will be more efficient for those with a powerful kick. A wind- and water-proof jacket, a warm fleece, sunscreen and sunglasses are good to have.

**PHOTOGRAPHY:** All kinds of cameras will give you amazing images. Telephoto lenses are good for top-side photos. There is such a wealth of photo opportunities you will want something to capture the scene. For underwater photography, plan for wide-angle to super-wide lenses. You will not need strobes. ■



early, you can head out to sea at 5:30 a.m. to see the sunrise over Bird Island. You will not regret it. The island can accommodate thousands of cormorants and pelicans.

While looking at some of my drone footage taken from high enough above the island to avoid disrupting the birds below, I noticed that the island was shaped like a heart. Only then did I discover the symbolic heart of Magdalena Bay, pulsing with life both above and below the sea. ■

*For more information or to make a reservation for the Mexican Sardine Run expedition, go to: **BigAnimals.com/expedition/stripped-marlin**. Visit **BigAnimals.com** or email: **amos@biganimals.com***

warm waters of Panama and Socorro to socialize and give birth. We were able to swim with a mother and calf several times. That same season, another team had a remarkable experience swimming with blue whales migrating

Mexican sardine run—it pays to be flexible. Whatever you thought you might photograph in the morning may not be the images you end up editing at the end of the day. Despite the change in plans, the massive school of mobulas made us very happy.

### Bryde's whales

Our final notable encounter on this trip was with a Bryde's whale. Although they are smaller cetaceans, slightly shorter and lighter than humpbacks, Bryde's whales still take your breath away. The whales may quietly arrive while you are focused on a baitball or darting marlin. With their giant mouths gaping wide, they will surprise you by suddenly swooping in and engulfing almost the whole baitball at once.

### Bird Island

If you do not mind getting up a bit

south toward the Sea of Cortez.

### Mobula rays

Mobula ray encounters off Magdalena Bay are fantastic as well. When the sea was too rough to cruise to the sardine grounds and the wind had dispersed the frigatebird flocks, our experienced skipper suggested we head out to sea. After an hour or two of watching for whale spouts, someone saw a breaching mobula.

That is one thing about the



hours with a pod of six transient orcas. One of the females carried a piece of shark meat in her jaw and brought it close to the panga. After taking a few images of her above water, my team and I joined the pod in the water for a peaceful and nonthreatening encounter—an experience that will never leave me.

### Humpback whales

In November and December, humpback whales migrate south to the

# Luzon to Visayas

*Liveaboard Adventure in the Philippines*

Text and photos by Mattias Sellin. Aerial photo by Ivan Torres





Cobrador Island, just north of Romblon, offered absolutely world-class coral reef diving (above). A clownfish lives in symbiosis with its sea anemone, where it receives protection from larger predatory fish, thanks to the anemone's poisonous tentacles (previous page).



IVAN TORRES

*Solitude One* liveaboard is perfectly suited for a long adventurous cruise through the Philippines (above); Giant frogfish on reef with sponges (right)

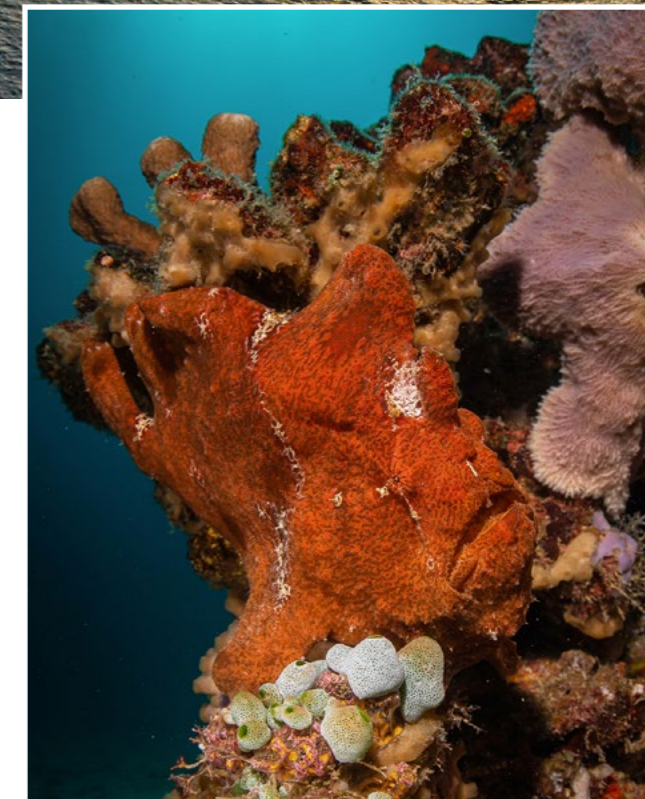
**Once a year, the *Solitude One* liveaboard makes the 800km journey from Anilao down to Surigao in the Philippines. Along the way, it stops at several superb, remote dive locations, including Verde Island, Romblon, Ticao, Malapascua and Southern Letye. On this dive cruise, one can dive with whale sharks, thresher sharks and manta rays, or do super-macro underwater photography and even black water dives. Mattias Sellin has the story.**

The dinghy glided slowly over the coral reef in the crystal-clear waters. Fellow guests and I stepped ashore on a small uninhabited island, whose beach made me think of the Leonardo DiCaprio film *The*

*Beach*. Afternoon snacks on the fore-deck of the liveaboard had been exchanged today for food and drinks on this deserted sandy beach. Laughter and music mixed with the sound of the waves. I dug my feet into the chalky-white sand and looked out over the waters to the liveaboard. It would be our home during the 13-day dive cruise—a journey that would turn out to be “one of a kind.”

**Getting there**

After a 12-hour flight, a night in Manila, and three hours in a minibus, it was finally time to board the live-aboard *Solitude One*. The route we were going to take was called the “Luzon-Visayas Cruise.” It covered an impressive distance of 800 km, from Anilao down to Surigao. Once in Surigao, the liveaboard would stop for annual service before moving on to the dive season in Palau.



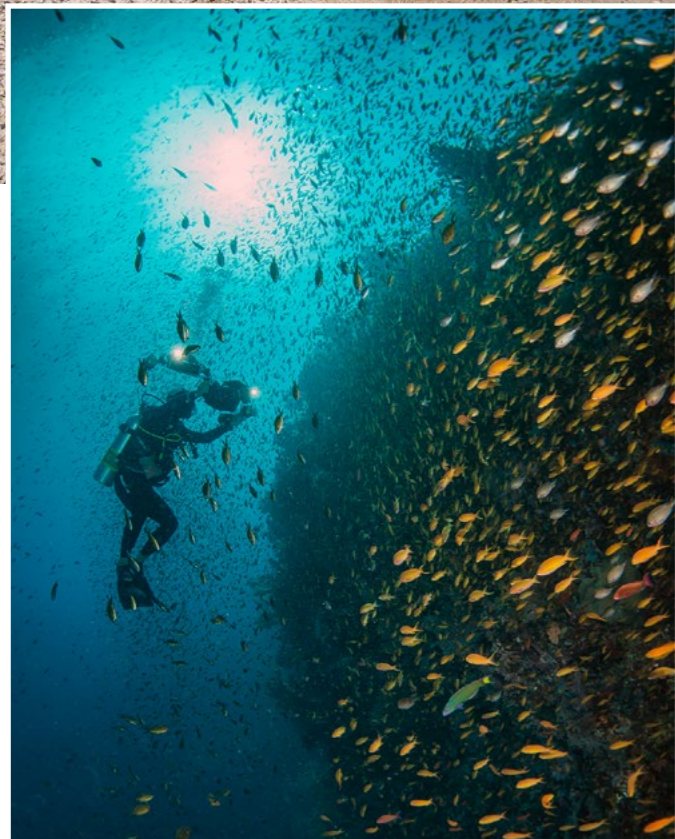
This transit trip takes place only once a year and includes well-known dive locations such as Verde Island, Romblon, Ticao, Malapascua and Southern Letye.

**Diving**

The first stop on the trip was Verde Island, known for its strong cur-



Going on a liveaboard trip in the Philippines means an opportunity to visit many beautiful islands and beaches (above); Napantao Reef—an absolutely fantastic reef, which is surrounded by strong currents and lots of fish (left)



this time of year, the winds in the afternoons were too strong for the small bangka boats. For us on board the liveaboard, this meant that we had the reef completely to ourselves.

Diving here was exciting; the sea currents were really noticeable. The coral reef sloped down to a depth of 30

rents and rich fish life. The San Agapito dive site consisted of a seamount with three peaks, one of which reached all the way to the surface.

The site was popular on day trips from Puerto Galera. We were here in October, and at

m and was covered with corals and reef fish, namely anthias. Down in deeper waters, there were larger gorgonian corals, and out in the blue water was a large shoal of big mouth mackerel. At first, they kept their distance; before long, they

passed between us divers.

The safety stop was carried out at one of the peaks on the seamount. The reef here was covered with yellow ahermatypic cup coral, which seemed to thrive well in the strong currents. All too soon, the time allotted for the dive neared its end, and the dive guide sent a surface marker buoy (SMB) to the surface. We released our contact with the reef and quickly drifted together with the current into the big blue. The underwater world of the Philippines had given us a warm welcome.

**Built for the great oceans**  
The *MV Solitude One* is a

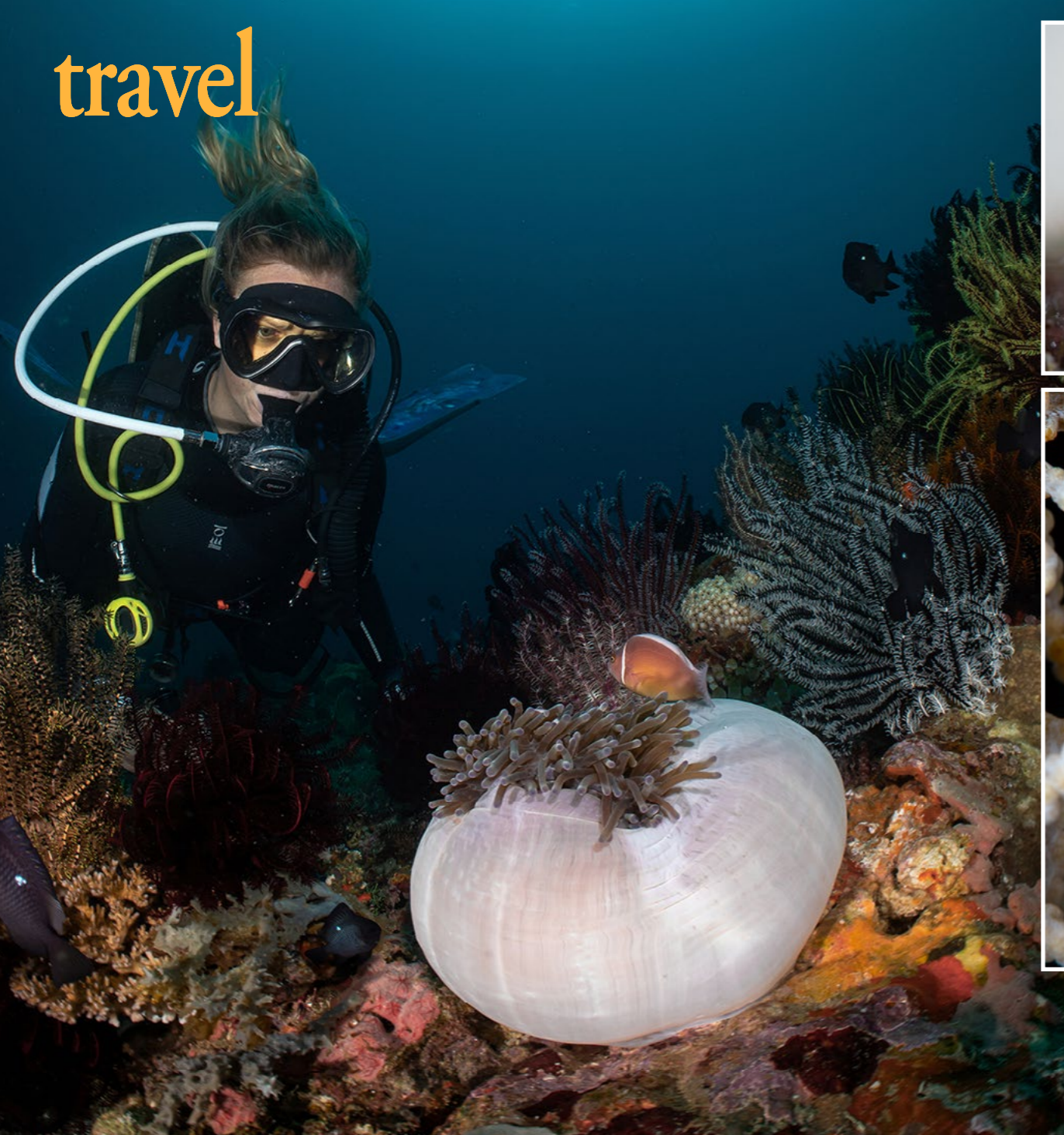
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Diver with skunk anemonefish on anemone at Lapus-Lapus in Ticao (left), a dive site described by the liveaboard cruise director, Pernilla, as heaven or hell, due to occasional strong currents. On our dive, it was fortunately calm and heavenly; *Cyerce nigra* sea slug, Romblon (top centre); Yellow pygmy seahorse, *Hippocampus bargibanti*, Gato Island (centre); Reefs of southern Visayas were healthy, with an incredible number of fish (top right).

52m-long steel liveaboard boat, built to withstand long journeys across the open sea. The vessel has room for 22 passengers. The cabins are spacious and well equipped. I had my own cabin with a bunk bed, small desk, TV and a large toilet with separate shower.

The aft deck offers plenty of space for each diver. Most of the dive equipment conveniently stored in a drawer directly under the bench. The boat has a large camera room and a lovely jacuzzi on the foredeck. The daily dive briefings were carried out in a large, air-condi-

tioned salon. Here, we also found the boat's perhaps most important component: the coffee machine. Several times a day, it served steaming hot coffee from freshly ground beans.

The actual diving was conducted from two smaller dive boats, or so-called dinghies. Everything on board the liveaboard was well organised and worked flawlessly during our stay.

### Romblon

After a night cruise, we woke up in the middle of the Romblon Canal. When I

looked out over Logbon Island, I realised that we had gone a long way from the usual tourist routes. There were no other charter boats for as far as the eye could see, and the white sandy beaches, without sunbeds, were a real paradise.

Romblon was known for the manufacture of marble products but has in recent years become popular as a new underwater photography mecca. Photographers from all corners of the world make a pilgrimage here to photograph the rarest species. Among other things, I had come here to see three

specific nudibranchs: *Cyerce nigra*, *Cyerce bourbonica* and *Melibe engeli* (the latter species is also known as the ghost nudibranch).

The first dive site of the day was called Sea Horse Hotel. On the way out in the dinghy, we enjoyed the mirror-bright sea and radiant sun. As I made a last adjustment to my equipment, I heard a voice from the water's surface below.

"Wow! Do you see how blue the water is? It's absolutely magical!" exclaimed Lance, a happy American who was already in the water. I then did a back-

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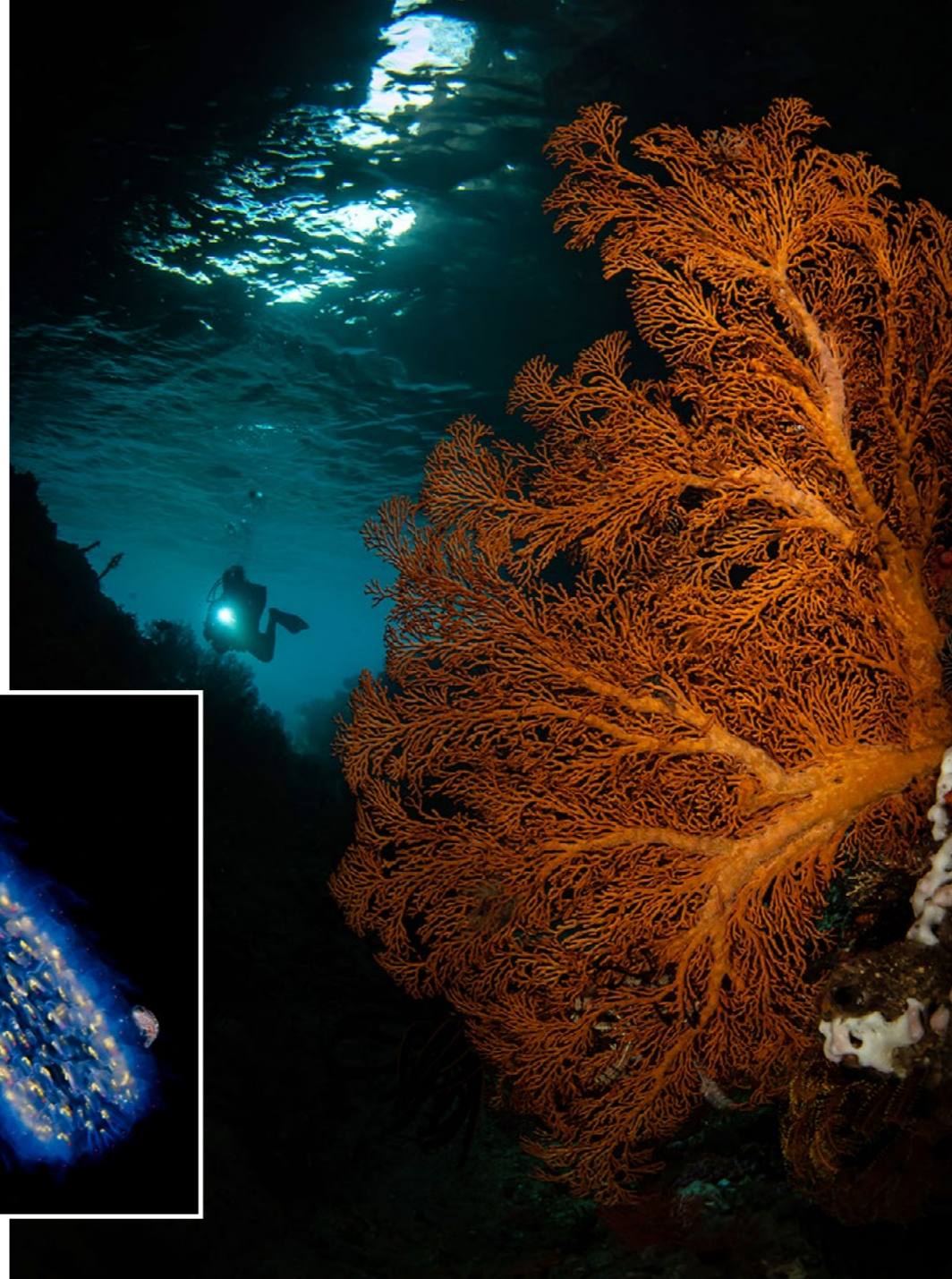
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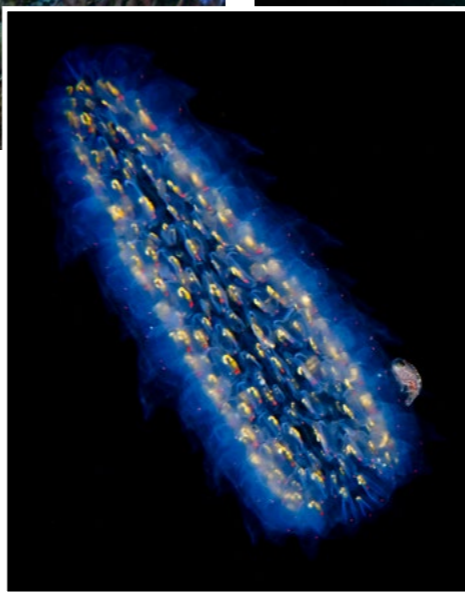
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The coral reefs at Limasawa in Southern Leyte offered casual diving in coral gardens that never seemed to end (above); Snake Island, South Ticao—an incredibly beautiful area that also has a lot of small caves (top right); In black water dives at Romblon Canal, I got to see species I had never seen before, such as this fire salp, with a hitchhiking crayfish catching a free ride on it (right); Bobtail squid (left), *Euprymna scolopes*, are found almost exclusively on night dives. This fascinating species can control how much it “glows.” It does this with the help of a bacteria called *Vibrio fischeri*, which lives in symbiosis with the squid.



unusual Lembeh seadragon. This creature's anatomy is very special; it has a head reminiscent of a pygmy seahorse and a body resembling a pipefish.

**Black water dive**

A hot trend in the dive industry is black water dives. The purpose of this type of diving is to see deep-water species at different larval stages, drifting around in the sea currents, far from land, at night. We did two such dives in the Romblon Canal. This would be a completely new experience for me, and a cer-

tain excitement arose before the dive.

“You will love this, Mattias, I promise,” said fellow diver Cat Pipet soothingly before the dive. Cat was an underwater photographer from Thailand, who was happy to share his experiences.

The preparations for the evening's activity were rigorous. A downline was attached under a buoy, and powerful lights were fixed to the line at different depths. The light from these lamps would serve as visual references below the surface. When I broke the water's surface

and started to sink downwards, complete darkness engulfed me. When I pointed my lamp downwards, the bottom was not visible, there was only endless darkness. Then, we first hit the bottom at a depth of 60 m. The only reference was our descent line, which at this time was disconnected from the boat. We now drifted off into open water, together with the ocean currents.

I stayed close to the line and pointed my torchlight all around me. In the dark, marine species

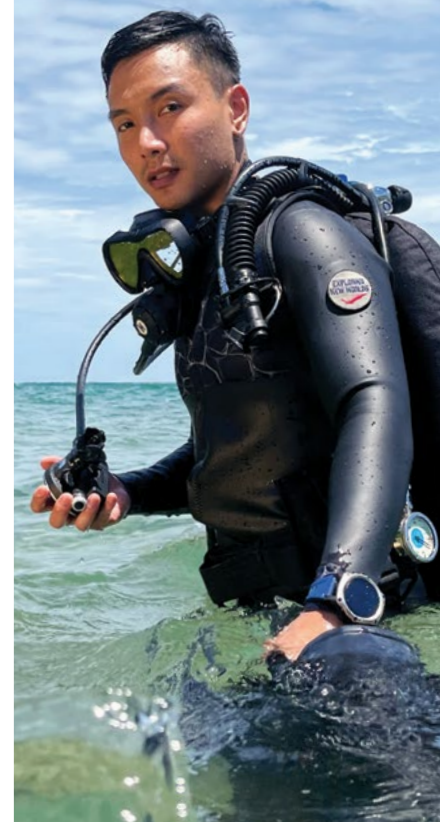
emerged that I had never seen before. Many of these species made me think of transparent 3D creatures from a James Cameron movie. “What in the world is this?” was the thought that most often popped into my head.

After 60 minutes, we returned to the surface. What an experience! Cat was right, this was definitely a new dimension of night diving that I really liked.

**Next stop**

It was time to leave Romblon.

**DIVE**  
SHEARWATER

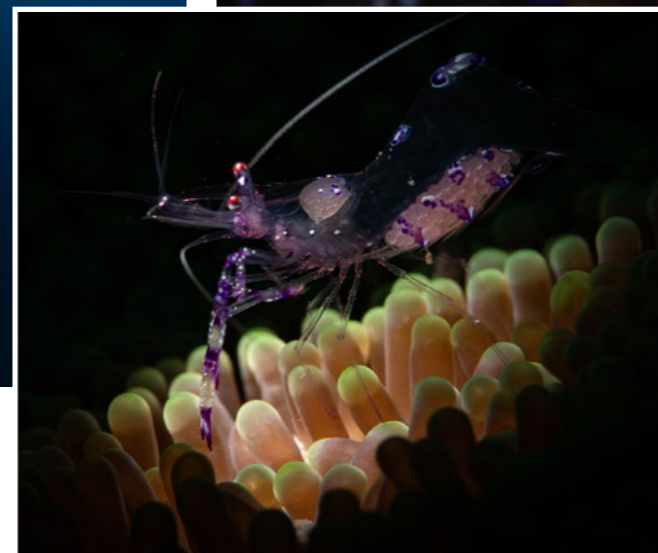


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Coleman shrimp are well hidden in a fire urchin. The larger one is the female, which can grow up to 2cm (above); Ghost shrimp at Romblon (left); *Hypselodoris apolegma nudibranch* (right)

Fantastic soft corals, Bobby's Wall, San Miguel Island, Ticao (above)

Before our cruise to Ticao, we stopped at Cobrador Island to dive on the coral reef. The North Rock dive site was characterised by a cliff that jutted out of the sea. Below the surface, we were met by a wonderful underwater landscape full of rock formations and a swim-through covered with soft corals. We saw sea slugs, anemonefish and a number of curious sea turtles.

When we came back to the surface, it was to a completely mirror-flat sea. We were completely alone—there was not one boat, as far as the eye could see. On the cliff near us, a flock of birds nested at sunset.

As our dinghy approached to pick us up, I heard a familiar English voice. "Don't pick me up yet; just let me lie here and enjoy life for a while." It was fellow diver Adam, who apparently needed some extra time to digest all his impressions.

Back on the liveaboard, we were met again by the fantastic staff who, after each dive, served us a cold beer or hot towel. This evening, they had also served up drinks and fried bananas by the jacuzzi on the foredeck. I enjoyed my drink and gazed out over the sea. I have seldom wished I could

stop time, but right now, on the cruise between Cobrador Island and Ticao, life was absolutely perfect.

We often say that we do not have time for different things. The question should instead be: What do we want to do with the time we have?

### Bobby's Wall

The dive area around Ticao is large and unexplored. We spent the first day here at the island of San Miguel, which was located at the mouth of

the Ticao Pass. The dive site Bobby's Wall was named after the local guide from Ticao, who first found the site. During the dive briefing, we were informed that one would often see Coleman shrimp here, inside fire urchins, which is a type of sea urchin. The Coleman shrimp was a species of shrimp I had never seen before.

Once down on the reef, it did not take long before we saw many fire urchins. I examined each of them carefully, but with no luck. Fifty minutes of diving went by, when finally, my luck changed. On a rock wall,

well hidden among the poisonous thorns of a fire urchin, I saw two Coleman shrimp. The larger of the two was the female. I took some quick photos and enjoyed a short time with them before starting my ascent to the surface, with a big smile on my face.



Bubble coral shrimp in bubble coral



Philippines



Small whale shark off Sogod Bay, Southern Leyte (far left); Reef mantas at Manta Bowl, Ticao (above and right); Joshua Rambahinarian, a researcher from the Large Marine Vertebrates Research Institute Philippines, gave lectures on board and guided dives at Manta Bowl (left)

**Manta Bowl**

Ticao Island's most famous dive site is Manta Bowl. It is an underwater plateau between 10 and 30 m deep. Encounters with reef mantas are common here. Exactly what attracts them to the area is unclear. One big reason is probably

the ever-present currents that bring plankton-rich waters from the San Bernardino Strait and make it easier for the mantas to hover when they need to be cleaned. By turning against the current and hovering, the cleaner fish can access the manta in a simple way, without

the manta having to move.

Prior to our days at this site, we had the honour of having Joshua Rambahinarian, a researcher from the Large Marine Vertebrates Research Institute Philippines, on board. He helped both as a guide during the dives and lectured about his work in the evenings. It was a rewarding and interesting arrangement, which resulted in our trip becoming even better.

Navigating below the surface at Manta Bowl was not easy. It was like one big plateau with a few boulders here and there. The currents were relatively strong during some dives. To keep air consumption down, we used reef hooks that were attached to the bottom while we observed the mantas.

Most of the time, we ended up in positions where we could observe the mantas from the side. Before our last dive here, I decided to try to get a picture of a manta from above. Towards the end of the dive, I started to gently ascend into the water column. I absolutely did not want to scare away

the manta.

Once I was right above it and looked down through the viewfinder of my camera, I realised just how big it truly was. I had to move even farther upwards to be able to get the whole manta into the frame. As I frantically fought to stay put in the current, in order to get the perfect shot, I looked down enviously at the reef manta, which barely seemed to need to move to withstand the strong currents.

**Fresh fruits, chocolate cake**

Days on board the liveaboard seemed to be accelerating at a furious pace. Was it Monday

or Tuesday? What did it matter, when fantastic macro diving on healthy reefs was replaced by magnificent encounters with reef mantas? Much of our time was spent recovering between dives, charging cameras and strobes, and enjoying the excellent service on board.

The crew always did their utmost to make everyone happy. For meals, fresh fish, fried shrimp, grilled meat, and more were served—all in a well-functioning buffet. The whole party was usually rounded off with delicious desserts, which were a delight for both the eye and the taste buds. My favourite dessert quickly





Thresher shark at Monad Shoal (above); Coral reef garden with cup coral, blue sea star, and cloud of anthias (right); One evening on board the liveaboard, a storm moved in (top right). From the boat, we quietly sat and enjoyed the sound of the rain and saw lightning dance across the sky; Whip coral shrimp on whip coral (lower right inset); Tiny goby on soft coral (left)

row we would wake up to yet another new dive site.

**Thresher shark**

Despite the cup of freshly brewed coffee, I still felt groggy after the early morning wake-up call at 4:45 a.m. "Good morning! Welcome to Monad Shoal," said the local dive guide from Malapascua who had just boarded. No dive school or liveaboard was allowed to conduct dives here without a local guide, who monitored the diving. The rules were thoroughly explained. No strobes or lights, and no gloves or stickers. We were also not allowed to cross the lines or ropes that served as barriers to the cleaning stations.

Monad Shoal is located about 8km from Malapascua.

The area is unique in that it can almost guarantee an encounter with a thresher shark.

The thresher shark is a large shark with a robust body. It can be almost five metres long, and just over half its length consists of its long tail fin. Its large eyes are well adapted to be able to see better in the dark.

Exactly why these sharks, which normally thrive in deep water, always return to this plateau, is unknown. However, it is clear that this site is a cleaning station for them. Every day at dawn, the sharks come across the plateau to get their skin, mouths and gills cleaned of parasites.

We left the liveaboard and

went by dinghy for the short distance to the downline. The advantage of diving from a liveaboard was that we were always first at the site. The dive centres in Malapascua were 30 to 40 minutes away from Monad Shoal by motorboat.

When we got into the water, the sun had not yet risen above the horizon. It was ten minutes before we saw the first shark. It came swimming in from the sea and swept along the reef edge. In total, we saw four different individuals, all at a distance. At the end of the dive, there were many dive groups in the water.

When we returned to the surface, I counted 18 boats, which meant that there were approximately 100 divers at the site. There were far too many people for my taste, and something we had previously managed to avoid during the journey.

**Close contact**

Before our last dive at Monad Shoal, we wanted to try something new. We exchanged the early morning dive for an afternoon dive, which took

place after the local divers had gone back to Malapascua.

When we got into the water, we had the whole place to ourselves. The visibility was better than

it had been before, and what was most gratifying was that the sharks were still there. Now, they came so close that we could clearly see their big eyes peering at us.

After 45 minutes, we started ascending to join the rest of the divers. We stopped to watch a whitfin reef shark lying under some rocks. When I turned around, I saw that my dive partner Pernilla was constantly staying a little deeper,



Redeye goby at Romblon (above); *Halgerda malesso* nudibranch pair (top centre); *Phyllodismium* sp. nudibranch at Ghost Wally in Romblon (left); Soft coral reef garden with schools of anthias and cardinalfish (far left)

peering out into the blue. But a few other divers and I were starting to run out of air and had to go to shallower depths. When I looked down at Pernilla again, I saw that the rest of the group had gathered there. In front of them was a large thresher shark; they were having a close encounter of the highest degree.

The shark swam calmly back and forth in front of them, just a few metres away. Unfortunately, I was too far away and had too little air to really take part in the encounter. The joy of the divers afterwards, however, could not be missed. During the safety stop, Cat performed some form of underwater dance, which made Patrick Swayze's performance in the film *Dirty Dancing* seem boring.

"I had a good feeling there at the end of the dive; I did not really want to go up yet," said Pernilla, when we were on board the boat again.

She was definitely right; that feeling resulted in a fantastic encounter and a magnificent dance!

### Napantao Marine Sanctuary

Unfortunately, all good things come to an end, so did this trip. Fortunately, the best was saved for last. The final days were spent down in South Leyte—an absolutely fantastic and unexploited area. Just when we were about to board our dinghy before our first dive here, I heard somebody yell: "Whale shark! Whale shark, right below us!"

It did not take many seconds before all the divers on our boat were snorkelling in the water with the young whale shark. Then, a person from the group dived down towards it. The water was deep blue. The whale shark and the diver were beautifully framed together, with the sun's rays streaming down through the water. I valued this kind of moment highly; it was completely

unexpected and occurred on the animal's own terms.

We performed six completely magical dives here. The reefs were healthy and thrived all the way to the surface. The number of fish in the water was incredible in some places. Once again, divers with other dive operators were absent, something that had been a hallmark of this journey.

However, there was one dive site we visited which will always be in my heart: Napantao Reef, off Panoan Island. This site was truly amazing and captured me in a way I just cannot explain. I cannot remember the last time I felt such euphoria during a dive as I did here.

At the outer tip of the reef, the currents were really strong. I tried to stay here as long as possible to enjoy the beautiful reef and the thousands of yellow reef fish (primarily anthias). While the strong currents tumbled me around

in the water, thoughts rushed through my head. I wished that all divers, at some point in their lives, could experience such a healthy and lively reef. After a while, I stopped taking pictures and just enjoyed the view instead.

Thirteen days on board the live-aboard *Solitude One* had come to an end. Friendships had been forged for life and fantastic experiences had been shared. When I reminisce about this liveaboard journey, it is with great gratitude for what we had experienced. It was truly a "one-of-a-kind" trip! ■

*Mattias Sellin was born and raised in the northern part of Sweden. Being close to nature has always been an important part of his life. The camera is always in his hands on his adventures. He is a frequent contributor to several publications, and his passion about the sea and wild animals is something he shares with his family.*

### LIVEABOARD IN THE PHILIPPINES

**GEOGRAPHY:** The Philippines is an archipelago with more than 7,100 islands and a total area of about 300,000 sq km. There are over 6,000 species of fish and 76 percent of all coral species in the world can be found here. It is a perfect area to visit with a live-aboard.

**POPULATION:** Approximately 94 million inhabitants (Wikipedia)

**LANGUAGES:** The two official languages are Filipino and English.

**DIVING:** It is possible to dive all year round in the Philippines. The most common is so-called land-based diving, but for those who want to visit several dive areas, going by liveaboard is a very simple and practical way to do so. Decompression chambers are located in Manila and Cebu City.

**WEATHER:** The Philippines has two seasons. The dry season extends from December to June, and the wet season, from July to November. Between July and October, it is typhoon season in the country. We were here in October-November, and it rained only one day.

**RELIGION:** 92% Christian.

**TIME ZONE:** GMT + 7

**ELECTRICITY:** 220 volts, Type C outlets/sockets

**CURRENCY:** Philippine Peso (PHP)

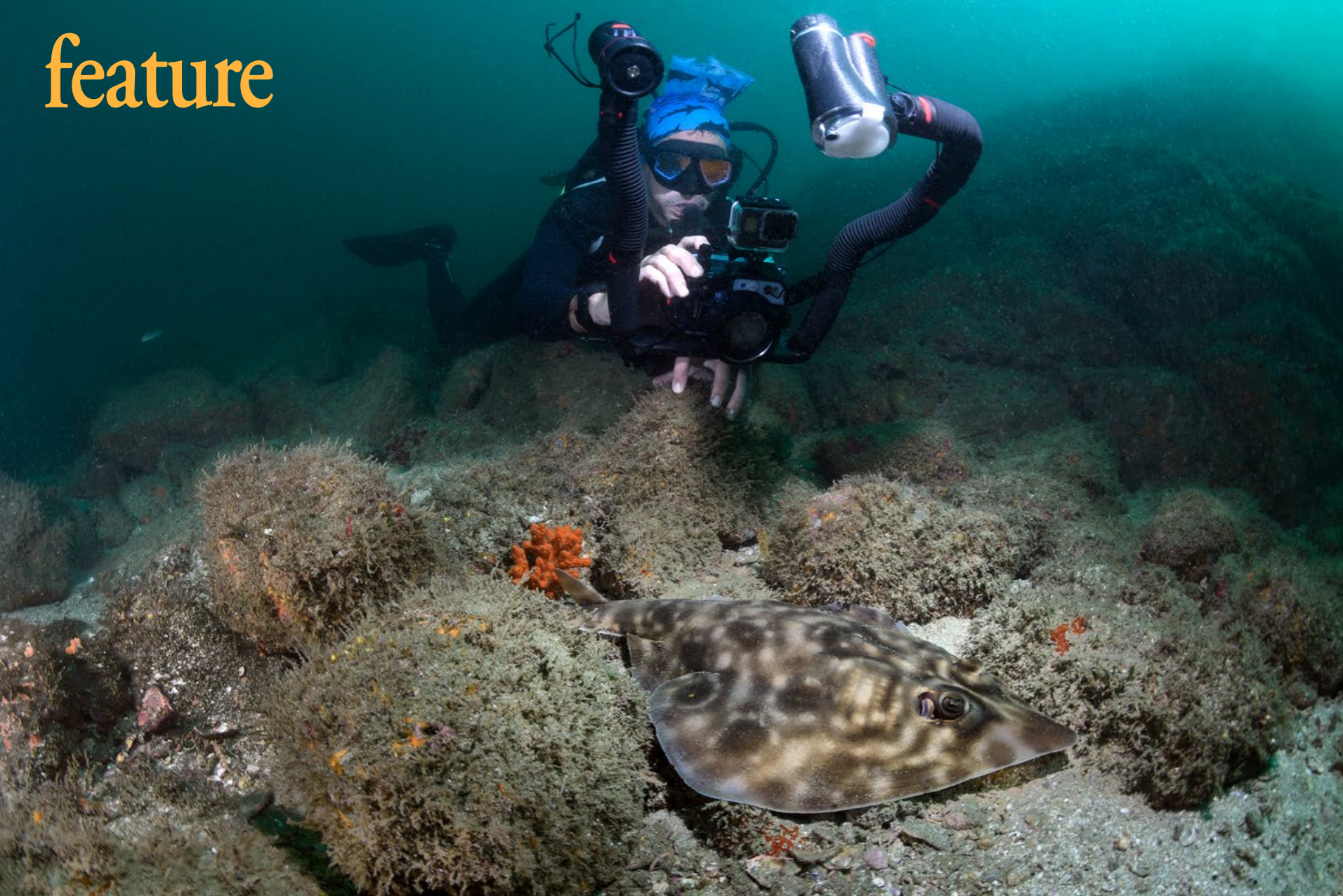
**INSURANCE:** Good dive insurance is recommended for all diving. This can be especially important on a liveaboard, as transport fees to professional medical facilities can be extra costly. ■



# Chasing Rays in Costa Rica

Text and photos by Andy Murch





**Shark aficionado, photojournalist and conservationist Andy Murch, a self-confessed “elasmoholic,” braves the chaos of Christmas holiday travel during a pandemic to get to Costa Rica, in his quest to capture images of elusive sharks and rays in areas less travelled.**

Christmas week 2021 was a ridiculous time to fly to Costa Rica. Besides the inevitable holiday chaos, almost every flight south had been grounded by either arctic blizzards or Omicron.

Any rational photographer would have delayed the trip until travel was

easier, but I am an “elasmoholic;” if there is even a slim chance of photographing a new species of shark or ray, I will find a way to make it happen.

It was touch and go, but three ticket changes and four airlines later, I stepped out of the terminal in San Jose, albeit with no luggage, clothing or dive gear. None of that mattered though, because I had my camera gripped tightly in hand for the adventure ahead!

Local elasmobranch fanatic Dr Luis Huertas (owner of Seakret Divers) was patiently waiting for me at the airport. As we drove north, we strategised about where to hunt for rarely seen species. On previous trips, I had bagged most of the common Costa

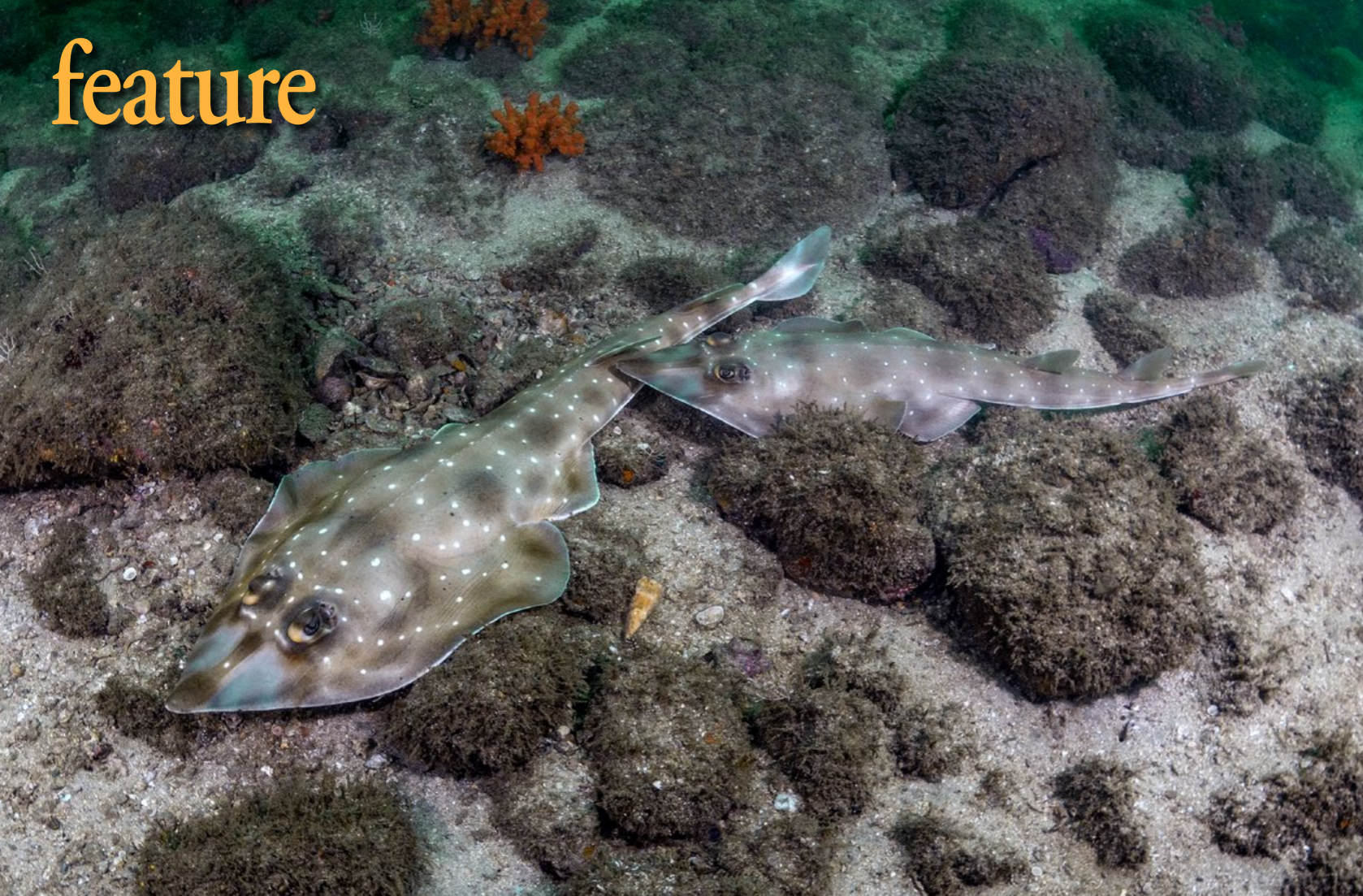
Rican rays, but with Luis’ help, I was hoping to track down several more that are rarely encountered.

By the time we reached Playa Del Coco, it was almost midnight. The night watchman at my hotel informed me that they had rented out my room, and it being Christmas week, there were no other rooms available anywhere in town.

After much discussion, he took pity on my haggard demeanour and led me to a shack, containing a creaky bed with torn, dubiously cleaned sheets, and a fan that sounded like an industrial turbine but unfathomably pushed no air downwards whatsoever.

After assembling my camera housing, I drifted into a restless sleep,

Leopard round stingray, *Urobatis pardalis*, at Playa Del Coco (above); Luis “Elasmo” Huertas photographing a Southern banded guitarfish at Playa Del Coco (top left)



A mating pair of Gorgona guitarfishes, at a site that was dubbed Old Man's Corner for the day, in Playa Del Coco

interrupted periodically by an angry guard dog, leashed outside my window.

The next morning, I wearily donned my heavy winter boots and headed out into the tropical sun to meet Luis who, it turned out, was having no better luck than I. His accommodation had also fallen through, so he had slept on top of his truck. Now, his truck battery had died, but undaunted, we got a boost and made our way to the boat.

### Old Man's Corner

Our first drop was at an unnamed spot south of Playa Del Coco. The site was one of many that Luis had pioneered while working as a divemaster in the area, years before. Today, he dubbed

the site "Old Man's Corner," in honour of the way we were both feeling that morning.

At first glance, the volcanic reefs of Costa Rica's Pacific slope appear rather barren compared to the coral-encrusted slopes of the Caribbean coast, but the moon-like terrain supports a surprising abundance of marine life if you know where to look—including an extremely diverse assemblage of sharks and rays that would impress the most jaded elasmophile.

Touching down in 10m of sand, the first rays we encountered were leopard round rays (*Urobatis Pardalis*), a recently described species that only occurs along a short stretch of coastline from northern Costa

Rica to central Panama. Where they occur, they are extremely abundant, so we quickly moved on, preferring not to waste precious bottom time on such a common species.

A few minutes later, we came across a lovely pair of Gorgona guitarfishes (*Pseudobatos prahli*) resting among some reef rocks. The larger of the two was female, the smaller one a male. They may have just mated, but if so, we did not see any signs.

Although I have encountered numerous Gorgonas in the past, I am a sucker for guitarfishes, and this species (with their yellow eyeshadow and sprinkling of white spots) was one of the prettiest. So, I paused a while to compose some nice portraits,

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*Safe Diving,  
Team Dive Rite*





Longtail stingrays, *Hypanus longus*, are often quite skittish around divers (far left); Some Southern banded guitarfish have clusters of iridescent yellow spots (left); A Pacific spotted eagle ray at Sorpresa Reef (below)



while Luis surveyed the area.

At 30m, the terrain finally flattened out. We kicked along the margin of the reef where we could keep one eye on the sand, and the other on the rocky slope. Occasionally, we encountered more leopard rays in various states of concealment; some proudly displaying their intricate markings, others completely buried except for their protruding spiracles.

### Missed photo opportunity

A large longtail stingray (*Hypanus*

*longus*) flapped past, speeding up when I closed in for a snapshot. I continued counting leopard rays, 16, 17... and then I saw the outline of a small round ray with a nose that seemed a little too pointy.

Gently waffing some sand from

its back, instead of fine reticulations, this one was plain brown with small dark blotches. My first Chilean round ray! Before my brain could send the appropriate signals to my trigger finger, it bolted. I gave chase, but after keeping it in sight for the better part of two minutes and burning up most of my remaining gas supply, I knew it was a lost cause.

Disappointed, I returned to the slope and began to ascend, keeping a wary eye on my SPG (submersible pressure gauge). That was when Luis

started screaming through his regulator and pointing frantically at the reef.

Below him was an exquisite southern banded guitarfish (*Zapteryx xyster*) nestled between two rocks. Easily recognizable by its heart-shaped disc, marked with clusters of brilliant yellow spots, this was a species I had been looking for in various locations in Central America for the better part of a decade. What a find!

My time with it was frustratingly short. After a handful of rushed compositions, I drifted upwards, drinking in its details until it was lost in the green haze below me.

One dive. Five ray species. Two of them "lifers." This week was going to be epic!

### Patient model at shark shallows

We dived again, nearby at a site called Shark Shallows. There were not quite as many rays this time but still a good selection, including another southern banded guitarfish. This time, it was a younger animal lacking yellow clusters of spots.

Fortunately, this one sat patiently



while I fussed around it, taking shots from every angle, like a tailor measuring a client for a new suit.

After a third shallower dive, mostly involving leopard rays, we returned to shore, and I headed into town to buy some thinner clothes before checking into my real hotel room. Skipping dinner, I was asleep in minutes.

### Eagle rays at Sorpresa

The next day started with a dive at Sorpresa (Surprise Reef). More leopard

round rays, no surprise there. The highlight was an Eastern Pacific spotted eagle ray (*Aetobatus laticeps*). There used to be just one spotted eagle ray species, but a few years ago, taxonomists decided there were enough differences between regional populations to warrant a three-way split. So now, we have *A.narinari* in the Atlantic, *A.ocellatus* in the Indo-Pacific, and *A.laticeps* in the Eastern Pacific.

At a glance, they are a little tricky to tell apart, but their ranges do not



Costa Rica

Bullseye electric ray showing off its eyespot (top left); Chilean round stingray at El Jobo (above center)

overlap, so you always know which one you are looking at.

**Mirador.** Our next dive was at Mirador—a good spot to find bullseye electric rays, and find them we did!

Many rays display ocelli (eyespot) on their pectoral fins to make predators think that a larger animal is looking back at them. The illusion works best if your fins are wide enough for the eye spots to look menacing, but bullseye electric rays are not much bigger than a tea plate. So, they display one large eyespot and hang out in pairs for added effect.

**El Jobo.** Still bitter about missing the Chilean round ray, we drove

60km north to El Jobo the following day; it was a small fishing village near the Nicaraguan border.

Many years ago, I saw a picture of a Chilean ray taken by a biologist in this very bay. Although leopard round rays are ten for a penny, other Central American round rays are extremely hard to find, so a whiff of a chance was enough to warrant an exploratory dip.

With no dive shops in the area, our plan was to conduct a couple of shallow shore dives around the moorings of the fishing boats.

I had barely put my head in the water when the first Chilean round ray darted out of the sand directly below me. This one was far more relaxed than the shy one near Playa Del Coco, allow-

ing me to get plenty of snaps before it finally zipped off. My second lifer of the trip, firmly in the bag.

### Chilean round rays everywhere

Five minutes later, we were swimming among the boat moorings, unearthing one Chilean round ray after another. Interestingly, there seemed to be two colour morphs, a very dark one with a scattering of blackish spots, and a beautiful lighter morph with a denser spot pattern, which looked uncannily like a fried tortilla.

Beyond the moorings, we came upon a shallow reef, rising out of the sand. Although the reef itself was nothing to write



Chilean round stingray at El Jobo (above); Some Chilean round stingrays look uncannily like tortillas (top right)



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A rare encounter with a tiny juvenile Mazatlan butterfly ray

home about, it was well populated with guitarfishes, especially the southern banded kind, which were apparently not that rare after all, once we knew where to look.

### Chilly waters

The reason Playa El Jobo is so different from Playa Del Coco became uncomfortably obvious as soon as we dipped our toes in the water. Exposed to the offshore north wind, El Jobo is a good six degrees colder than the other dive sites we had visited.

Consequently, deeper species that would normally live below the ever-present thermocline were able to enter this bay without getting heat-stroke. I mused about what we

might find below El Jobo's even colder thermocline, but without a drysuit, I decided that would have to wait for another trip.

After a decent surface interval to stave off hypothermia, we slipped in at an adjacent bay that looked promising. Again, we were greeted by scores of Chilean round rays, some clearly gravid.

While moving from ray to ray to record a good variety of identification shots, I ran into a small male that was eagerly pursuing a larger female. Eventually, he bit down on her pectoral fin, but she wanted none of it. Wriggling free, she disappeared in a cloud of sand.

Luis floated nearby, pointing out hidden stingrays whenever I was unoccupied.

Over the last three days, I had become used to his underwater vocalizations, so when his pitch suddenly rose a few decibels, I knew he had spotted something worth investigating. Swimming over, he pointed out a tiny, pink Mazatlan butterfly ray (*Gymnura crebripunctata*). Another lifer!

It was not much larger than my open hand. If all went well for this newborn pup, it would eventually grow six-fold, turn a much deeper brown, and develop a subtle pattern of large dark spots. Right now, it was more concerned with concealing itself under a layer of sand, which it did clumsily as if not yet used to its oversized pectoral fins.

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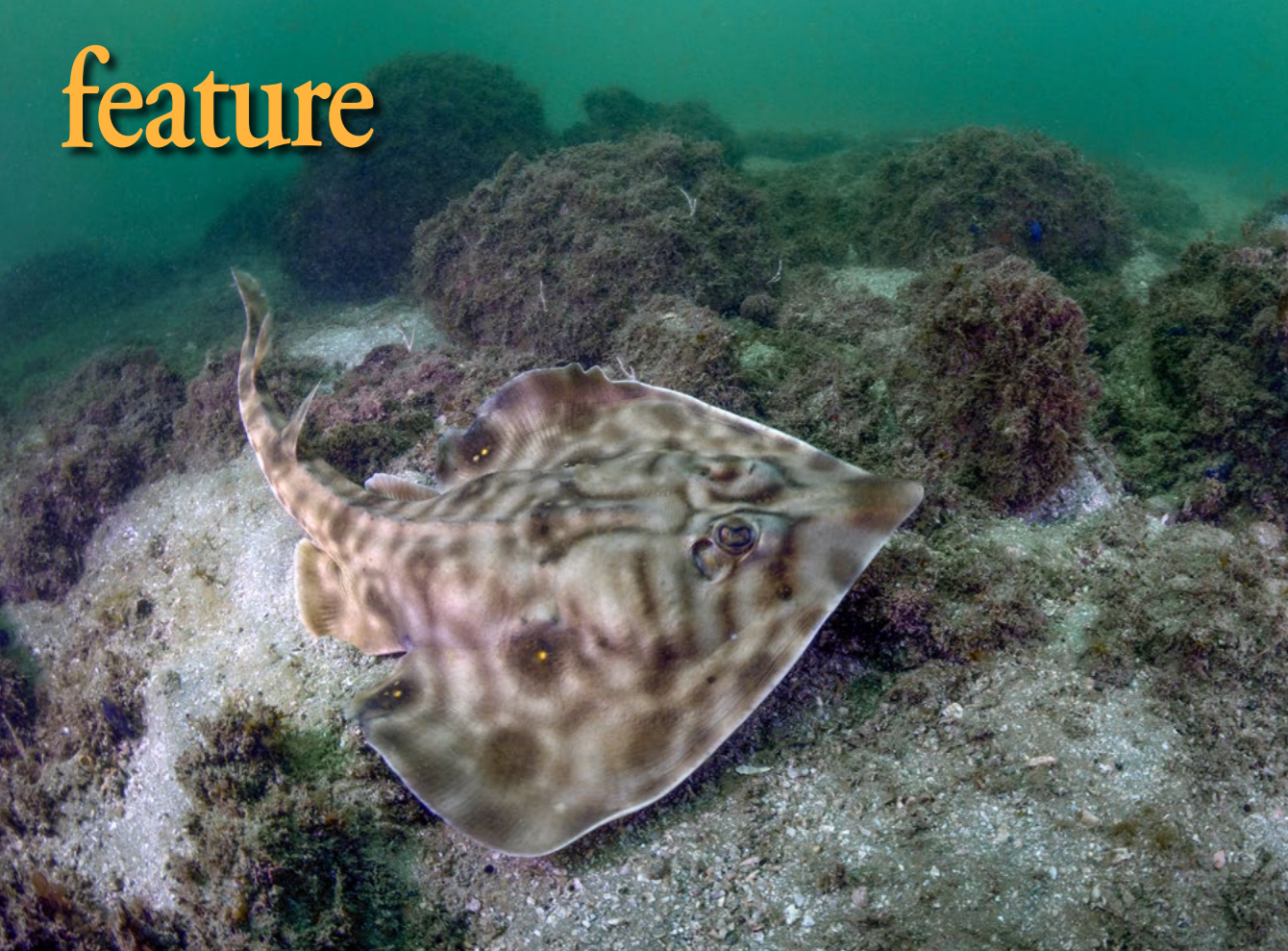


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A male Chilean round stingray attempting to mate at El Jobo (above);  
A not-so-rare Southern banded guitarfish at El Jobo (top left); Pacific  
nurse sharks in The Nursery near Playa Del Coco (top right)

## The Washing Machine

The next day, we were back in Playa Del Coco looking for nurse sharks. Until recently, Eastern Pacific nurse sharks were lumped together with Caribbean nurse sharks, but in 2015, they were elevated to full species status and given the name *Ginglymostoma unami*.

Although physically similar to their Caribbean counterparts, Pacific nurse sharks are vastly more timid. So much so, that it is extremely difficult to get close to one, let alone compose a decent photo of one.

We dropped in at a spot variably named The Nursery or The Washing Machine—a shallow, surgy rock outcrop where nurse sharks often huddled together.

Reaching their specific hiding spot involved kicking frantically from rock to rock while the swell tossed us

back and forth. The final approach ended with a quick scramble over a ledge that was a meter deep; this had to be timed perfectly to avoid being picked up and dashed against the rocks.

Once on the leeward side of the reef, I stared down at a 3m-wide rock pool filled to capacity with six beefy nurse sharks. After one hurried snapshot, they exploded in all directions, and disappeared over the ledge to who knows where.

## Fortune favours the brave

Before The Washing Machine could start its next spin cycle, we fled deeper, onto a featureless sandy slope. At 25m, there was not so much as a sea star to look at. Most divers would have called off the dive at this point, but if you want to find unusual animals, you have to

dive in unusual places.

Levelling out, we kicked north, aiming for a spot where the visibility was really awful. Sure enough, at the centre of a small sandstorm, we found an enormous Pacific chupare stingray (*Styracura pacifica*) flapping its pectoral fins to unearth molluscs for lunch. Lifer number four!

Like the Pacific nurse shark, this species was also recently separated from its Caribbean counterpart, but in a more radical move, both chupare rays were kicked out of the marine stingray family altogether, and placed in the family Potamotrygonidae, with the freshwater stingrays that inhabit the river systems of South America.

It is intriguing to me that this ray's ancestors initially moved from the ocean into freshwater rivers (an extremely difficult biological feat),



Pacific chupare stingrays are related to the freshwater stingrays of the Amazon (above); A juvenile Mazatlan butterfly ray near El Jobo (top center); A battle scarred giant electric ray at Murch Mountain (top right); Proof of life—a rarely seen spinytail round stingray, *Urotrygon aspidura*, near Playa Del Coco (far right); Dark phase Chilean round stingray (right)

and then, perhaps responding to diminishing food supplies, a more recent ancestor changed course and moved back in the ocean. Adapt or die, it would seem.

## Final day

Having already encountered nine species of Costa Rican rays, on our final day, there was very little left to look for. Theoretically, there were one or two more species of ridiculously rare round rays that were long shots at best, but neither of us knew where to look for them, so we decided to explore more of the sandy slopes south of Playa Del Coco, just to see what was out there.

**Scorpeana.** We fell in at a site called Scorpeana, but ignored

the reef completely, preferring to drift down into the gloomy nether regions. At 30m, we hung a right and began a very slow ascent up the sandy slope.

Ray hunting is not exactly a high-adrenaline activity, so I had completely zoned out by the time my eyes settled upon a small, half-buried ray laying in a depression on the sand. Pointy nose, no markings, thorny tail. What! This had to be a spinytail round ray (*Urotrygon aspidura*).

By the time this had registered, the tiny ray was heading for deep water. Pursuing it briefly, I snapped a fuzzy proof of life shot and then let it go. Alas, not much of a photo opp, was lifer number five...

**Playa Ocotol.** Our final dive was at Playa Ocotol, just south of Playa Del Coco. Again, we drifted down into the marine desert, but at 20m, we stumbled upon a huge, unknown reef, teeming with fish.

Near the deeper side of the reef, an adult Mazatlan butterfly ray took flight before I could fire a single shot, but another unusual shape in the sand soon caught my eye. From its size, at first, I thought it was an angelshark, but after a little fanning, I uncovered the most enormous, battle-scarred giant electric ray (*Narcine entemedor*) I had ever seen. Although electric rays deliver a relatively mild shock, I gave this brute a wide berth as it muscled its way back into the sand.

After showing us eleven ray species, the ocean finally run out of surprises,

so we ascended to the top of the new reef, that Luis later named Murch Mountain.

On the drive back to San Jose, I thumbed through the scant records I had found about other rare Costa Rican ray species. As far as I could tell, no other species had ever been seen by divers, but divers do not generally swim around in featureless marine deserts where reclusive rays might be found.

By the time we reached the capital, we had hatched a plan for a

return visit. Next time, we would explore the Gulf of Nicoya—a deep, dark backwater with no dive sites and notoriously horrendous visibility. I could tell already, our next trip was going to be awesome! ■

*Andy Murch is an award-winning photographer, marine conservationist, author, journalist, explorer, dive instructor and submarine pilot based in British Columbia, Canada. He is the founder and a trip leader of Big Fish Expeditions at: [bigfishexpeditions.com](http://bigfishexpeditions.com).*

Edited by  
Scott Bennett

A slow-moving filter-feeder, the gentle whale shark is the biggest fish in the sea.



SCOTT BENNETT

## Shipping poses substantial threat to whale sharks

**According to new research conducted by marine biologists from the Marine Biological Association (MBA) and the University of Southampton, lethal collisions between whale sharks and large ships are greatly underestimated and may be the cause of declining populations.**

As whale sharks assemble in coastal regions to spend substantial time in surface waters, experts theorised collisions with ships could be causing substantial whale shark deaths. Previously, there was no way of monitoring this threat.

Scientists from 50 international research institutions and universities tracked both whale shark and ship movements across the globe to pinpoint areas of risk and potential collisions. Satellite-tracked data from nearly 350 whale sharks was submitted to the Global Shark Movement Project, conducted by MBA researchers.

### Shark hot spots

The team recorded shark "hot spots," which overlapped global fleets of cargo, tanker, passenger and fishing vessels, all capable of striking and killing a whale shark. It was concluded over 90 percent of whale shark movements fell under the footprint of shipping activity. Whale shark tag transmissions ended more frequently in busy shipping lanes, even when technical failures were ruled out. The team concluded transmission loss was likely due to whale sharks being struck, killed and sinking to the ocean floor.

"Incredibly, some of the tags recording depth as well as location showed whale sharks moving into shipping lanes and then sinking slowly to the seafloor hundreds of metres below, which is the 'smoking gun' of a lethal ship strike," said Professor David Sims, Senior Research Fellow at the MBA and University of Southampton and founder of the Global Shark Movement Project. "It is sad to think that many deaths of these incredible animals have occurred globally due to ships, without us even knowing to take preven-

tative measures," he added.

At present, no international regulations exist to protect whale sharks against ship collisions. The research team hopes their findings can inform management decisions and protect whale sharks from further population declines. Growing up to 20m in length, whale sharks feed on microscopic animals called zooplankton and play a crucial role in the marine food web and healthy ocean ecosystems.

"The maritime shipping industry that allows us to source a variety of everyday products from all over the world may be causing the decline of whale sharks, which are a hugely important species in our oceans," said Freya Womersley, doctoral researcher, from the University of Southampton. "Collectively, we need to put time and energy into developing strategies to protect this endangered species from commercial shipping now, before it is too late, so that the largest fish on Earth can withstand threats that are predicted to intensify in future, such as changing ocean climates," she added. ■

SOURCE: SCIENCE DAILY

## How big is it? Drones assisting in manta ray research

**A global breakthrough in recording manta ray information has been made by an Auckland University doctoral candidate.**

In a study entitled "How Big Is That Manta Ray?" published in *Drones*, Edy Setyawan outlined how a drone camera, with the addition of a PVC pipe in the ocean, can be utilised to accurately measure the world's largest ray species. "I could see that from the drone there was some size variation, some mantas, they are bigger than the others," said Setyawan. "It's quite cheap using a small drone, but it can give us a big impact on manta ray conservation."

The technique was first applied in Raja Ampat, Indonesia, with reef manta rays and then in the Hauraki Gulf near Auckland with oceanic manta rays. Age-indicating details such as the claspers of mature males and scarring from mating on the left wings of mature female mantas are also evident when filmed with a drone. Usually, researchers estimate manta size by being near them in the water, but that method is often unreliable. "That often disturbs the manta rays, and the manta rays just swim away—'yep, I don't need to be with you... that's too close!'" Setyawan said.

Manta Watch Aotearoa New Zealand founder Lydia Green has been involved in the New Zealand portion of the study. Green said New Zealand's mantas may be the

only population not showing conservation impacts resulting from overfishing and other human marine activity, so gathering information as quickly as possible via drone is important. "It's exponentially grown our understanding, as well as the means of being able to collect data on these animals," she said.

"Mantas are fully protected in New Zealand waters, but they're currently data deficient so if we give the Department of Conservation and other decision-makers a lot more information, then they can make better-informed decisions, and then if our mantas go overseas, then the protections are different, so it's just getting prepared for that and having that data there, ready as and when we need it."

The oceanic manta ray found in New Zealand is the largest ray in the world, weighing up to 2,000kg and with a wingspan of up to seven metres. According to Setyawan, manta researchers in several locations around the world have already expressed interest in his method. ■

SOURCE: 1 NEWS



SCOTT BENNETT

Giant manta ray



*My Favorite Underwater*

# Circles, Curves Bubbles & Swirls

*Contributors' Picks from Around the World*

Text and photos by John A. Ares, Scott Bennett, Rico Besserdich, Sheryl Checkman, Larry Cohen, Anita George-Ares, Kate Jonker, Matthew Meier, Brandi Mueller and Olga Torrey

We asked our contributors what their favorite underwater photos featuring circles, curves, bubble shapes and swirling patterns were, and they came back with a diverse selection of subjects from delicate macro marine life to majestic manta rays and giant whale sharks. *X-Ray Mag* contributors share their favorite images from the tropical waters of the Solomon Islands, Papua New Guinea, Palau, the Philippines, Indonesia, Malaysia, Cayman Islands, Cuba, Mexico, Costa Rica, Honduras, and the Egyptian Red Sea to the sub-tropical and temperate waters of South Africa, Turkey, Croatia, the US East Coast and California.





Orangutan crab, *Achaeus japonicus* (above), finds shelter in bubble coral, *Plerogyra sinuosa*, Barney's Reef, Papua New Guinea. Gear: Olympus OM-D E-M5 camera, Olympus 12mm-50mm lens, Nauticam housing, dual Sea&Sea strobes. Exposure: ISO 320, f/7.1, 1/80s; The tomato clownfish, *Amphiprion frenatus* (previous page), forms symbiotic mutualisms with the green bubble-tip anemone, *Entacmaea quadricolor*, in Papua New Guinea. Gear: Olympus OM-D E-M5 camera, Olympus 12mm-50mm lens, Nauticam housing, dual Sea&Sea strobes. Exposure: ISO 500, f/6.3, 1/125s

## The Beauty of Geometric Shapes

Text and photos by Olga Torrey

Every object has a shape. A line that connects at both ends creates a form. When a profile occurs, it becomes two-dimensional: positive and negative. The positive figure is the actual object, and the negative outline is the area between objects. The regular geometric configuration is precise. A basic geometric shape includes circles, squares and triangles in technology, art and architecture.

The organic form is irregular, such as clouds, trees, rocks, mountains and the human figure. An object appears three-dimensional when depth, length and width become a whole.

The formation of baitfish swimming alongside the sand tiger shark for protection mimics the torpedo-like body of the big fish inside the *Aeolus* shipwreck in North Carolina, USA. This image is an excellent example of a three-dimensional oval profile with the positive physique of the fish as an actual object, the negative space of the wreck interior and the water in the

background.

The tomato clownfish (previous page) feels safe and at home in the dense forest of green bubble-tip anemone in Papua New Guinea. The fish's complex contours on its body contrast with the easy form of the anemone.

The orangutan crab's physique appears like scissors with its thick diagonal crosslines on Barney's Reef in Papua New Guinea. The bubble coral

appear like grapes filled with juicy fluid that can burst at any moment.

The porthole opening outlines a diver's face inside the *USS Spiegel Grove* shipwreck in Key Largo, Florida.

The negative contour brings focus to the diver. The primary colors—red and yellow—of the sponges intensify the blue eyes of the diver. Visit: [fitimage.nyc](http://fitimage.nyc)



Sand tiger shark, *Carcharias taurus* (below), surrounded by baitfish, swims inside the *Aeolus* shipwreck in North Carolina, USA. Gear: Olympus OM-D E-M5 camera, Panasonic fisheye 8mm lens, Nauticam housing, dual Sea&Sea strobes. Exposure: ISO 500, f/5.6, 1/160s; Diver inside *USS Spiegel Grove* shipwreck, Key Largo, Florida, USA (top left). Gear: Olympus OM-D E-M5 camera, Panasonic 7-14mm lens, Nauticam housing, dual Sea&Sea strobes. Exposure: ISO 250, f/6.3, 1/60s





*Manta Ballet* (above). GEAR: Nikonos V camera, 15mm lens, available light. Exposure: ISO 100, f/11, 1/250s

## Orbs and Curving Forms

Text and photos by John A. Ares

*Fish Eye* is a certified circle. The shot was taken in an aquarium, using natural light. Aquariums present many opportunities for great photos due to proximity, unique lighting and varied species. The gold ring around the eye was what attracted me to create the image.

For the longest time, getting to see a whale shark was like searching for Bigfoot. I just did not see them. One place that is very reliable for whale shark encounters is Oslob on Cebu Island in the Philippines. On perhaps the third trip there, I hit the jackpot—seeing five whale sharks all at once. In the shot, *Multiple Whale Sharks*, four



sharks are shown, with their streamlined curves accentuated, as they reach for handouts from the boats above. Weekdays were best to see the whale sharks.

*Tunicates* (*Atrium robustum*) are fascinating because they have a triple set of circles that repeat, including the little incurrent circles, the large

“excurrent siphon,” and the overall round shape of an individual within the colony. When taking the shot, *Tunicates*, both my strobes were held high and around the back to present rim lighting. The image was then converted to black and white in postproduction, using Nik



*Fish Eye* (left). Gear: Canon EOS 10D camera, Canon 100mm f/2.8 macro lens, shot through an aquarium window, with available light. Exposure: ISO 3200, f/2.8, 1/30s

*Multiple Whale Sharks* (below), Oslob, Cebu Island, Philippines. Gear: Canon EOS Rebel T1i camera, Canon EF-S 10-18mm f/4.5-5.6 IS STM lens, Ikelite housing, twin Ikelite DS160 strobes. Exposure: ISO 400, f/11, 1/60s

*Tunicates* (center). Gear: Canon EOS Rebel T1i camera, Canon EF 100mm f/2.8 macro lens, Ikelite housing, twin Ikelite DS161 strobes. Exposure: ISO 400, f/16, 1/60s



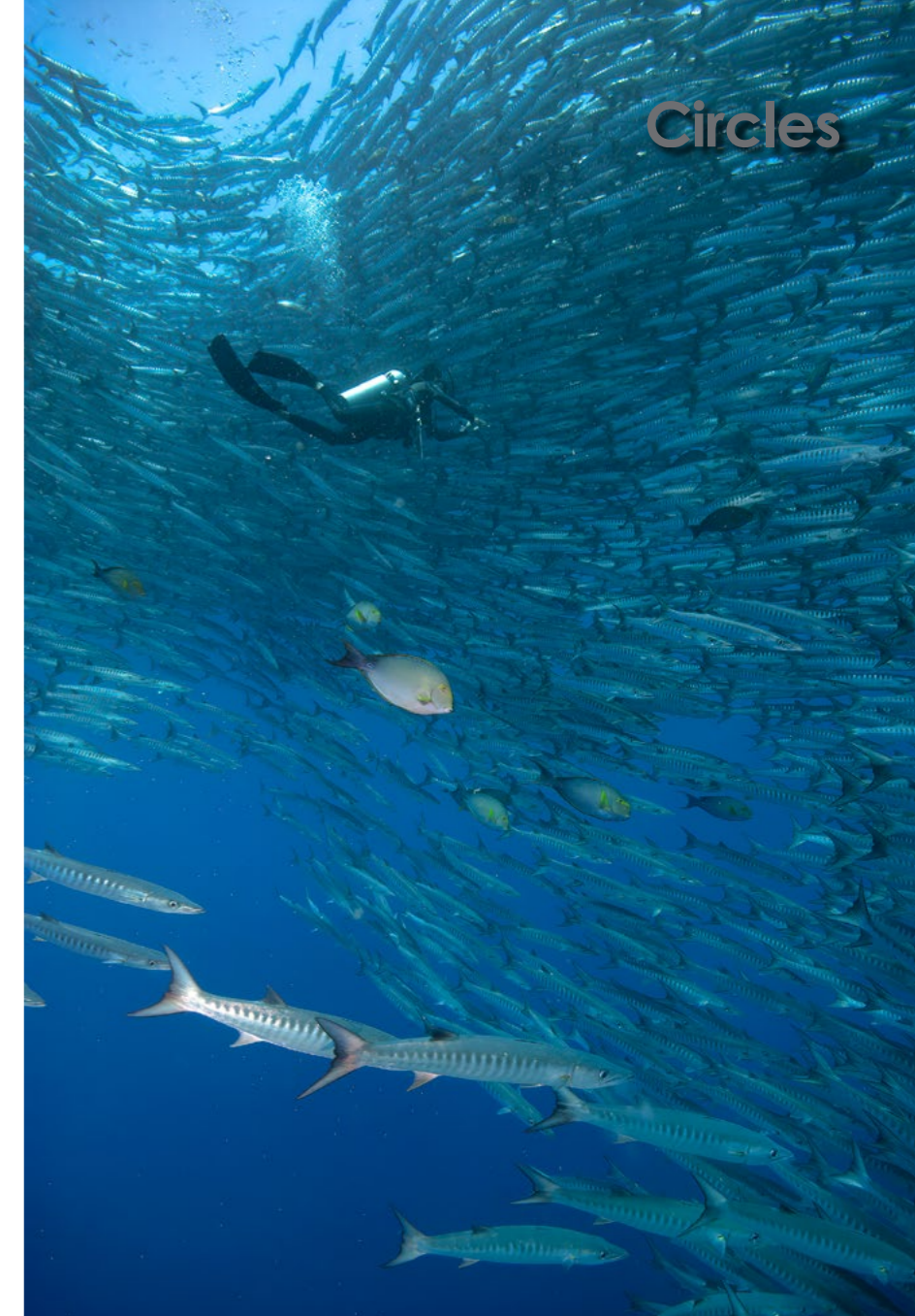
Silver Efex software.

The shot of the manta is riddled with “curves.” This was pure serendipity. It was photographed at the surface, using a Nikonos. My wife had almost a full roll of film remaining, while I had

shot most of my roll. She handed her camera to me and basically said, “Have at it.” For 20 minutes, while snorkeling, we had a great encounter with the manta, as it was very curious and stayed with us. Visit: [JohnAres.com](http://JohnAres.com)



Detail of crocodilefish eye, Tufi, Papua New Guinea (above). Gear: Nikon D200, Nikon 105mm macro lens with close-up filter, Hugyfot housing, two Ikelite D125 strobes. Exposure: ISO 100, f/32, 1/80s; Big-eye jacks, Liberty wreck, Bali, Indonesia (left). Gear: Nikon D200 camera, Sigma 10-20mm lens at 12mm, Hugyfot housing, two Ikelite D125 strobes. Exposure: ISO 100, f/4.5, 1/100s



Chevron barracuda school, Sipadan, Malaysia. Gear: Nikon D200, Sigma 10-20mm lens at 10mm, Hugyfot housing, two Ikelite D125 strobes. Exposure: ISO 100, f/7.1, 1/100s



Golden jellyfish, Palau. Gear: Nikon D7100 camera, Sigma 10-20mm lens at 13mm, Seacam housing, two Ikelite D160 strobes. Exposure: ISO 400, f/20, 1/200s,

### Circular Selections

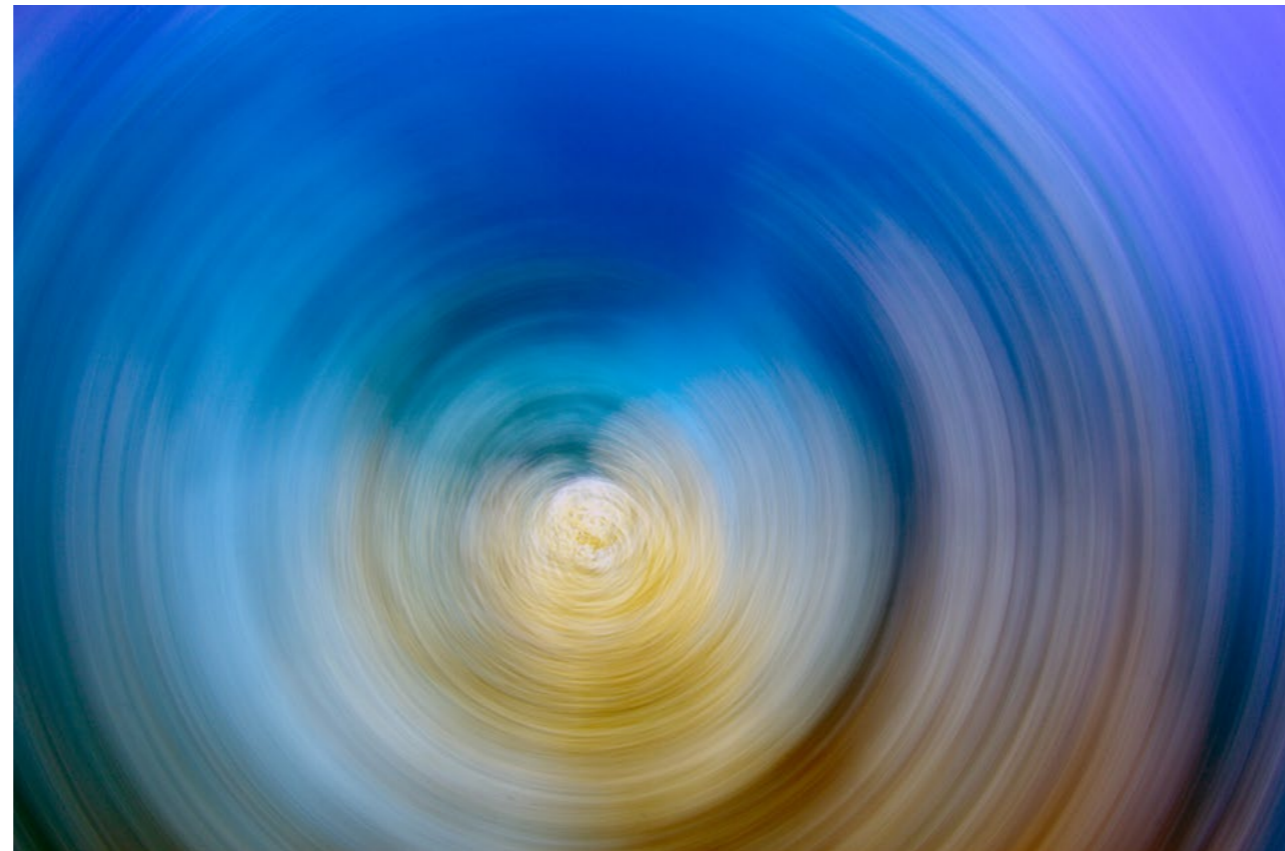
Text and photos by Scott Bennett

While diving off Bali's *Liberty* wreck, I encountered a school of big-eye jacks near the bow just below the surface. Obviously used to divers, the fish were exceedingly tolerant, allowing me to come within an arm's length. After some awkward manoeuvring, I captured the school's "eye" as a solitary surgeonfish passed in the blue, adding dynamic tension to the image.

Malaysia's Sipadan Island is famous for its schooling chevron barracudas, but on my first visit way back in 2003, they remained elusive. A return visit years later proved much more successful. On one dive, I positioned myself within the swirling tornado just as another diver entered my viewfinder. The undulating motion of the fish provides flow, while the diver anchors the image, giving it scale.

For anyone diving in Asia Pacific, crocodilefish are one of those ubiquitous, bottom-dwelling species photographers ignore in favour of more exotic subjects. While on a night dive at Tufi's House Reef in Papua New Guinea, I discovered this specimen resting on the bottom. Moving in closer, my torch beam revealed its eye to be a remarkable fusion of patterns and textures. Especially captivating was the "eyelid," a frilly appendage that looked like an intricate doily.

Palau's Jellyfish Lake proved to be another one of those fortuitous second chances. On my first trip, a newly purchased Nikonos 5 camera, combined with fumbling technique, resulted in disappointing images. Returning years later with a DSLR, I envisioned a shot from beneath, with a jellyfish silhouetted against the blue sky. My disastrous free-diving skills quickly nixed that idea, but I had an epiphany. Locating a specimen just below the surface, I set both strobes set to half power and positioned my housing directly beneath it. Please visit: [xray-mag.com/Contributors/Scott-Bennett](http://xray-mag.com/Contributors/Scott-Bennett)



*Eternity*, Hurghada, Red Sea, Egypt. Gear: Canon EOS 7D camera, Easydive housing, 10-20mm Sigma lens (at the 10mm end), ambient light. Exposure: ISO 400, f/8, 1/10s

### Swirling Shots

Text and photos by Rico Besserdich

I have always liked creating images of common subjects that simply look “different.” Back in 2013, while conducting an underwater photography workshop in the Egyptian Red Sea, I worked on this very concept, creating a “different” image by using the so-called “swirl” technique for the photo, *Coral Swirl*.

With this technique, you use a longer exposure time, and while taking the shot, you turn the camera in a circle, very quickly. This technique needs a bit of practice but creates images with a “different” look.

The swirl technique allows one to create abstract images. What we see

in the image, *Eternity*, is actually a fire coral. The swirl technique creates (obviously) swirls and circles, thus presenting common subjects in a different, almost philosophical way. The photographed subject itself becomes secondary, while the visual impression becomes the primary aspect.

Two sunken Douglas “Dakota” C-47 airplanes in Turkey have become very popular dive spots. The image, *The Prop*, was taken at the Dakota plane in Bodrum. In this image, I attempted to bring the propeller of the Dakota back to life. The circles and swirls in the image suggest “rotation” and “movement,” thus, bringing life back to something that was supposed to be resting still, underwater, forever. Please visit: [maviphot.com](http://maviphot.com)

*The Prop*, Bodrum, Turkey. Gear: Canon EOS 40D camera, Sigma 10-20mm lens, Ikelite housing, one Ikelite DS125 strobe, one Sea&Sea YS strobe. Exposure: ISO 200, f/11, 1/15s

*Coral Swirl*, Sharm el-Sheikh, Red Sea, Egypt. Gear: Canon EOS 40D camera, Sigma 10-20mm lens (at the 10mm end), Ikelite housing, ambient light. Exposure: ISO 200, f/11, 1/5s







## Circles

Bridled burrfish, Ringer's Wall dive site, Little Cayman (left). Gear: Olympus OMD EM5 Mark II camera, Olympus M. Zuiko 60mm f/2.8 lens at 60mm, Olympus PT-EP13 housing, Sea&Sea YS D-1 strobe. Exposure: ISO 200, f/8, 1/125

Octopus, Blue Heron Bridge, Florida, USA (far left). Gear: Olympus OMD EM5 Mark II camera, Olympus M. Zuiko 14-42mm f/3.5-5.6 lens at 42mm, Olympus PT-EP13 housing, Sea&Sea YS D-1 strobe. Exposure: ISO 200, f/11, 1/200s



### The Circular Windows of the Soul

Text and photos by Sheryl Checkman

When I look into the eyes of a fish underwater and get a sense that it is looking back at me, I feel a breathtaking connection. Hearing that this month's topic was circles and curves, it felt natural to me to choose eyes—those circular windows into the souls of the sea.

The beautiful iridescent aqua and golden-flecked eyes of the bridled burrfish, at Ringer's Wall off Little Cayman in the Cayman Islands, seemed to be smiling at me, and the slight upward curve of its lips seemed to reflect that. As I captured this beauty in my lens, I could not help but smile in return!

At Nancy's Cup of Tea in Little Cayman, a mutton snapper resting on the sandy bottom was more

abstract. With a macro lens on my camera, I chose to focus closely on its black and orange eye that stood out against the more subtle orange and purple tones of its head.

The circular eyes and two Pederson's cleaner shrimp were the only things that made this very camouflaged scorpionfish visible. The photo was taken on a night dive in Roatan, Honduras.

On a photo workshop dive a few years ago at Blue Heron Bridge in the US state of Florida, there were quite a few octopuses scampering across the sandy bottom (I believe it was mating season). However, I shared a moment with this particular octopus who just sat still staring right back at me and—I would like to think—baring its soul. Please visit: [instagram.com/sherylcheckman](https://www.instagram.com/sherylcheckman)



Scorpionfish (with shrimp), Emily's Escape Wall dive site, Roatan, Honduras. Gear: Olympus OMD EM5 Mark II camera, Olympus M. Zuiko 60mm f/2.8 lens at 60mm, Olympus PT-EP13 housing, Sea&Sea YS D-1 strobes. Exposure: ISO 200, f/8, 1/160s

Mutton snapper, Nancy's Cup of Tea dive site, Little Cayman (above). Gear: Olympus OMD EM5 Mark II camera, Olympus M. Zuiko 60mm f/2.8 lens at 60mm, Olympus PT-EP13 housing, Sea&Sea YS D-1 strobe. Exposure: ISO 200, f/8, 1/200s





Magnificent sea anemone and pink anemonefish on Joelle's Reef in Papua New Guinea (far left). Gear: Olympus OM-D E-M1 camera, Olympus 9-18mm lens, Aquatica housing, Sea&Sea YS-D1 strobes. Exposure: ISO 200, f/8, 1/80s

Helm of an unknown wreck off Croatia (left). Gear: Olympus E-330 camera, Olympus 7-14mm lens, Olympus housing, Sea&Sea YS-01 strobes. Exposure: ISO 200, f/5.6, 1/80s

Diver in sea cave at Kemer, Turkey (below). Gear: Olympus E-330 camera, Olympus 7-14mm lens, Olympus housing, Olympus FL36 flash in PFL-E01 flash housing. Exposure: ISO 200, f/4, 1/60s

Crinoid on Barney's Reef in Papua New Guinea (bottom left). Gear: Olympus OM-D E-M1 camera, Panasonic 8mm fisheye lens, Aquatica housing, Sea&Sea YS-D1 strobes. Exposure: ISO 200, f/5.6, 1/100s

### Finding the Perfect Shot with Circles

Text and photos by Larry Cohen

Circles have no beginning and no end, so they have been symbols since the beginning of time. For this reason, they are an essential compositional tool in photography and art. In addition, circles are found in nature and many manufactured objects. Therefore, I tend to look for circular subjects and lines when producing images above and below the water.

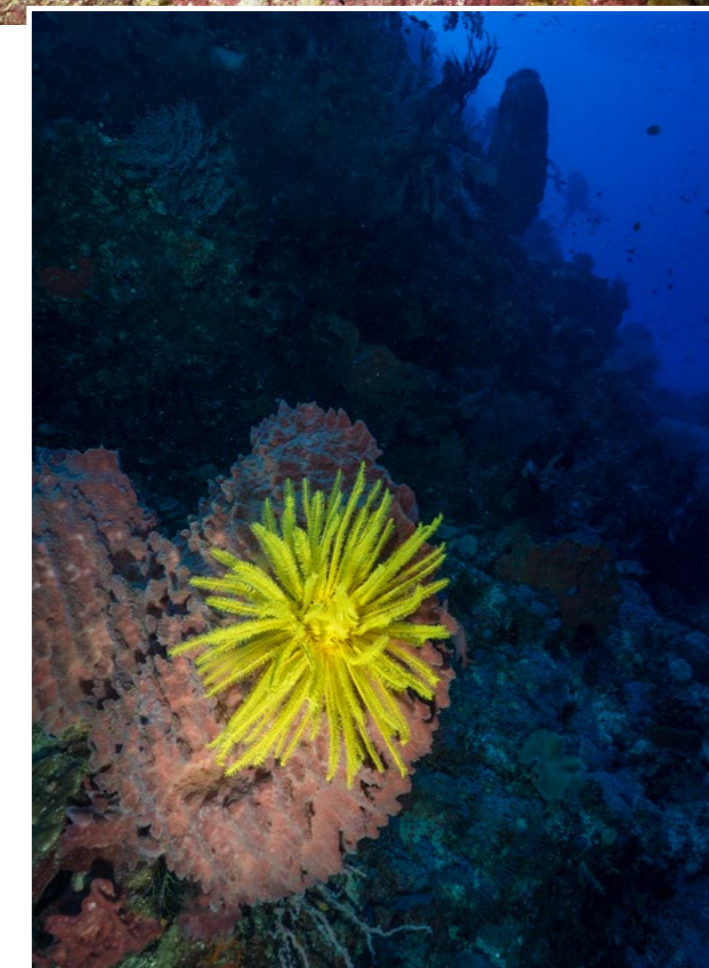
One of the most exciting artifacts on a shipwreck is the helm. Without the ship's wheel, the captain cannot navigate to the destination. Seeing a shipwreck's helm symbolizes the vessel's attempt to reach a destination but never meeting its goal. So, I was excited to see an unknown wreck on its side with the helm still attached when diving off the coast of Croatia. Sitting in the

clear blue water, this was the perfect wreck shot.

Circles can also surround the subject, so your eye is drawn to the center. For example, when diving into a sea cave in Kemer, Turkey, I entered first and faced the entrance. Then, I photographed my dive buddy in the cave's opening. Finally, I set my ambient light exposure for the open water and my strobes for the subject in the picture.

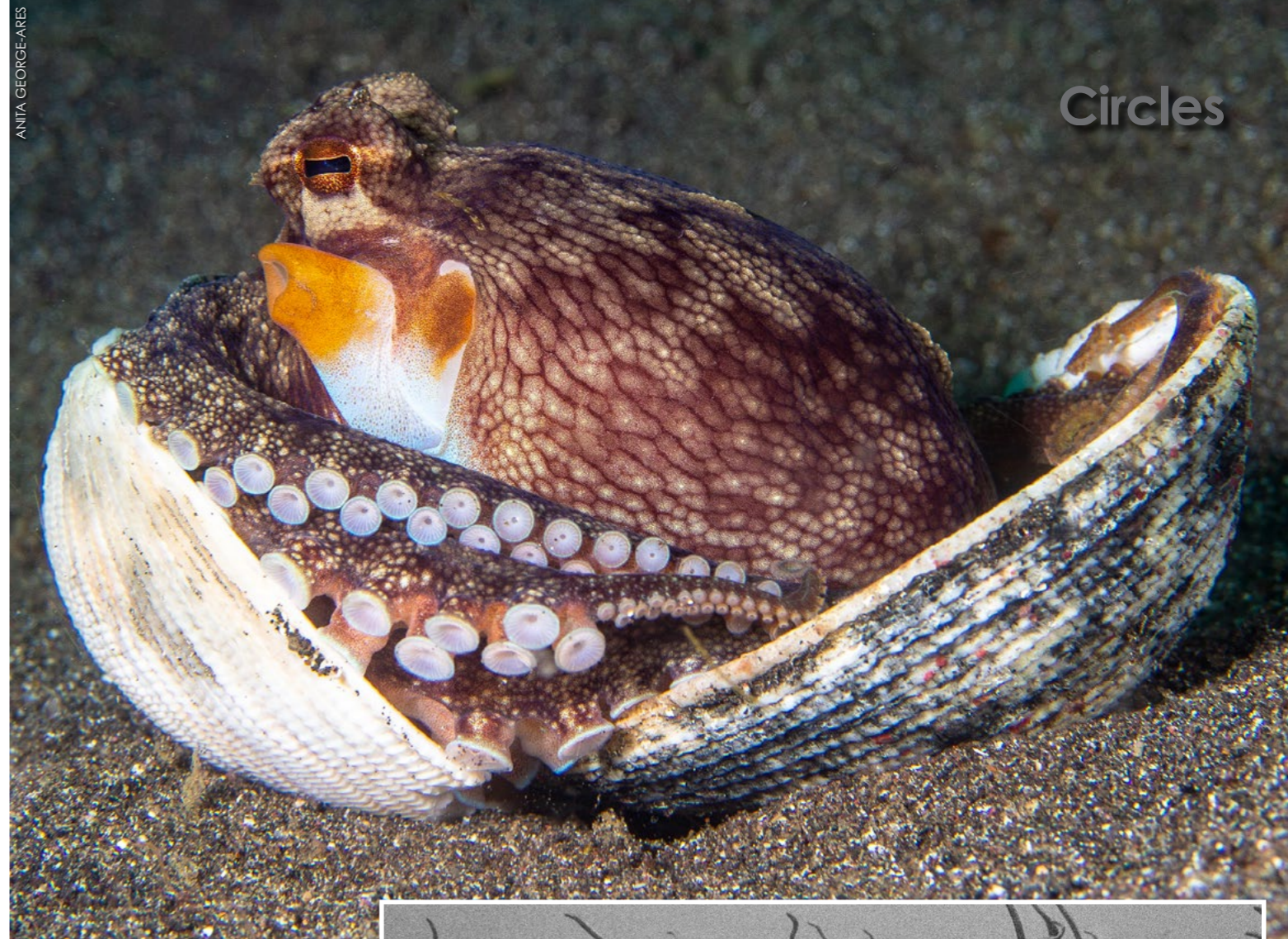
When diving Barney's Reef in Papua New Guinea (PNG), my eye was drawn to the circular shape of a yellow crinoid. My ambient exposure created a dark background. I removed the diffusers from my strobes to produce a spotlight on the crinoid.

Joelle's Reef in PNG is abundant with colorful subjects. Here, I spotted a magenta magnificent sea anemone with several pink anemonefish. I decided to shoot down to emphasize its round shape. Visit: [liquidimagesuw.com](http://liquidimagesuw.com)





ANITA GEORGE-ARES



ANITA GEORGE-ARES



ANITA GEORGE-ARES

Turtle-headed sea snake, Dumaguete, Philippines. Gear: Canon EOS Digital Rebel XTi camera, Canon EF 50mm f/2.5 compact macro lens, Ikelite housing, two Ikelite DS161 strobes. Exposure: ISO 200, f/11, 1/200s

### Circles and Curves

Text and photos by Anita George-Ares

I have never seen a coconut octopus sheltering in a coconut. The ones that I have encountered are usually nestled in shells and occasionally in a can or jar. The octopus in this image taken at Lembeh Strait was continually changing its position on and in the shell. Fortunately, the octopus remained still for a moment, allowing me to take this image. The suckers on the tentacles form perfect circles. The shell holding the octopus continues the circular theme.

I always enjoy seeing large colonies of spaghetti garden eels feeding on plankton in the water column. Spaghetti garden eels are less likely to disappear into their burrows as

one moves closer to take an image, compared to other species of garden eels I have photographed. Converting the original image to black and white made for a more interesting image as the numerous curved bodies of the eels were accentuated.

I took this image as I liked the contrast of the black and white sea snake swimming through the red sponge. It was challenging to photograph the snake as it moved quickly out of sight. The curve of the snake's body parallels the curve of the red sponge.

The gills of a giant clam are not visible unless one looks through its siphon. The circular gills complement the elliptical opening of the siphon. The gills appeared as if they were plated with gold. Please visit: [facebook.com/profile.php?id=100016947967639](https://facebook.com/profile.php?id=100016947967639)



ANITA GEORGE-ARES

Spaghetti garden eels, Dumaguete, Philippines (above). Gear: Canon EOS Digital Rebel XTi camera, Canon EF 50mm f/2.5 compact macro lens, Ikelite housing, two Ikelite DS161 strobes. Exposure: ISO 400, f/11, 1/200s; Coconut octopus, Lembeh Strait, North Sulawesi, Indonesia (top right). Gear: Canon EOS Rebel L SL1 camera, Canon EF-S 60mm f/2.8 Macro USM, Ikelite housing, two Ikelite DS161 strobes. Exposure: ISO 200, f/8, 1/200s

Giant clam gills, Puerto Galera, Philippines. Gear: Canon EOS Digital Rebel XTi camera, Canon EF 50mm f/2.5 compact macro lens, Ikelite housing, two Ikelite DS161 strobes. Exposure: ISO 200, f/11, 1/200s





Starry blenny, *Salaria ramosus*, photographed using very shallow depth of field, Bethlehem dive site, Anilao (above). Gear: Canon EOS 7D Mark II camera, Canon 100mm macro lens, Sea&Sea housing, two Inon Z240 strobes. Exposure: ISO 100, f/2.8, 1/200s



Small longsnout pipefish, *Syngnathus temminckii*, hiding amongst the shells, Pinnacle dive site, Gordon's Bay, Cape Town, South Africa (top centre). Gear: Nikon D850 camera, Meyer-Optik Gorlitz Oreston 50mm lens, Isotta housing, two Inon Z240 strobes. Exposure: ISO 64, f/2.8, 1/250s



## Getting Creative with Bubbles and Circles Underwater

Text and photos by Kate Jonker

As an underwater photographer, I am always looking for creative new ways to photograph my subjects.

Hence, my love for vintage lenses that produce interesting effects. One of my favourite lenses is the Meyer-Optik Gorlitz Oreston 50mm lens from the 1960s. It is a manual lens, so I must set the aperture before I put my camera into its housing. I normally work with a very wide aperture of around f/2.8, which results in a very shallow depth of field.

As it is a manual lens, there is no autofocus and I have to move the camera backwards and forwards until the subject or part of my subject—usually the eyes or the rhinophores—is in focus. As the depth

of field is mere millimetres, this can be quite a challenge.

However, it is a lot of fun and I love how little details such as sand and other textures are transformed into lots of little circles or “bokeh bubbles.”

These circles can also be achieved when photographing subjects that have dots on them, by using a macro lens and a very wide-open aperture (such as f/2.8 or f/5.6). This works best when the dots are farther away from your focal point, as the farther the dots are from where you are focussing, the larger your circles become.

Although it can be quite disorientat-

ing swimming over other divers' bubbles, it can also be fun to try to capture the reflection of your own silhouette in the top of a big bubble. Try to do this when the sun is high in the sky and you are quite a bit above the divers, as the bubbles expand and become larger the closer they are to the surface.

There are so many creative ways to capture bubbles and circles underwater. The only limit (apart from bottom time and air in your cylinder) is your imagination! Visit: [katejonker.com](http://katejonker.com)

Bubble selfie, Ras Mohammed National Park, Red Sea, Egypt (above). Gear: Canon EOS 7D Mark II camera, Tokina 10-17mm fish-eye lens, Sea&Sea housing, two Inon Z240 strobes. Exposure: ISO: 160, f/10, 1/200s

Small speckled klipfish, *Clinus venustris*, Pinnacle dive site, Gordon's Bay, Cape Town, South Africa (centre). Gear: Nikon D850 camera, Meyer-Optik Gorlitz Oreston 50mm lens, Isotta housing, two Inon Z240 strobes. Exposure: ISO: 64, f/2.8, 1/250s



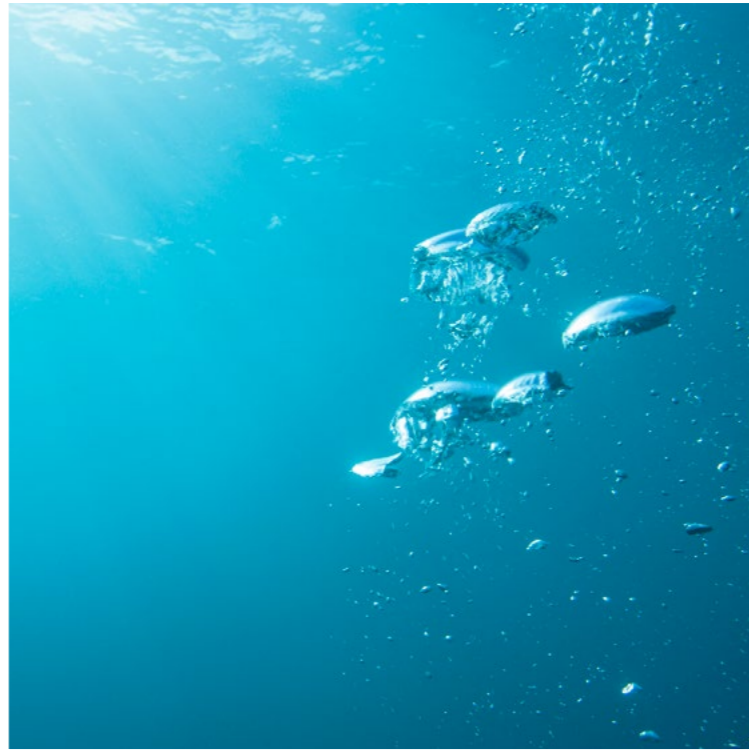


A manta ray enjoys the feeling of the exhaust bubbles while swimming over a scuba diver at the Boiler, San Benedicto Island, Mexico. Gear: Nikon D810 camera, Sigma 15mm fisheye lens, Subal housing, two Sea&Sea YS-250 strobes. Exposure: ISO 200, f/7.1, 1/100s



Large, male great white shark expels bubbles from its gills after lunging for bait at the surface, Guadalupe Island, Mexico. Gear: Nikon D810, Nikon 17-35mm lens, Subal housing, two Sea&Sea YS-250 strobes. Exposure: ISO 200, f/7.1, 1/125s

Large air bubbles rise (from divers below) amongst streaming sun rays, Gardens of the Queen, Cuba. Gear: Nikon D3 camera, Nikon 17-35mm lens, Subal housing, available light. Exposure: ISO 200, f/11, 1/125s

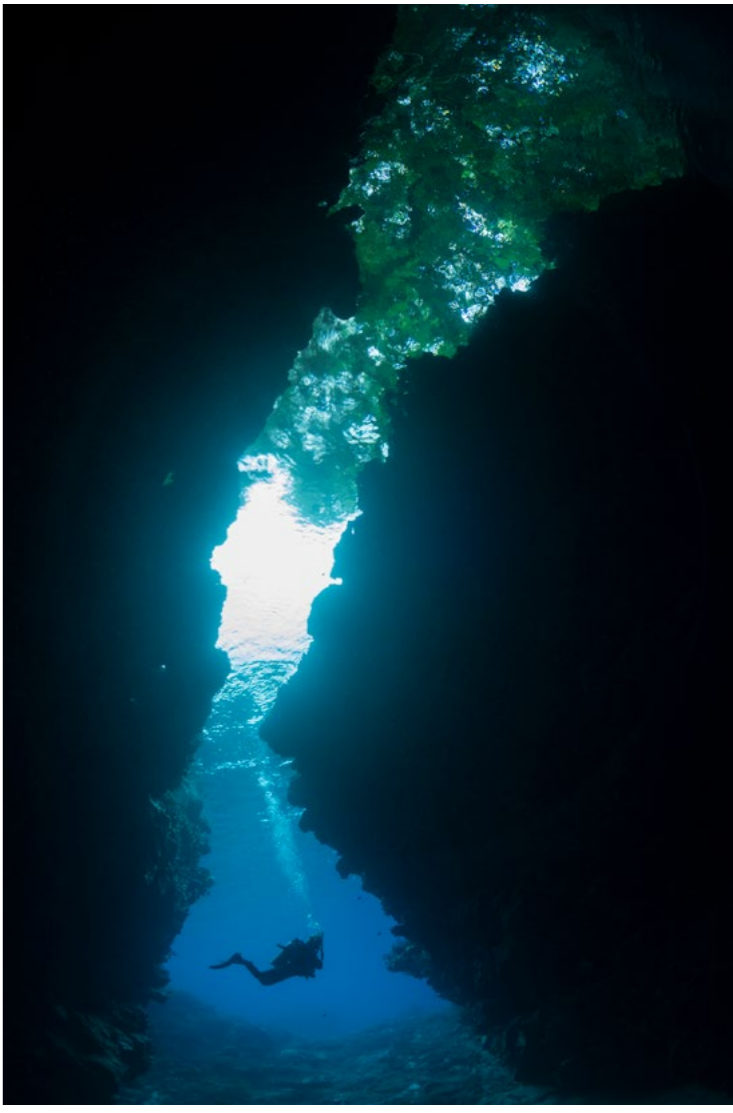


## Bubbles Galore

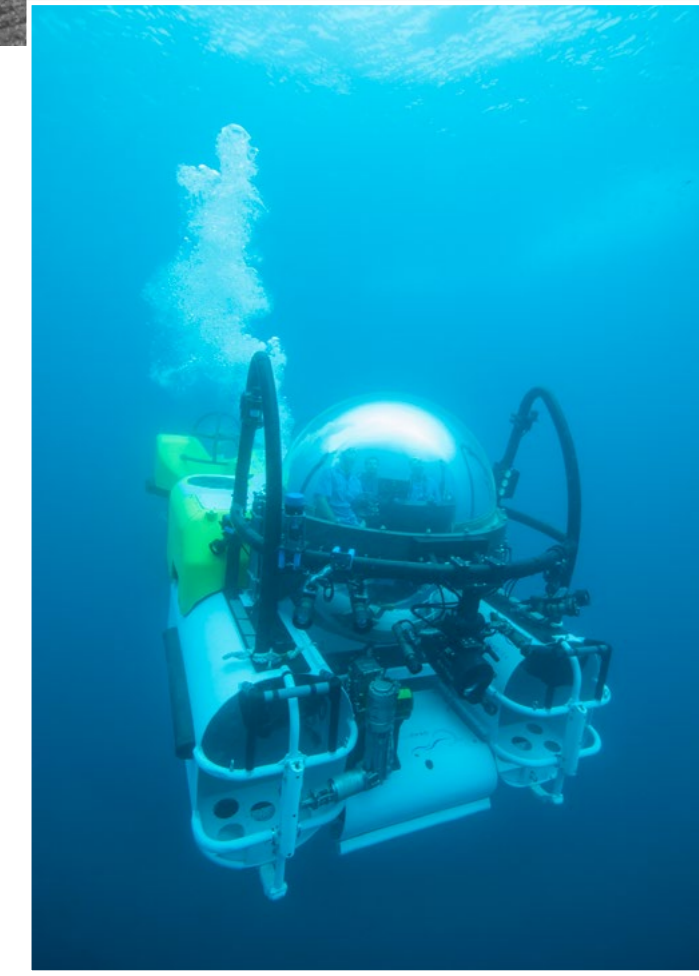
Text and photos by Matthew Meier

I have spent countless hours lining up a shot with my underwater model, waiting for all of the elements to be perfectly positioned, all while trying to synchronize my shutter release between exhales to eliminate bubbles from the scene. On those occasions where my timing failed, I have seemingly spent as many hours on the computer after a photo shoot erasing unwanted bubbles. For

all of my efforts to keep bubbles from disrupting the composition, there are times when bubbles also benefit an image by illustrating a behavior, filling negative space, accentuating motion or simply by helping to define that the subject is underwater. And every once in a while, there is no subject to photograph and the focus of the image is the bubbles themselves. Visit: [MatthewMeierPhoto.com](http://MatthewMeierPhoto.com)



Exhaust bubbles escape from diver in cavern, Marovo Lagoon, Solomon Islands. Gear: Nikon D810 gear, Sigma 15mm fisheye lens, Subal housing, available light. Exposure: ISO 400, f/5, 1/125s



The DeepSee submarine venting bubbles to control its buoyancy as it surfaces, Cocos Island, Costa Rica. Gear: Nikon D3 camera, Nikon 17-35mm lens, Subal housing, available light. Exposure: ISO 800, f/7.1, 1/50s



California sea lion playfully blowing bubbles, Santa Barbara Island, California, USA. Gear: Nikon F4 camera, Nikon 20mm lens, Fuji Velvia film, Subal housing, available light





## False Eyes

Text and photos by Brandi Mueller

Circles on fish can be a survival strategy. By having large, dark round blotches near the tail, a fish may confuse its predators into thinking those markings are eyes. Often referred to as “false eyes,” these circular shapes can serve as a defense mechanism in several ways. The first may be that the predator will not attempt an attack, because if it thinks those large dots are eyes, then the fish behind those big eyes is too big to tangle with.

False eyes can also trick a predator into expecting the fish to swim in a different direction than it actually will. If a predator goes after the end with the false eyes, it might think the prey will have no choice but to swim into its mouth, when, in fact, the fish will swim forward and away from the predator.

Finally, if all else fails, a bite out of the tail may not kill a fish, but a bite to the head most likely will. Sometimes, false eyes are only seen in juveniles. They fade and its patterns change as the juvenile fish transitions into an adult. Visit: [brandiunderwater.com](http://brandiunderwater.com)



Juvenile puddingwife, Cozumel, Mexico (above). Gear: Nikon D850 camera, 105mm lens, Ikelite housing, dual Ikelite DS161 strobes. Exposure: ISO 200, f/10, 1/200s; Two spot goby, Solomon Islands (top left). Gear: Nikon D500 camera, 105mm lens, Ikelite housing, dual Ikelite DS161 strobes. Exposure: ISO 250, f/13, 1/160s; Copperband butterflyfish, Mabul Island, Malaysia (top right). Gear: Nikon D750 camera, 60mm lens, Ikelite housing, dual Ikelite DS161 strobes. Exposure: ISO 250, f/22, 1/200s; Juvenile clown wrasse, Red Sea (right). Gear: Nikon Z7 II camera, 105mm lens, Ikelite housing, dual Ikelite DS161 strobes. Exposure: ISO 125, f/5, 1/200s

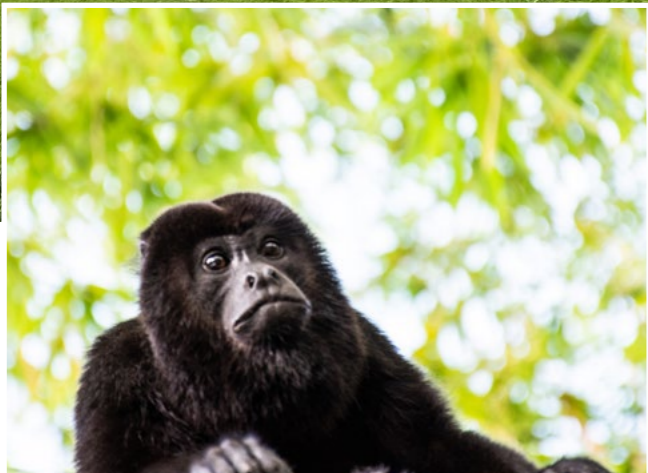


# *Diving with the* **Giant Mantas**

Text and photos by Gary Rose, MD

*of Las Catalinas Islands in Costa Rica*





Gorgeous vistas in every direction—inlets, bays, islands and yachts (above); The resort's alpha male howler monkey (left)



**Gary Rose, a plastic surgeon, dive professional and researcher in marine microorganisms and large ocean apex predators, takes us on a delightful jaunt to Costa Rica to dive with giant mantas. He shares glimpses of the experience both above and below the waves.**

I have heard so many marvelous things about Costa Rica over the past years—about the people, the food, its ecosystem consciousness, and of course, the great scuba diving. So here I was, finally, standing on the talcum-powder beach of the Andaz Costa Rica Resort at Peninsula Papagayo. As I looked

out at the sparkling azure waters of the Gulf of Papagayo, I spied a sleek center-console RIB boat with large twin outboards, coming straight toward me.

As the boat eased next to me, I was immediately impressed with the organization and tidiness of the boat. As a PADI Open Water Instructor, I was very impressed with the quality of the most up-to-date dive equipment being offered to all of the divers.

We then did a 180-degree turn and headed out to open ocean.

**Las Catalinas Islands**

Skimming on top of the minimal chop

of open sea, our destination was Las Catalinas Islands, an archipelago of 20 rocky islands that are about a half-hour offshore by fast boat. Other operators take a few hours for the transit. As we got closer, I thought that my eyes and brain were playing tricks on me. It looked like we were approaching Mexico's Revillagigedo Archipelago (Socorro), almost 2,000 miles away. Just like Socorro, Las Catalinas are remote, uninhabited, unspoiled and very rocky.

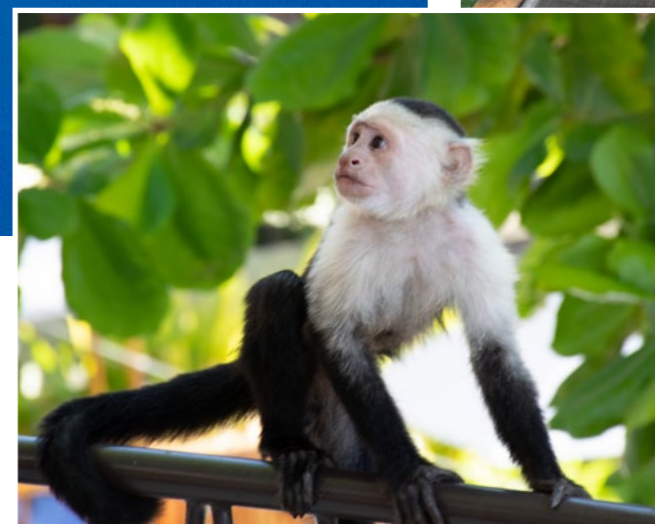
Manta ray flyover (above) at Las Catalinas Islands (center), which are remote and uninhabited; Each manta ray has unique markings, which can identify it (previous page).

**Diving**

The divemaster gave a very thorough pre-dive briefing, explaining how to swim and work with the strong current that blankets the islands. After our gear check, we all did a backroll into the water and regrouped for our drift

dive. The maximum depth we would be experiencing would be 40ft, with the water temperature at 76°F, and a visibility of 25 to 40ft. Our divemaster was vigilant in keeping the group together, which greatly contributed to the enjoyment of the newer divers.





Relaxing at the pool after a fabulous day of diving (above); White-faced capuchin monkey (center); Manta ray, with remoras attached, eyeballing me (top left).

howler monkeys and white-faced capuchin monkeys here and the hotel staff would eagerly teach us how and where to find them. I even got to play 18 holes of golf at the famous Arnold Palmer-designed Ocean Course. ■

Gary Rose, MD, has been a certified diver for over 45 years and is a PADI Open Water Instructor. As a plastic surgeon and former associate professor of microbiology and surgery at the College of Medicine at Florida Atlantic University, he has fulfilled his life passion as a marine biologist with his research on marine microorganisms, as well as large ocean apex predators. He lectures all over the world in an interactive and entertaining style, and is a member of the Divers Alert Network and the Undersea and Hyperbaric Medical Society. Visit: [garyrosephotos.com](http://garyrosephotos.com)

Las Catalinas are famous for spotting and diving with giant manta rays. The season for this is November through May. My trip was during the last week of March, which is in the middle of mating season. Giant mantas usually mate within one meter of the surface. So, we were hoping to spot them flying over us. We were not disappointed.

Immediately after our initial descent, we were rewarded with a flyover—our first of the five different giant mantas that we saw that day. The mantas that we saw each had a wingspan between 20 to 25ft. Each one of these beautiful animals had its own pattern of pigmentation on its back and underside. These patterns are unique to every manta ray and make it easier and more interesting for divers to pick out and identify individuals.

### Giant manta rays

Giant manta rays have the largest brain-to-body size ratio of all elasmobranchs (the shark and ray family). They are smart and curious and love to slowly approach and interact with divers. When I looked into the eyes of each passing ray, I could not help but feel that it was observing me with the same curiosity and interest that I had in observing it.

### Wild dolphins

On our return trip, the RIB boat easily rode the following seas. A pod of at least 50 spinner dolphins accompanied us for a few miles. We were all entertained with their leaping pirouettes and wake surfing. The wonders never ceased. As we got closer to shore, we had the additional treat of watching mobula rays launching five

to 10ft into the air and crashing back down into the warmer azure waters of the shallower bay. Before I knew it, I was back on the beach with a broad smile, great photos and wonderful memories, as I watched the RIB boat return to sea for another aquatic adventure.

### Fine service

At the Andaz Costa Rica Resort at Peninsula Papagayo in Guanacaste, the facility, services, staff and food were all fabulous. There were many great opportunities to photograph



There were amazing views from each fairway of the Arnold Palmer-designed Ocean Course at Papagayo Peninsula.

# marine mammals

Text by  
Kate Jonker



The vaquita, the smallest and most endangered cetacean in the world, is endemic to the northern part of the Gulf of California. This photo was taken under permit (Oficio No. DR/488/08) from the Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT).

## Critically endangered vaquita could survive if gillnet-poaching ban enforced

**Scientific research shows that the critically endangered vaquita porpoise can bounce back from near extinction if the illegal use of gillnet fishing is halted immediately.**

The vaquita is the world's smallest marine mammal, measuring between four to five feet in length. A comprehensive survey conducted in 1997 counted 570 vaquitas, but today, 25 years on, a mere ten surviving vaquitas have been counted in the Sea of Cortez, the only place that the vaquita can be found.

These remaining vaquitas appear to be healthy and are actively reproducing. However, they are under constant threat of becoming

entangled in the large mesh gillnets used by poachers to catch the totoaba, an endangered fish prized for its perceived medicinal properties. Although Mexico has outlawed totoaba fishing and banned the use of gillnets in the vaquita's habitat, reports are that this ban is not always enforced.

### High genetic diversity

Genetic analysis by a team of UCLA biologists of the genomes of 20 vaquitas that lived between 1985 and 2017 has shown that despite the small remaining population, the vaquita has a lower chance of being affected by the severe genetic consequences of inbreeding. This is because their genetic diversity is quite high, and this contributes to

their health and persistence.

"Interestingly, we found the vaquita is not doomed by genetic factors, like harmful mutations, which tend to affect many other species whose gene pool has diminished to a similar point," said Christopher Kyriazis, a UCLA doctoral student in ecology and evolutionary biology and a co-lead author of the research. "Outlawed fishing remains their biggest threat."

This means that the vaquita has a high chance of recovery, even with inbreeding. However, if gillnet fishing in the vaquita's habitat continues, this little marine mammal will disappear from our oceans forever.

The research was published May 6 in the journal *Science*. ■  
SOURCE: SCIENCE DAILY

PAULA OLSON / NOAA / PUBLIC DOMAIN



ANIM1089 / NOAA / FLICKR COMMONS / CC BY 2.0

## Southern Hemisphere humpback whale-call research highlights need for network of MPAs

**Research using hydrophones moored in the Southern Hemisphere to capture the calls of migrating humpback whales has revealed that the high seas, originally thought to be barren, are teeming with life.**

The "whup" and "grumble" sounds recorded by hydrophones moored in the Vema Seamount in the Atlantic Ocean, 1,000km northwest of Cape Town in South Africa, suggest this location could be an important stop on the whales' migration route to polar feeding grounds.

Most of the calls were recorded over a period of three nights in the spring of 2019, with low "whups" being heard most frequently. This is an important discovery as the "whup" is a contact call used by mother-calf pairs to help them locate each other. Furthermore, humpbacks also "whup" while feeding.

This ground-breaking research carried out by a team from the Universities of Stellenbosch (South Africa) and Exeter (UK), and Greenpeace Research Laboratories highlights the need to create a network of Marine Protected Areas (MPAs) to protect the high-seas habitats that whales rely on.

### Network of MPAs

"Fifty years ago, governments came together to turn around the fate of humpback whales," said Dr Kirsten Thompson, of the University of Exeter. "Now they have a chance to secure the progress already made and protect the high-seas habitats that whales rely on."

She added that while large areas of the oceans remained unprotected, such ecosystems were very vulnerable. "A coherent and connected network of Marine Protected Areas [MPAs] across our oceans is urgently needed to ensure seamounts like Vema are protected." ■ SOURCE: EUREKALERT!, SCITATION.ORG



# marine mammals



PETER SYMES

## Dolphins appear to use the reef as a medicine chest

**Researchers have discovered that bottlenose dolphins in the Red Sea rub against corals and sponges that have medicinal properties.**

Bottlenose dolphins appear to repair skin and stay healthy by repeatedly rubbing up against corals that have natural medicinal properties, according to new research.

The corals and sponges used by the dolphins have been found to contain 17 bioactive compounds, with different properties, such as antibacterial, anti-oxidative or hormonal attributes.

Lead author Gertrud Morlock of a paper just published in the journal *Cell* and her team analysed samples of coral used by the dolphins; their discovery

of these compounds led the researchers to deduce that the mucus in the corals and sponges helps regulate dolphin skin and treat infections.

It was when co-author Angela Ziltener, who is both a biologist and a diver, and her team first observed dolphins rubbing along the corals off the coast of Egypt in 2009, they also noticed that the dolphins appeared to be selective about which coral they rubbed against. The researchers wanted to understand why.

It was apparent that the dolphins knew exactly which coral they wanted to use," Ziltener said in a statement. "I thought, 'There must be a reason.'"

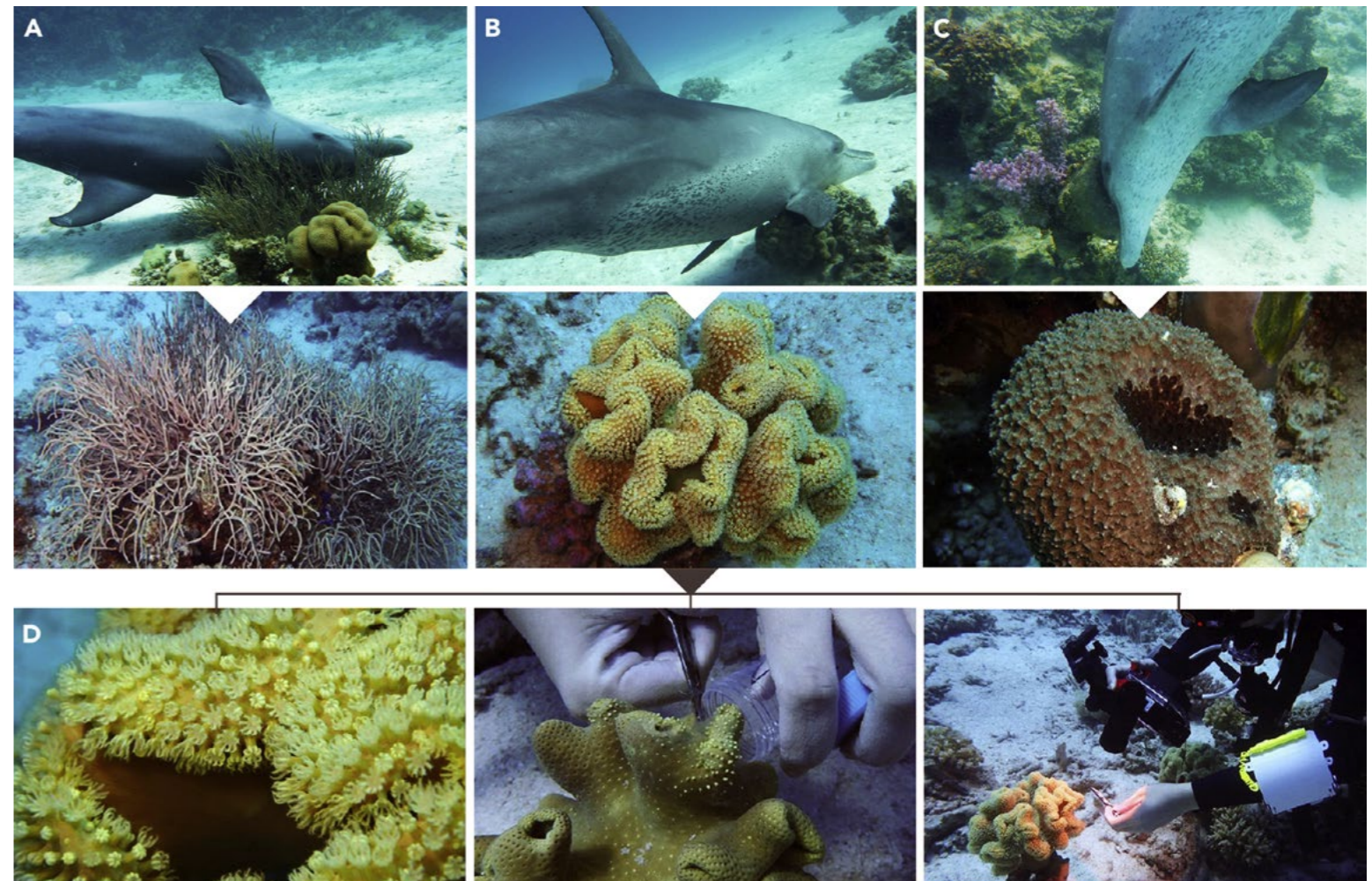
The behaviour was not random: The dolphins rubbed their heads on some corals, scraped their bellies on others,

and avoided some species altogether.

It turned out that by repeatedly rubbing against the corals, the dolphins agitated the little polyps and caused them to secrete mucus. Not only were they selecting specific corals, but as they rubbed, mucus coatings puffed off the corals and sponges, clouding the water and colouring the dolphins' skin. The team collected samples of the corals to turn over to Morlock, who is an analytical chemist, for analysis. ■

SOURCES: CELL / ISCIENCE

Dolphin rubbing behaviour on (A) gorgonian coral *Rumphella aggregata*, (B) leather coral *Sarcophyton* sp., and (C) sponge *Ircinia* sp.; (D) underwater photo documentation of sampling and location, with leather coral shown as an example.



MORLOCK, G.E., ZILTENER, A., ET AL / CELL / ISCIENCE / CC BY 4.0



## MSDA FOOD DRIVE

### DONATE & HELP - DIVE COMMUNITY

Malaysia Scuba Diving Association (MSDA) has initiated a Food Drive Campaign to provide support to diver friends who have lost work, business or have no source of income. We are hoping to collect much-needed donations to help the struggling dive community.

#### What We Need:

**Rice, Sugar, Flour, Eggs, Biscuits, Cooking Oil, Canned Foods, Noodles, Milk tin/powder.**



DONATE

#### LOCATION OF CAMPAIGN

PULAU TIOMAN	SEMPORNA
PULAU PERHENTIAN	KOTA KINABALU

#### FOR CASH DONATION

Bank details: **MAYBANK**  
**Malaysia Scuba Diving Association**  
**Account No: 5144 4053 3032**

For information contact us  
**012 3301366|012 3322723|017 2111792**  
**Email us at [info@msda.my](mailto:info@msda.my)**

Whatever you can spare, will be greatly appreciated



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# Equipment

Edited by  
Matthew Meier  
and G. Symes



## Cressi Minima Mask

Designed specifically for deep-sea diving, this mask has innovative features that place it at the top of its class. It has a special reduced skirt, with a small seal ring, that sticks like a suction cup to your face, leaving minimal air space inside the mask. This makes compensation very easy, using very little air from the lungs. It has the shortest lens-eye distance on the market, guaranteeing excellent visibility in all directions, even with small diameter lenses. Its two optic glass lenses are thicker than the norm allowing for a special safety mold. The mask's buckle strap adjusts instantly for optimal fit. Good for skin diving, snorkeling, and as a spare mask for scuba diving. **Cressi**



## O'Three ECG 5mm Dive Gloves

The 5mm dive gloves are made with the same material as O'Three's ECG Mitt, but this glove offers more movement. With PU textured Squidgrip technology on its palms, the gloves have a 3D design with pre-bent fingers to improve flexibility and reduce fatigue. The glued and blind-stitched gloves are fully lined with thermal smooth skin neoprene, offering total internal flush through protection (which O'three admits makes them a little more tricky to get on). While proven tough on numerous expeditions with water temperatures barely above freezing, the gloves are comfortable with a warm low profile. Comes in sizes XS, S, M, L, XL, XXL. **O'Three**



## Scubapro Rebel BCD for small divers

Constructed of 420 denier nylon for lightweight durability, the Rebel has a wraparound bladder, providing the diver a stable and secure ride, while the padded backpack and cummerbund add comfort and extra cushion when strapped to a tank. Features include a front-integrated gravity release weight pocket system, which loads and releases weights easily and quickly, an adjustable sternum strap, shoulder strap buckles and a choice of small or large cummerbunds for optimal fit, a standard web strap with a lightweight buckle to securely hold a tank. The unit also has two zippered cargo pockets and four plastic D-rings in two sizes for carrying extra gear. It weighs 2.53kg (5.58 lb) and comes with Scubapro's Balanced Power Inflator and two dump valves for pinpoint buoyancy control. Optional weight pouches with easy-grab handles are sold separately. **Scubapro**



## Ratio's iX3M2 Dive Computer

Stronger and lighter with a new user interface and a huge display the iX3M2 dive computer is even more readable and boasts their best user experience to date. It allows for the choice of four decompression algorithms, has a real-time decompression table and is capable of handling air, nitrox, trimix and CCR. The iX3M2 has wireless air integration for up to 10 transmitters and includes a nitrox analyzer. **ratio-computers.com**



## DiveSystem Solo Expedition Drysuit

This new drysuit is made in Italy, exclusively with NATO Trilaminate 4-1-4 and Kevlar. It features preformed knees and diamond underarm gussets and is sealed with lifetime guaranteed Aquasure. Kevlar provides extra protection on the knees, crotch and butt and a neoprene neck protector helps keep the neck warm. Two large cargo pockets, a swiveling inflation valve and adjustable waste are just a few of the other included extras. **divesystem**

ECG

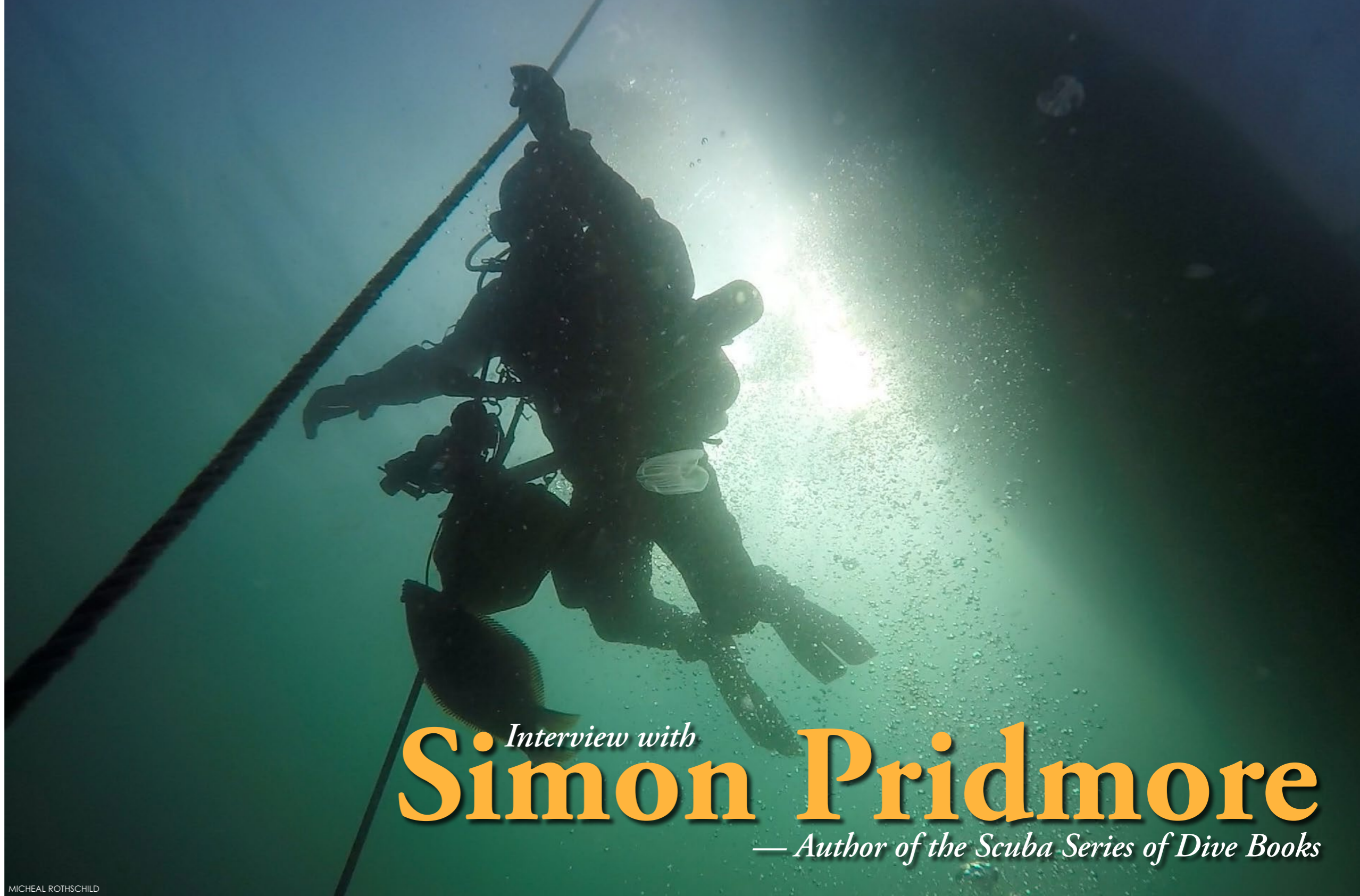
Interview edited by Catherine GS Lim  
Photos courtesy of Simon Pridmore,  
Scott Bennett, Michael Rothschild and  
Theresa Teo

— In this series of intriguing interviews,  
DecoStop Q&A seeks to learn more  
about the people making waves in  
the dive world.

In this edition, we meet dive  
professional, technical diving  
expert, accomplished writer and  
X-Ray Mag columnist Simon  
Pridmore, to find out his motiva-  
tions for writing his Scuba series  
of dive books, and how his  
books are different from other  
dive books on the market.



Author and columnist Simon Pridmore with  
our associate editor Catherine GS Lim



## Interview with **Simon Pridmore** — Author of the Scuba Series of Dive Books

MICHAEL ROTHSCHILD

### How did your Scuba series of books come about?

In the late 1990s, I was generating lots of articles for dive magazines and Action Asia editor Robert Houston asked me if I could collate the articles into a book, which he would then

publish. We were going to call it "Safe Diving." For a variety of reasons, this never happened, but those chats with Robert were certainly what put the idea into my head. It would be a long time until I actually got around to it though.

### A lot of people write articles. Why did Robert think yours could be turned into a book?

He said he particularly liked two things about them. First, they were not trying to sell anything or promote the methods of any particular training

agency. And second, they bypassed the traditional training "pyramid" that divers have to climb in order to obtain more advanced knowledge. Instead, my articles were deliberately revealing all the tips, tricks, science and concepts that researchers, technicians, dive professionals and techni-



SCOTT BENNETT

cal divers know, making the knowledge available to everyone, no matter which certification card they held.

### What made you take this approach?

During the time, I was running my dive centre in Guam. I noticed that many of the people who came to dive with us, even those who were quite experienced, always tended to make the same mistakes and lacked key skills or information that would make them better divers. It was obvious that training courses were failing in some way and that the problem was systemic. So, I thought I would try and fix that by putting the knowledge out there in what I hoped would be a readable, entertaining and accessible form.

### What was wrong with existing dive training manuals?

I identified three issues. First: they were only designed to instruct and were not much fun to read. So, divers tended just to skim through them and not retain very much.

Second: as course schedules became shorter, instructors had less time for teaching, so they focused on water work and topics that featured in quizzes and exams, hoping that divers would read their manuals to learn everything else. And that was not happening.

Third: the training pyramid is highly effective from a marketing and business point of view,

but it only turns out fully skilled and informed divers if they reach the top and not many do. Most just complete lower-level courses and may not even be aware that further knowledge, which would help them become more competent, even exists. They believe they already know all they need to know. Dubbing new-ish divers as “advanced” and “master” does not help.

### Were you not worried that, by giving people the knowledge they needed without them having to take a training course, you might be taking business away from instructors and dive businesses?

I thought long and hard about this. In the end, I decided this would not be the case. After all, nothing in a book can match the benefits of working with a dive instructor in the water, learning to apply knowledge practically and being assessed and guided on skills improvement individually. I hoped that, on the contrary, by revealing what there is to learn by doing further diver training—that

is, that it is not all just a cash-collecting, card-issuing exercise—I might actually drive business to dive centres and instructors instead.

### Do you think that has happened?

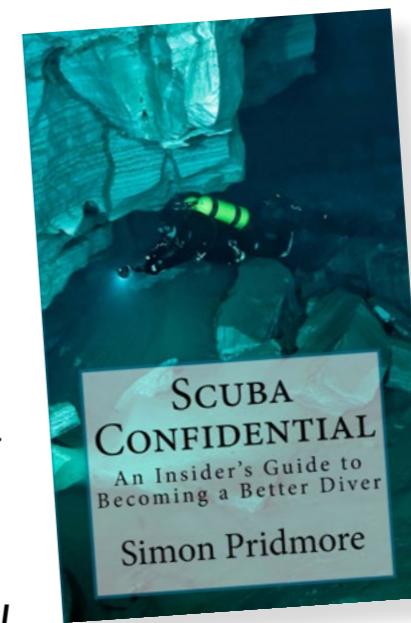
I do. Judging from numerous reviews over the years, saying things along the lines of “...having read Simon Pridmore’s book, I have decided to take up XYZ diver training...”,



it seems the books have had a positive effect in that respect. Something I am very happy about. Win-win all round!

### This explains the motivation behind *Scuba Confidential* and *Scuba Exceptional*. What about *Scuba Fundamental* and *Scuba Professional*? You must have had other things in mind when you wrote those.

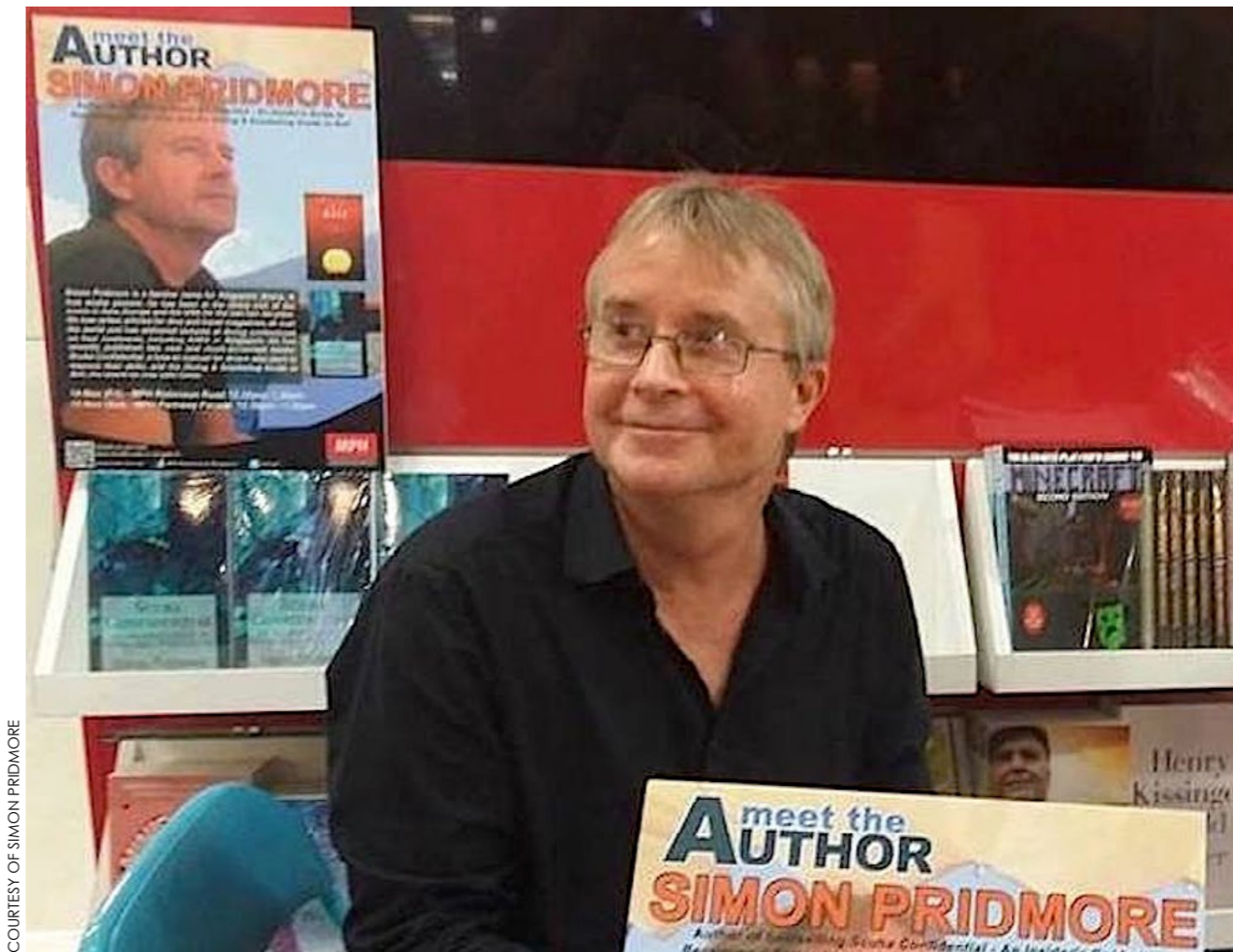
I did. Diver dropout has always been a huge problem for our sport. Many



## Simon Pridmore

people take a try-dive experience or even complete a full beginner’s course, yet never dive again. You meet so many people who, when they hear you are a diver, say something like, “Oh yes, I tried that once. It was not for me.”

Of course, scuba diving is not for everybody but the statistics for the number of people who do a try-dive—a diving experience—and then go on to get their beginner’s certification are terrible. It is far fewer than one in ten and closer to one in a hundred. There are similar horrific statistics worldwide for the number of people who take a first dive course and



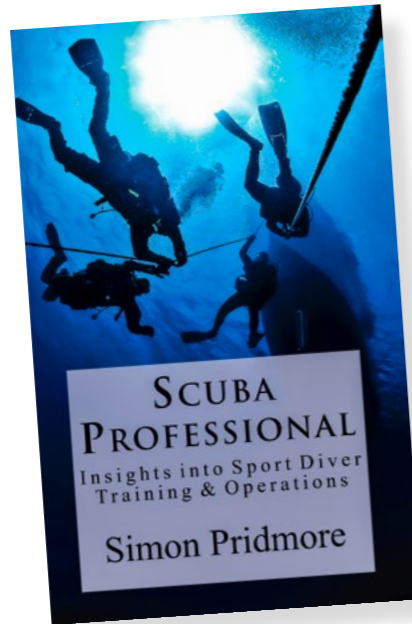
COURTESY OF SIMON PRIDMORE

Author Simon Pridmore at a book signing of his books

never do a second. Which, as you need a second certification to be taken on dives deeper than 18 metres, suggests that, in fact, these people are never diving again.

### Why do you think that is?

The problem is that people wanting to learn to dive usually have no idea what they are getting into. There is a communication disconnect between



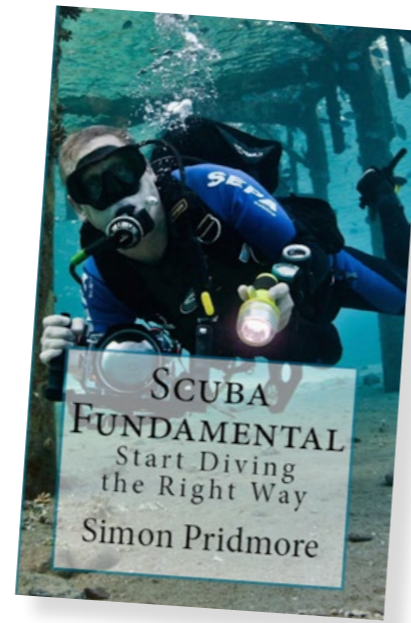
the diving world and the non-diving world.

A great example is the question: "Do you need to be able to swim before you take a scuba diving course?"

A non-diver will probably reply: "I do not know but it does not matter. If I need to

be able to swim, I am sure my dive instructor will teach me."

The dive shop sales staff will prob-



ably fudge it: "It is not a big deal. If you can make it up and down the pool a couple of times, that will be fine."

The instructor will say: "This person cannot swim properly. I have hardly got enough time to teach them to dive, let alone teach them to swim too. Anyway, I do not have swimming instructor qualifications."

And the dive centre owner will say: "They have paid their money and they expect to pass the course. Make it happen."

Of course, any experienced diver will shout: "Of course, you need to be able to swim! Comfort in the water is crucial. If you cannot swim well, you will never make it as a diver."

### So, that is why you wrote *Scuba Fundamental*?

Yes, as far as I could tell, nobody had ever written a scuba diving book for non-divers. My idea was to arm them with all the information they need in advance, long before they even walked into the dive centre. They would be able to read about what to expect from the course and the sport, and judge if it was something they were capable of and wanted to do. They would know how to prepare, what equipment to buy, what to look for in an instructor and so on. *Scuba Fundamental* does not teach you how to dive, but, if you read it, follow the advice and then take a course,

## NEW 4 in 1!

Simon Pridmore has released a new single-volume e-book, bringing together four books in his bestselling *Scuba* series:

- *Scuba Fundamental – Start Diving the Right Way*
- *Scuba Confidential – An Insider's Guide to Becoming a Better Diver*
- *Scuba Exceptional – Become the Best Diver You Can Be, and*
- *Scuba Professional – Insights into Sport Diver Training & Operations*

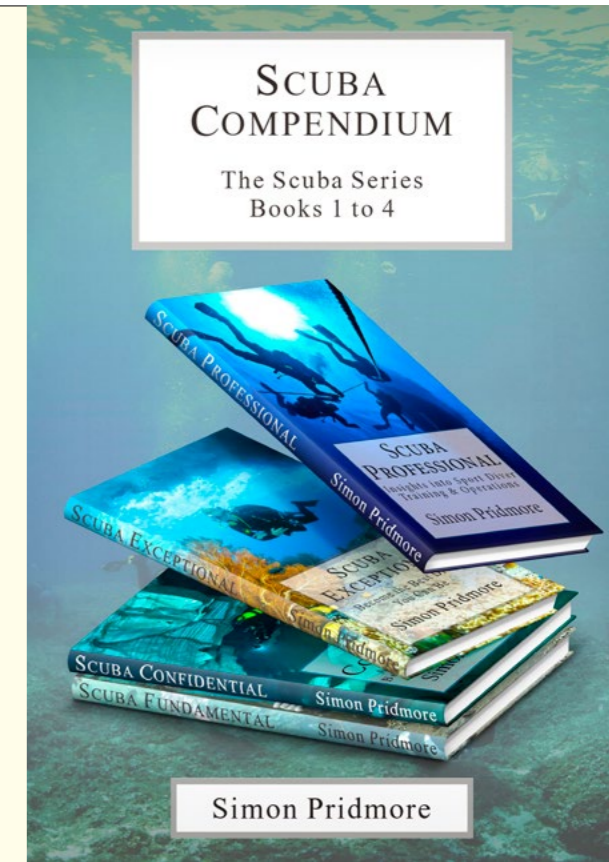
As Simon puts it, this is "a remastering and repackaging of the original albums rather than a greatest hits." Nothing is missing. *Scuba Compendium* gives e-book readers the advantage of being able to access all the knowledge contained in the four books in one place, making this a unique and easily searchable work of reference for divers at every level.

Simon has always promoted the idea of safer diving through the acquisition of knowledge, which is why he has chosen to release this highly accessible version. If you have read his work before, you will know that he provides divers with extremely useful advice and information, much

you are far more likely to become a long-term diver and not just have spent your money for nothing.

### And I suppose you wrote *Scuba Professional* for a similar purpose?

Yes, exactly! Instructor dropout is a major issue too. Too many divers spend thousands of dollars on training to become a scuba instructor. They pass the exam and get their card, but never renew their certification after it expires at the end of their first year.



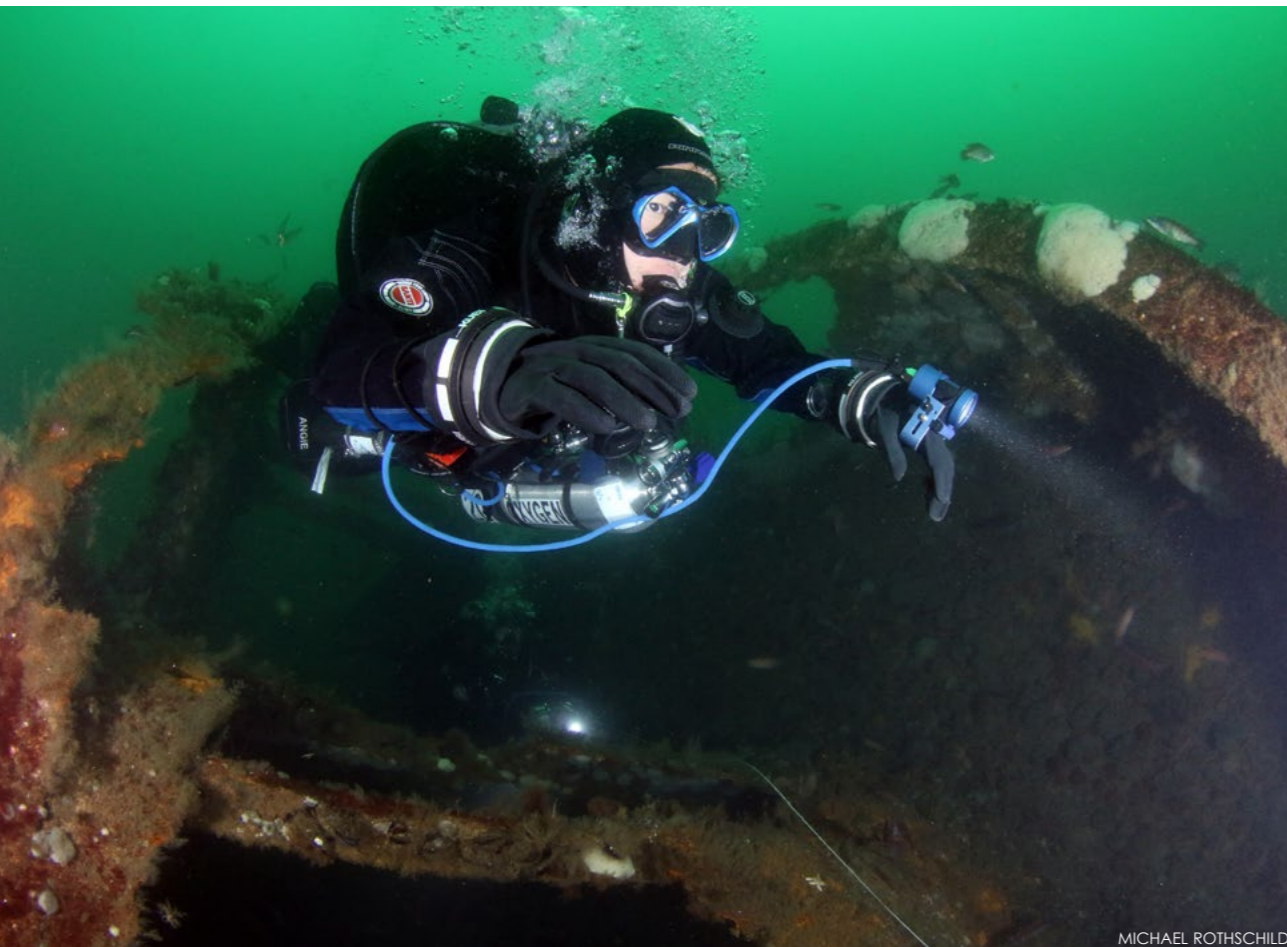
of it unavailable elsewhere; his points often illustrated by real-life experiences and cautionary tales. He examines familiar issues from new angles, looks at the wider picture and borrows techniques and procedures from other areas of human activity.

E-book File Size: 5298 KB  
Published by Sandsmedia  
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ASIN: B09DBGHJSC

[simonpridmore.com](http://simonpridmore.com)

What a waste of time and effort!

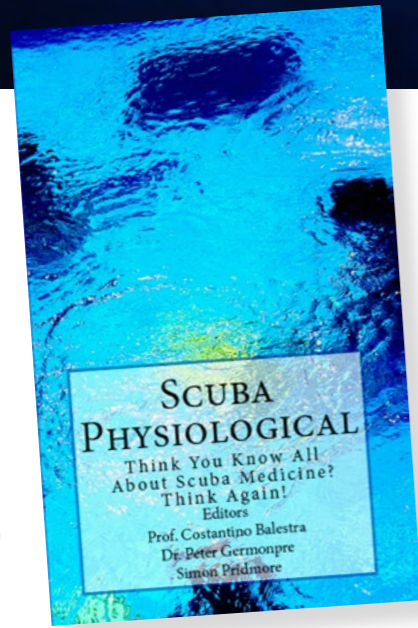
Again, as I see it, the problem is poor communication. Even as a diver, how could you ever know if you would be suited to teaching scuba or what it is actually like to work in diving. It looks like it is so easy, just hanging out, laughing and joking, taking people diving and giving them a good time. But, of course, it is our job to make it look like that. The customers just see the duck above the water drifting serenely along. They do not see all the paddling that is going on below.



MICHAEL ROTHSCHILD



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So, in *Scuba Professional*, I try to fix this problem and make potential instructors aware of things like: the qualities and mindset you need, what an instructor course really teaches you, the challenges you will encounter and how to turn a job opportunity into a long successful career. In this last respect, of course, *Scuba Professional* is also designed to be a useful tool for

existing guides, instructors and dive shop owners.

**Scuba Physiological is a different type of book altogether, is it not?**

It is. A friend who designs decompression tables told me about a book he had contributed to called *The Science of Diving*. He said it had not sold very well and sent me a copy. I saw immediately why it had not been successful. It had been written by scientists for scientists and was

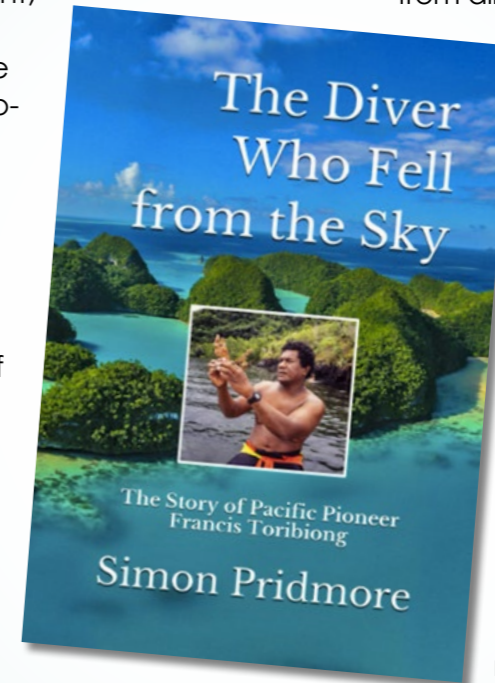
very hard to read. But it had some incredible information on decompression, narcosis and what happens to our bodies when we dive, much of which I had never seen before. So, I asked the editors if I could try and rewrite it for a less expert readership. They agreed and *Scuba Physiological* is the result.

**So, in a nutshell, that is what the Scuba series is all about—making the knowledge accessible to everyone. What's next?**

I am now working on *Technically Speaking*, which will include all the

## A Pioneer Story by Simon Pridmore

When his country needed him most, Palauan Francis Toribiong came along and helped the Pacific island nation find its place in the world and become an independent, forward-looking 20th century state. And he achieved this, improbably, via the sport of scuba diving. This is the inspiring tale of an absolutely unique life, written by Simon Pridmore and illustrated with images of the beautiful islands of Palau, above and below the water.



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sky." In giving him this title, people were speaking both literally and figuratively.

Toribiong was so completely different from all of his contemporaries in terms of his demeanor, his ambitions and his vision, that it was as if he had come from outer space. Palau had never seen anybody quite like him and there was no historical precedent for what he did. He had no operations manual to consult and no examples to follow. He wrote his own life.

Toribiong was the first Palauan ever to seek and seize the international narrative. No Palauan, in any context or field, had previously thought to go out into the world and say: "This is Palau—what we have is wonderful. Come and see!" This is his astonishing story.

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talks I have delivered at technical diving shows over the years, as well as take a detailed look at where technical diving came from and how it developed. It is an interesting exercise—looking back at an important part of my life and considering it from an historical perspective. I am not that old, how can it be history already? ■

Simon Pridmore is the author of the international bestsellers *Scuba Fundamental: Start Diving the Right Way*, *Scuba Confidential: An Insider's Guide to Becoming a Better Diver*, *Scuba Exceptional: Become the Best Diver You Can Be*, and *Scuba*

*Professional: Insights into Sport Diver Training & Operations*, which are now available in a compendium. He is also the co-author of the *Diving & Snorkeling Guide to Bali* and the *Diving & Snorkeling Guide to Raja Ampat & Northeast Indonesia*. His recent published books include *The Diver Who Fell From The Sky*, *Dive into Taiwan*, *Scuba Physiological: Think You Know All About Scuba Medicine? Think Again!* and the *Dining with Divers* series of cookbooks. For more information, please see his website at: **SimonPridmore.com**.



Edited by  
Catherine GS Lim



## There Be Giants

*Big: A Photographic Album of the World's Largest Animals*, by Amos Nachoum and Marko Dimitrijevic

Award-winning wildlife photographers and friends Amos Nachoum and Marko Dimitrijevic have joined forces to create this large-format book. In a first for a wildlife photography book, it shares the emotions felt by the photographers as they get close to giant grizzly and polar bears, great white and whale sharks, vocal lions and tigers, gorillas, leopard seals, bison, eagles and even 200-ton blue whales! With a combined 70 years of wildlife photography experience, the two photo pros bring you face-to-face with the biggest animals, curating in this tome the best of literally hundreds of phenomenal photos, which make one reflect upon our own natures, as we learn through the images about our roles in protecting these species.

Publisher: teNeues  
Date: 15 June 2022  
Hardcover: 256 pages  
ISBN-10: 3961713855  
ISBN-13: 978-3961713851



## Coral Reef

*Coral*, by Martin Colognoli

Using 130 photos, this beautiful photobook recounts Martin Colognoli's six years of field experience with an Indonesian fishing village and relates its relationship with the coral reef upon which its survival depends. Presented in four stages—the coral, the human, the link and the actions of protection—this is the story of a community of former nomads and their infinite bond with a hybrid character that is the coral. Witness simmering scenes of village life intermixed with monochrome shots of materials, reliefs and textures of the corals.

Publisher: Editions Hemeria  
Date: 30 June 2022  
Hardcover: 152 pages  
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ISBN-13: 978-2490952328

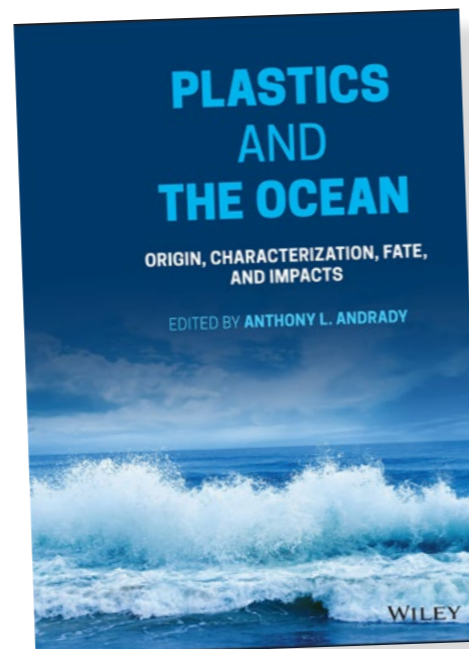
## Dive Tales

*Counterstrike & Other Musings* by David Strike

Penned with an irreverent take on everything scuba, this collection of light-hearted personal commentaries and observations draws on six decades of the writer's extensive dive experiences at different levels. Those who have read David Strike's column in *Asian Diver* will find some of the material in this book

familiar. But no matter, as good writing always warrants a couple more readings (at least!). Nonetheless, this book also contains other whimsical gems that were not published there.

ASIN: B09RFWS3GZ  
Publisher: Independently published  
Date: 30 January 2022  
Paperback: 234 pages  
ISBN-13: 979-8409644369



## Plastics in Our Seas

*Plastics and the Ocean: Origin, Characterization, Fate, and Impacts*, edited by Anthony L. Andrady

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Publisher: Wiley  
Date: 1 June 2022  
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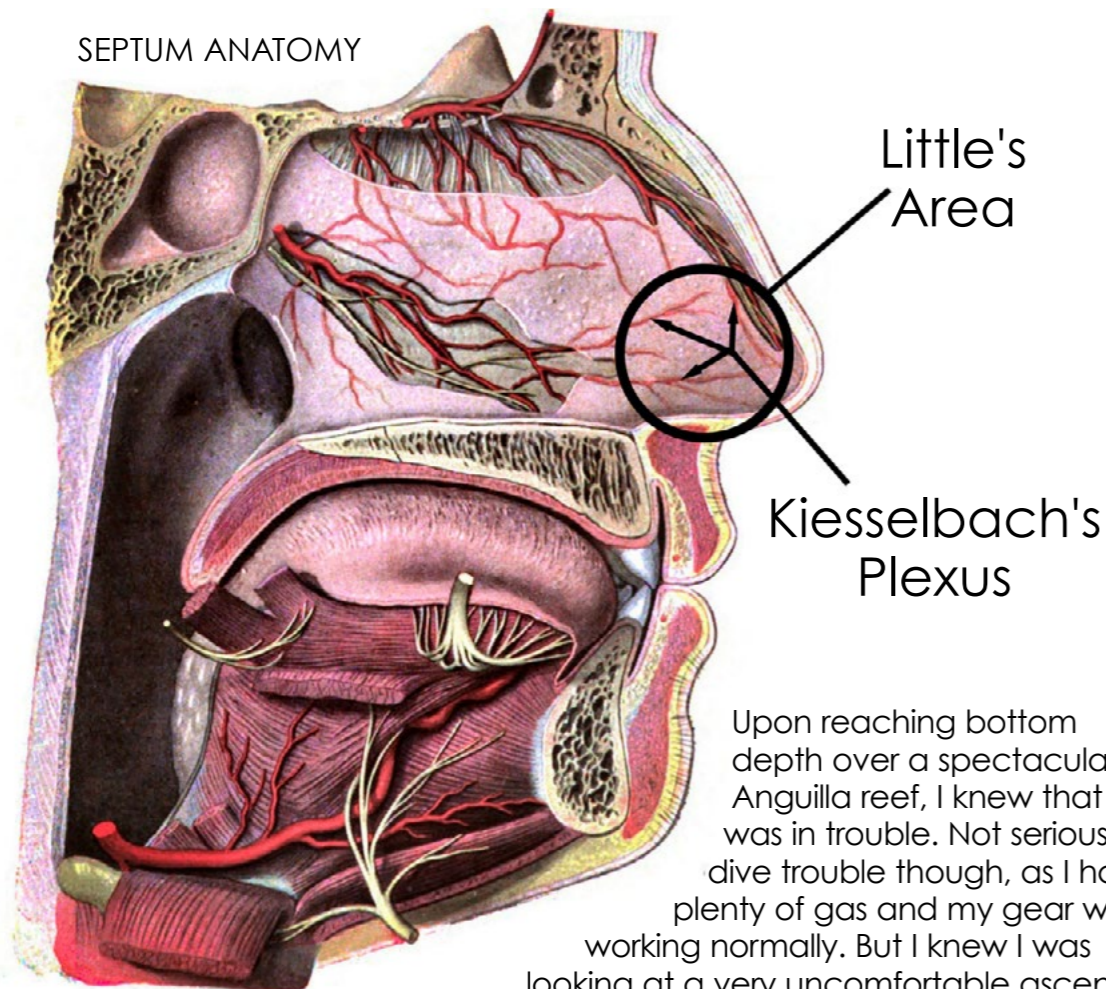
# Nosebleeds in Scuba Diving

Text and photos by Michael Rothschild, MD

Well-trained divers all know that they need to equalize their ears and sinuses as they descend. Usually, this is an easy process. However, there are some medical conditions that can make this more difficult. Technical rebreather diver and underwater photographer Dr. Michael Rothschild is a pediatric ear, nose and throat specialist in New York. In this article, he walks us through the common causes of nosebleeds during diving, and how to avoid sinus blocks associated with changing ambient pressure that can cause nasal barotrauma and bleeding.



SEPTUM ANATOMY



Upon reaching bottom depth over a spectacular Anguilla reef, I knew that I was in trouble. Not serious dive trouble though, as I had plenty of gas and my gear was working normally. But I knew I was looking at a very uncomfortable ascent. And as they say, descents are optional, but ascents are mandatory.

I had started the dive with some mild nasal congestion that had given me a bit of trouble on the way down. It had

taken longer than normal to equalize my sinuses—specifically, my maxillary sinuses, the big air-filled spaces in my cheeks just below my eyes. When I ascended a bit, it was obvious that the compressed gas at ambient pressure—about four atmospheres at 100ft—was not going to come out of those sinuses easily, as it normally does.

Every well-trained diver understands that we need to equalize the pressure in the body's air-filled spaces to ambient pressure as we descend. For most

of us, this is not much trouble.

The spaces that we are most commonly aware of are the middle ear clefts (behind the eardrum); divers typically need to push gas into this space on descent with a Valsalva or other maneuver. The ears are connected to the airway by a long pathway (the Eustachian tube, or ET) that is normally closed by the springy cartilage in the wall, and which opens with muscular activity or a pressure gradient.

The paranasal sinuses are also air-

filled spaces, but the passageways connecting them to the airway are short and do not dynamically open and close like the ET. So, most of the time, there is no problem equalizing the sinuses. However, things like chronic sinus inflammation, acute infections, allergies or anatomic variants can make this more difficult.

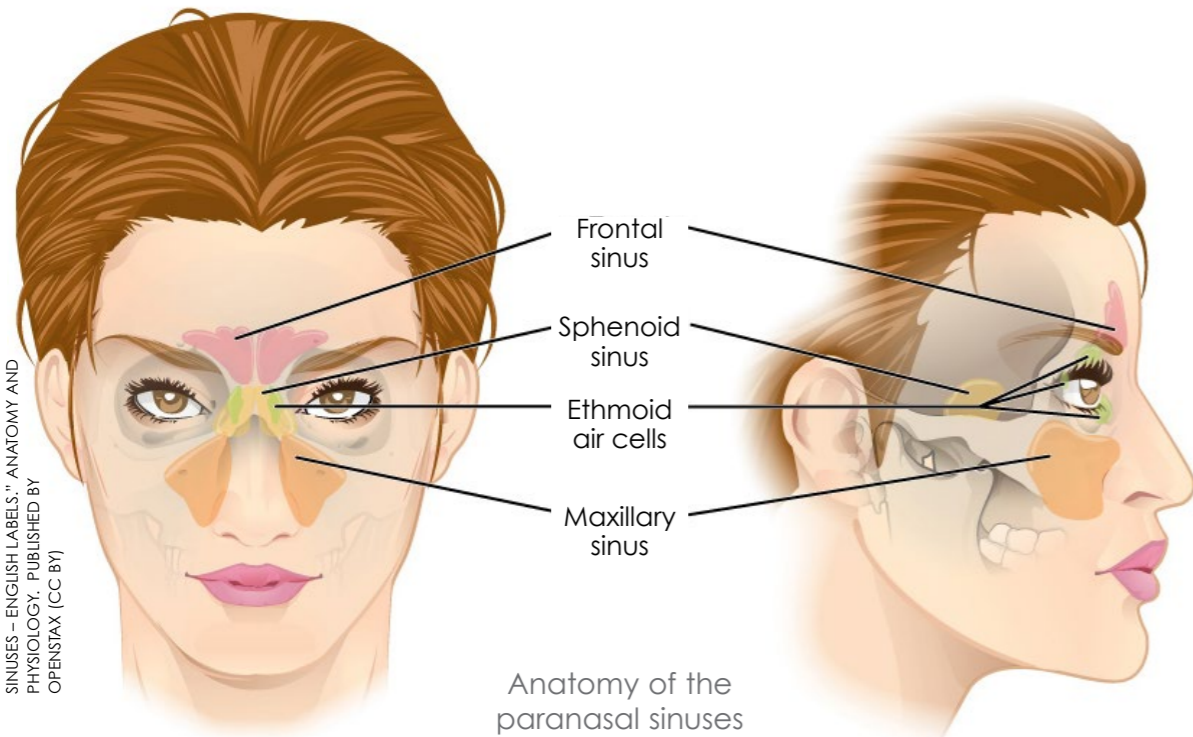
## Block

A “block” refers to a problem with this equalization process on the way down,

The common anatomical source of nosebleeds *not* related to diving—dried surface blood vessels (Kiesselbach's plexus) in the front of the nasal septum (Little's area).

SOURCE: "SOBOTA 1909 FIG. 544: NERVES AND ARTERIES OF THE NASAL SEPTUM AND TONGUE - NO LABELS" BY JOHANNES SOBOTA AND THEO PHOTOGRAPHY (CC BY-SA)

"OPENSTAX ANATOMY FIG. 7.18—PARANASAL SINUSES—ENGLISH LABELS," ANATOMY AND PHYSIOLOGY. PUBLISHED BY OPENSTAX (CC BY)



Anatomy of the paranasal sinuses

making it difficult to get gas into one of these spaces. And we all know what to do with an ear block, right? Slow your descent and then stop if you cannot equalize. Then ascend a bit if that does not work. *Never* push through it. True anatomical or physiological problems with the ET preventing equalization are very rare, it is almost always a technique issue.

### Reverse block

A "reverse block" is much less common. This refers to the situation where there is a problem getting gas out of the ears or sinuses on ascent, as ambient pressure drops. Just like how it is easier to get toothpaste out of a tube than back into it, there generally is not any problem equalizing on the way up. The expanding gas usually just pushes its way out. Usually, but

not always. And, sooner or later, you need to either evolve gills or get back to the surface, equalized or not.

In this worst-case scenario (surfacing without equalizing), the ear and the sinuses are very different. In the ear, the eardrum acts like the burst disk in a scuba tank. It is just a thin membrane, and if the gradient (the difference between middle ear and ambient pressure) gets big enough, the eardrum will rupture.

The sinuses, on the other hand, are bony cavities. In very rare cases, the wall of the sinuses can burst into the area around the eyes or even the brain, causing serious injury, but that is beyond the scope of this article. More commonly, they just act like little scuba tanks in your face. They hold gas under pressure against a significant gradient, until they eventually

decompress through their natural orifices into the nasal airway. But until that happens, that gradient hurts.

So that was what happened to me—a reverse sinus block. I tried my best to equalize on ascent, doing a reverse Valsalva maneuver where I tried to suck air out of the sinuses into my nose. But it did not work. I climbed back on the dive boat in agony, still wearing my mask, with my sinuses holding gas at 4atm of pressure.

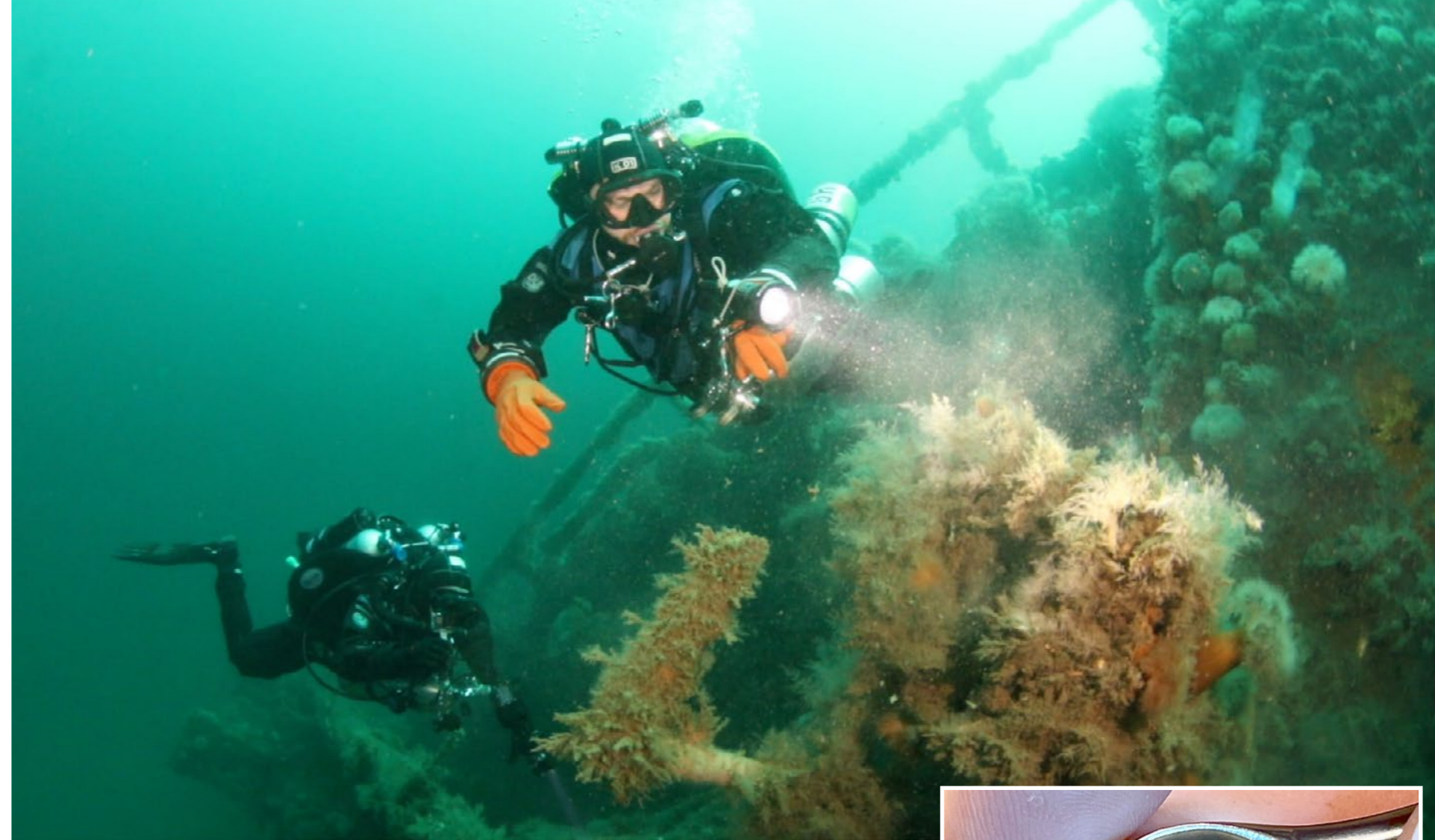
I could not pay attention to anything the crew was saying, I just kept trying to equalize. It was miserable. And then it happened. A sudden explosion of blood and snot into my mask. That was the single best sensation that I have ever had diving. It is hard to describe what an incredible relief I felt at that time, when I finally was able to equalize.

So why all the blood? Well, the lin-

ing of the nose and sinuses is a tissue called mucosa, and it has an excellent blood supply. It does not take much trauma to make that tissue tear and bleed—ask anyone who has had a nasal fracture. The trauma in scuba is barotrauma from that pressure gradient. And this is the most common cause of nosebleeds (also known as epistaxis) in diving. Even if there is not a severe reverse block, divers often will have slow or intermittent equalization of the sinuses on ascent and descent with transient barotrauma, resulting in some bleeding from the sinuses into the nasal airway.

### Nosebleeds on land

Although what I described above is the most common reason for epistaxis in scuba, the mechanism for nosebleeds not associated with diving is completely different. Let me take a



"Little's area" is the part of the nasal septum (the wall in the middle of the nose) that is just inside the nostril. "Kiesselbach's plexus" is the group of blood vessels on the septum that dry out and bleed.

# dive medicine

*If you are very congested, you should not dive. If you do dive, do not push through any ear or sinus equalization problems. Go slowly, and make sure that you can descend without a lot of trouble. And, as always, remember that any diver can call off any dive at any time for any reason—do not hesitate to thumb a dive if you cannot equalize, and communicate any anticipated problems with your buddy ahead of time.*

slight detour here and explain that.

The nasal septum is the cartilage wall in the center of the nose that divides the airway in half, and it is also lined with mucosa. There is an area in the very front of the septum, just inside the nostrils, called “Little’s area,” and this is where the vast majority of nosebleeds come from. There are two reasons for this.

Firstly, the area has a very good blood supply, sometimes with large blood vessels visible on the surface (“Kiesselbach’s plexus”). Secondly, this area is the one place in the body where mucosa with a rich blood supply frequently dries out. It is constantly “in the wind” as normal breathing moves a dozen lungfuls of gas over it every minute.

Unlike the rest of the airway, which

is internally protected and remains humid, Little’s area is continually bathed in dry external air. There is not even a protective mechanism to keep it moist. The mouth is also lined with mucosa, but very few people get “mouthbleeds” because the mouth is usually wet with saliva.

This is why your number one ally in the fight against nosebleeds is nasal moisture. Room humidifiers are good, especially in dry winter air, but they must be kept clean. Saline sprays (with or without the natural sugar xylitol) and aqueous ointments (like Bactroban) also help.

Sometimes, recurrent or severe nosebleeds require medical attention. In rare cases, they are due to medical problems with clotting, high blood pressure, or even growths in

the nose or sinus. If none of those are an issue, cautery can help. In the office, this usually involves touching Kiesselbach’s plexus with an irritating chemical like silver nitrate, which causes the vessels to clot off and scar over. While no doctor can completely prevent nosebleeds, between lubrication, humidification and cautery, they can be made a lot less common.

## How to deal with nosebleeds

The first thing to remember if you ever get a nosebleed is this: Because of where Little’s area is, you can stop epistaxis by *pinching the nostrils together*. This compresses the blood vessels, and pinching will stop the majority of nosebleeds if you hold pressure for a while. For some reason, many people think that you should

pinch the bony bridge of the nose, between the eyes. I do not know where that idea came from but doing that does not help.

## Preventing nosebleeds in diving

So, getting back to the original topic of this article, what should you do to prevent and treat epistaxis associated with diving? Well, if you are very congested, you should not dive. If you decide to dive anyway, do not push through any equalization problems. Go slowly, and make sure that you can descend without a lot of trouble. And, as always, remember that any diver can call off any dive at any time for any reason—do not hesitate to thumb a dive if you are in this situation, and communicate any anticipated problems with your

buddy ahead of time.

Some divers get nosebleeds not associated with sinus barotrauma, just from irritation of the area. Frequent Valsalva maneuvers for ear equalization can traumatize the nasal septum by pinching the nose tightly, so lubricating sprays or ointment can help here as well. A decongestant spray like Afrin will cause the nasal blood vessels to constrict, which can stop or prevent minor bleeding. However, it must *not* be used for more than three days in a row, or if you have certain heart problems (ask your doctor). Nasal steroids (like Flonase), which are commonly used by divers for congestion or to help with ear equalization, can cause epistaxis. Also, they do not actually help with ear equalization.



To stop most nosebleeds, just pinch the nostrils together (not the bridge of the nose). This compresses any vessels in Little’s area, the most common site of bleeding (above); Diver at dive boat on the wreck site of the *Algol*, New Jersey, USA (left)





*If you have a nosebleed during or after a dive, do not panic. Pinch your nostrils together, hold for several minutes, and use some Afrin (three days only!). Prevent nosebleeds by keeping your nose moist, and by frequent and adequate equalization of the sinuses when diving.*



Diver with hermit crab, Cozumel, Mexico (above); Diver on the PLM27 shipwreck, Newfoundland, Canada (top right)

## Packing

Packing the nose is rarely a good idea. Unless you are trained to do this and have the equipment to retrieve any packing pieces that get stuck in the nose, this can cause trouble. Also, they can cause more bleeding when they are removed. If the nosebleed is from Little's area, pinching the nose will usually work just as well as packing. If the bleeding is from sinus barotrauma, it is unlikely that packing will actually stop it (although you may see it less!). In some cases of severe bleeding, packs are used, but they are generally not the best option for typical nosebleeds.

## Summary

So, if you have a nosebleed during or after a dive, do not panic. Pinch your nostrils together, use some Afrin (three days only!), and keep your nose moist. Prevent nosebleeds while diving by frequent and adequate equalization. Do not dive if you anticipate any major difficulty doing this. Abort the dive if you have significant problems equalizing on descent.

Oh, and if it's a shark dive, maybe it's best to keep your mask on until you are back on the boat! ■

Michael Rothschild is a pediatric ear, nose and throat specialist

in New York City. He is a Clinical Professor of Otolaryngology and Pediatrics at the Icahn School of Medicine at Mount Sinai. He has served as president of the American Broncho-Esophagological Association and of the New York Pediatric Society. He is also a technical rebreather diver, who dives frequently in the New York City area. Dr. Rothschild has been president and dive chair of the New York City Sea Gypsies, and he is currently the co-director of the New York Underwater Photographic Society as well as a medical moderator on Scubaboard.com. For more information, see: [dive.rothschilddesign.com](http://dive.rothschilddesign.com).



Shark on the wreck of the USCGC Spar, North Carolina, USA

Text by Andrea Murdock Alpini  
Photos courtesy of John Moyer

**John Moyer is a legendary American explorer. He will be turning 70 years old soon and has lived most of his life in Vineland, New Jersey, about a one-hour drive from the ocean. Throughout his life, Moyer has always had two passions: shipwrecks and motorcycles.**

In the past, he would dive on shipwrecks all year round, and the only thing that would stop him would be high winds, or if the dive boat was frozen in ice at the dock. He has dived on wrecks all the way up and down the US East Coast, from Canada to Florida.

After numerous dives on the famous wreck, his name has been merged with the *Andrea Doria* forever in time. In his dives on the *Andrea Doria*, he salvaged parts of the wreck for vari-



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# John Moyer

*Interview with*  
*Deep Diver of the Andrea Doria Wreck*

JOHN MOYER COLLECTION

Archival photo of John Moyer coming up from the *Andrea Doria* wreck with a bag of dishes (above);  
Postcard of Italian ocean liner SS *Andrea Doria*, which sank in 1956 (left)



PHOTO COURTESY MOYER EXPEDITIONS LLC

Moyer, during the rescue of artist Gambone's art panels from the wreck of the *Andrea Doria*

this: "To me, exploration is simply going places and experiencing things you never have before, whether it is underwater or on land. It is going into the unknown that excites me. I love reading about maritime history and the history of the wrecks I dive on. To me, it makes the dives more meaningful, knowing about the life of the ship and the circumstances of the sinking."

Today, he no longer does any deep dives, but he still rides motorcycles. What follows is his story, some scuba tales about the *Andrea Doria*, and his deep relationship with the wreck.

**What does the ocean mean to you?**

The ocean has always been important to me, and I cannot imagine what it would be like not living near the ocean. In addition to diving, I spent many days at sea as a crew member on a charter fishing boat. I

remember when I was young, when I looked at the ocean, I did not think about the surface; I always wondered what was lying on the bottom.

**When did you make the decision to become a scuba diver?**

I wanted to be a diver for as long as I can remember. As a child in school, I would go to the library and spend hours reading about diving, shipwrecks and treasure. I bought my first set of mask, fins and snorkel when I was 15 and used them to explore the lakes near my home. I have been fascinated by shipwrecks since I was a young child. I enjoyed the adventure of diving on them, but I was also interested in the history of the ship and why it sank.

**Please describe for us your job as a sea explorer.**

We [Moyer Expeditions] have been the first ones to dive on many wrecks. Usually, we got the GPS co-ordinates (Loran-C in the old days) from commercial fishermen who had their gear hung up on them. It is exciting to dive down, knowing nobody has been there before you and not knowing

A newspaper report on Moyer's recovery of Gambone's art panels from the wreck of the *Andrea Doria*



PHOTO COURTESY MOYER EXPEDITIONS LLC

what you will find on the bottom.

My first diving job was repairing the docks in New York Harbor. We dived for six or eight hours every day during the week and then came home and dived on shipwrecks on our days off. After that, I worked salvaging sunken barges in the Delaware River and then worked repairing the foundation of an abandoned lighthouse in the middle of the Delaware Bay. They dropped four of us off with supplies and a generator, and came back and picked us up two weeks later, when the job was done. I have done many other underwater construction and salvage jobs too.

When I was in college, I worked as a dive instructor and manager of a dive shop in New Jersey and then went to Florida to work at Key West Divers, guiding tourists around the reefs. I have also worked as crew on several dive boats in New Jersey. In 1993, I formed Moyer Expeditions, LLC, to salvage the *Andrea Doria* and exhibit the artifacts we recovered.

John Moyer

**What is the Moyer's method to finding a wreck on the seabed?**

If you are looking for a certain wreck, you first have to research the history of it to get an approximate location of where it sank. Then, you check with fishermen to see if there are any known wrecks in the area. The next step would be to use side scan sonar or a magnetometer, then visual identification with either divers or an ROV (remotely operated vehicle). Of course, the best way to positively identify a wreck is to locate the bell or builder's plaque. If not, then you compare underwater photos and measurements of the wreck to photos of the ship before it sank and compare cargo manifests to items you found on the wreck.

**Amongst all the wrecks you dived, you choose the *Andrea Doria* as the wreck of your life. Why?**

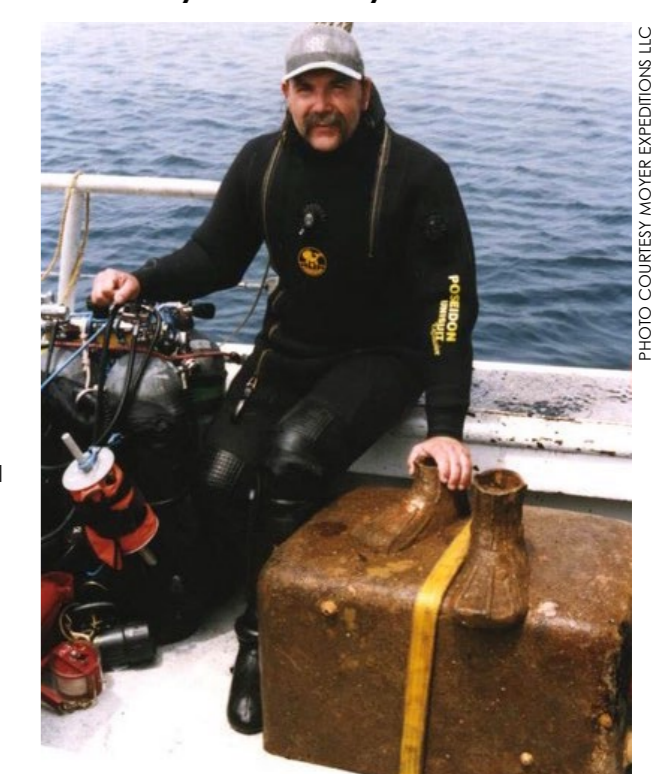


PHOTO COURTESY MOYER EXPEDITIONS LLC

Moyer, after a dive on the *Andrea Doria*, posing with the bronze base of Admiral Doria's statue salvaged from the wreck

PHOTO COURTESY OF PHY DIVING EQUIPMENT



Screenshot from a video chat in which the writer Andrea Murdock Alpini (right) interviews John Moyer (left) who is showing the cover of the recently published historical book, *Andrea Doria -74*, by Stefano Carletti

# profile

I first heard about the *Andrea Doria* wreck when I was taking a diving class in 1975. When I began reading about it, I learned that the collision and sinking was an important event in maritime history.

The first years I dived on the wreck, it was only for the adventure of diving on a wreck that very few people before me had seen, and most of the wreck was unexplored at that time. I then started to read and learn everything I could about the ship. I traveled to Italy to visit the Ansaldo Archives and met with some of the designers of the ship and officers who had been on board the night of the collision. I also met and interviewed many survivors of the sinking and others who had sailed on her.

Over the years, we have watched the *Andrea Doria* decay and fall apart. Today, the bow has remained intact but has broken off at Hold #2 and separated from the rest of the



PHOTO COURTESY MOYER EXPEDITIONS LLC

wreck; the aluminum superstructure is long gone, and the rusted steel hull is collapsing down on itself, crushing the interior rooms and anything left inside. The wreck has entered its final stage in a flattening process, and someday will be an unrecognizable pile of debris on the ocean floor.

My first dives were exploratory, mostly swimming around the exterior of the wreck at the forward end of the promenade deck. I did not know a lot about the wreck at that time. In 1983, we began going inside the wreck, into the first-class dining room, where we found piles of dishes and china. After that, each year, we started exploring new areas of the wreck (inside and outside) that we had not been to before.

### Do you think the *Andrea Doria* wreck has changed your life?

The *Andrea Doria* has certainly changed my life in many different ways. One example is that I have become very close friends with Pierette

Moyer, ready to dive on the *Andrea Doria* wreck in 1982

Simpson, who is a survivor of the sinking. I appeared in her film, *Andrea Doria: Are the Passengers Saved?* And we have done many presentations and film screenings together. We were also in the New York City Columbus Day Parade. At the end of the parade, they held a ceremony where Pierette rang the *Andrea Doria* bell in memory of the souls who died in the collision and sinking. Over one million people watched along the parade route and on livestream broadcast.

I knew that when the *Andrea Doria* was sailing, it was advertised as a floating art gallery. I learned that there were ceramic panels created by the artist Guido Gambone on board, but I did not know where they were located on the ship. A friend in Italy sent me a book that contained a photo of the panels in the ship's Wintergarden Lounge. I was then able to match the photo with the ship's deck plans and that showed me where to look on the wreck for the panels. When Billy Deans and I swam into that room, we found the panels right

Moyer, with the ship's bell on Columbus Day in New York City

where we expected them to be.

### Did you collect artifacts from the *Andrea Doria* wreck?

I have always enjoyed collecting artifacts from the wrecks I have dived on. I have lots of artifacts from many different wrecks. One of my favorites is a 5ft-diameter ship's wheel that we recovered from a World War II wreck named the *I.P. Goulandris*. It is located off the coast of New Jersey, about 185ft deep. It took a team of divers to cut it free with a Broco touch and raise it. And we did it all in one day.

My artifact collection means a lot to



PHOTO COURTESY MOYER EXPEDITIONS LLC

me because each piece brings back memories of the dive and the experience of the day I recovered it. Because shipwrecks are continually deteriorating and falling apart, I feel that it is important to rescue these artifacts from the ocean before they are lost forever. It is also important to put them on display so the general public can learn about ships and maritime history.

### Did you rescue anything from the *Andrea Doria*?

On my very first dives to the *Andrea Doria*, I found a brass-framed window from the promenade deck and two small silver boxes that probably belonged to a passenger on board. In 1985, I was part of the team of divers that recovered the ship's bell from the aft steering station. Gary Gentile and I recovered part of the *Andrea Doria*



HARRY TRASK / THE BOSTON TRAVELLER / WIKIMEDIA COMMONS / PUBLIC DOMAIN

Historical photo of the *Andrea Doria* sinking after a collision with the Swedish vessel *Stockholm* off Nantucket Island in Massachusetts in July 1956



PHOTO COURTESY MOYER EXPEDITIONS LLC

Historical photo of the bronze statue of Admiral Doria salvaged from the wreck







The famous Italian journal *La Domenica del Corriere* announced the sinking of the *Andrea Doria*, 1956

statue from the first-class lounge. We have also recovered hundreds of pieces of china, glassware and silverware from the ship's dining rooms.

There was also a sculpture by the Italian artist Bertolotti on the wall of the first-class foyer. Gentile and I searched the area, but only found two pieces of it. The rest of the sculpture had fallen through a rusted hole into the bottom of the wreck.

In addition to the artifacts that I have recovered from the wreck, I have spent the last 40 years collecting all the Italian Line advertising items, photos and other things related to the ship that I could find. I have done many temporary museum exhibits over the years

and hope someday to have a permanent exhibit dedicated to the *Andrea Doria*.

I decided it was best to recover the small fragile items first, like the dishes, china and glassware. Then, we brought up larger items like the Gambone panels. There are still large

items like the ship's anchors and propellers to be salvaged.

### Do you consider the *Andrea Doria* wreck to be a part of American heritage?

The *Andrea Doria* is an important part of American history. In the four years it sailed, it carried thousands of Italian immigrants who came here to find jobs, start families, and begin a new life. Those immigrants helped to build America and make it the great country that it is today. Many of them, and their descendants, are still alive today.

The *Andrea Doria* was an important part of recent Italian history, because after World War II, it provided for many jobs (building the ship), and proved that Italy was a world leader in the maritime industry.

### The first time you ever saw the *Andrea Doria*, did it appear to you as a ship or as a wreck?

I first dived on the *Andrea Doria* in June 1982. At that time, the funnel, mast, bridge and some top decks had already fallen off, but it still looked like a huge intact ship lying on its side on the sea floor. Swimming around it, we could see the portholes in the hull, windows on the promenade deck, and lifeboat davits on the boat deck. The port side bridge wing was still in place. There were commercial fishing nets snagged in the remaining superstructure, and most of the wreck was covered with sea anemones.

Moyer, with the art panels by Gambone



PHOTO COURTESY MOYER EXPEDITIONS LLC

### Can you describe to us the scuba techniques you adopted to dive the *Andrea Doria*?

The diving techniques used for the *Andrea Doria* were the same as is used in diving on other deep wrecks off the New Jersey coast. The dive boat would anchor onto the wreck with a grapple hook, and the first team of divers would take a second line down with just a chain on the end and secure it to the wreck. Then, they would send the line with the grapple hook up, using a lift bag. Divers followed the anchor line down to the wreck and came up along it at the end of their dive to decompress.

For dive gear, I always wore a drysuit and double tanks, and I carried two knives, two lights, at least one lift bag and an up-line (for decompression, in case we lost the anchor line). I also

carried a hammer, chisel and crowbar too. Our early dives in the 1980s were done breathing compressed air and using the USN air decompression tables. Around 1992, we began using trimix with nitrox and oxygen for decompression.

They found the davit that the bell had hung in, but it was empty. After that, we decided to move to the stern of the wreck and found a bell in the aft steering station. We stayed up most of the night making a net to put the bell in and sent it up the next day.

### I heard different tales about the *Andrea Doria's* bell. Can you explain to me your point of view on this matter?

In 1985, my friend Bill Nagle had a plan to recover the *Andrea Doria* bell. There were seven of us on board. I was not able to dive because I had gotten the bends one week before while testing a Broco torch that we wanted to use on the trip.

We anchored in the bow of the wreck and the divers searched the area for three days.

After I was awarded an Admiralty Arrest of the wreck in US federal court and was named salvor-in-possession of the wreck, I organized and financed two salvage expeditions. In the first expedition, I took a team of 12 divers on the research vessel *Wahoo* to the wreck for one week to search for the ship's main bell. We used an air lift to vacuum out a room in the bow that I thought contained the bell.

Unfortunately, we came home from that trip empty-handed. The next year, I took another team, again on the *Wahoo*, to the wreck for one week. One part of the team



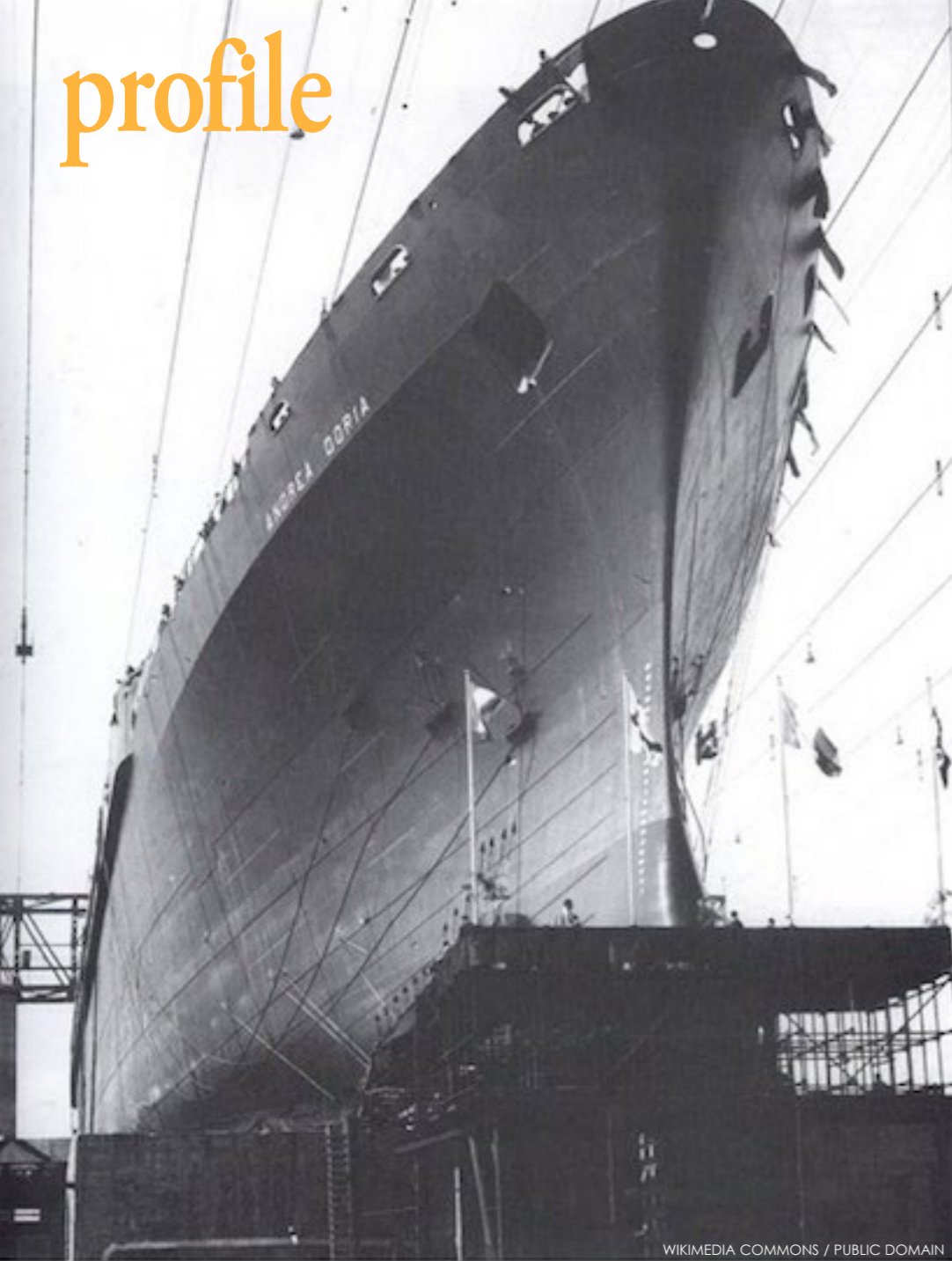
PHOTO COURTESY OF PHY DIVING EQUIPMENT

*Andrea Doria -74* is a new edition (reprint 2020, Magenes Editoriale) with a rare photo inside from the first Italian expedition on the wreck of the *Andrea Doria*, showing Al Gidding and Bruno Vailati to the right of Stefano Carletti.



F. ZONCADA / FONDAZIONE ANSALDO

Historical photo showing Gambone's art panels on the *Andrea Doria*



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used the air lift to finish vacuuming out the room, but we did not find the bell. The other part of the team worked on recovering the two Gambone panels from the Wintergarden Lounge. Three years later, the Wintergarden Lounge fell apart and was gone. If we had not recovered the panels when we did, they would have been lost forever.

**Once again, I am very curious. Please describe how you**

**rescued the statue of Admiral Andrea Doria from the seabed of the Atlantic Ocean.**

In 1964, Captain Dan Turner took a team of divers aboard the salvage ship *Top Cat* to recover the life-size bronze statue of Admiral Andrea Doria, which was in the first-class lounge. To get to the lounge, they had to blow a hole in the side of the wreck and then drop down to about 200ft inside the wreck to the statue. The statue was

Historical photo of the *Andrea Doria* taken in the early 1950s (right) and the launch for the *Andrea Doria* in June 1951 at the Ansaldo shipyard in Sestri Ponente (left)

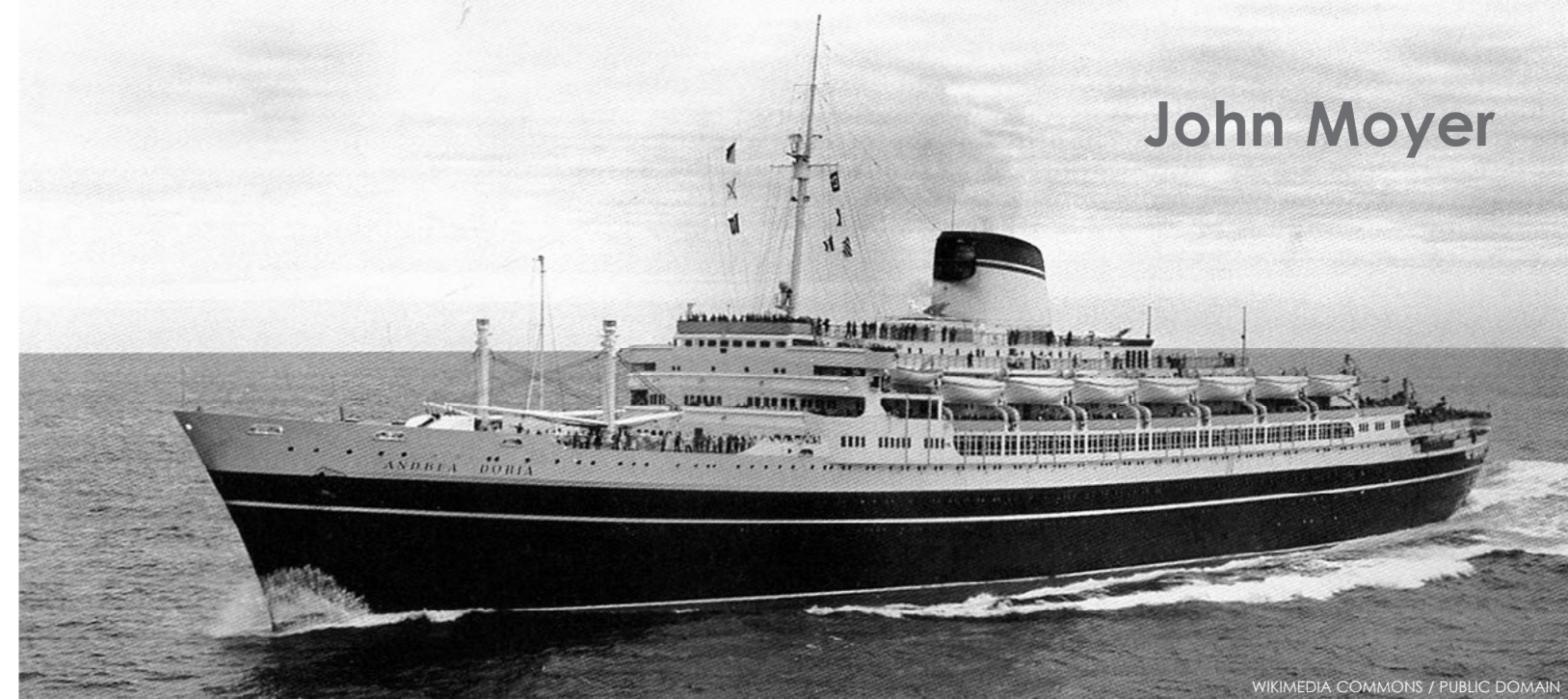
mounted on a pedestal, which was bolted to the deck. They could not unbolt the pedestal, so they decided to cut the statue off at the ankles using hacksaws.

In 1996, Gentile and I discovered that the statue's pedestal had broken free from the deck and was now lying under a large piece of wreckage. It was the last dive of that trip, and we did not have the equipment with us to recover the pedestal. When I got back to shore, I had a special cable made up. On the next trip to the wreck, I crawled under the wreckage and wrapped the cable around the pedestal, and using a lift bag, dragged it out from under the wreckage. Next, I floated it up and set it down on the hull of the *Andrea Doria*. Then, I rigged it up with a heavy strap and sent it to the surface with a larger lift bag.

**What does the spirit of the *Andrea Doria* represent to you?**

Peter Gimbel was the first diver to dive on the wreck in 1956, and he led two other expeditions after that. I never met Gimbel in person, but I knew his wife, Elga Anderson. After they passed away, their family asked us to take their ashes to the wreck. I picked a site deep inside the wreck where they would never be found and disturbed.

I became very good friends with Dan Turner, who led the expedition to recover the An-



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**John Moyer**

drea Doria statue. Before he passed, he would often call me to talk about the *Andrea Doria*. He came to my house in New Jersey many times, and I visited him at his home in Florida.

In 2006, Turner and his divers came to New Jersey to my 50th Anniversary *Andrea Doria* Exhibit at the Beneath the Sea convention. I still talk often to one of his divers, Denny Morse. I never got to meet Bruno Vailati, but we used to write letters to each other about diving on the wreck.

Of course, I was close friends with some of the other American divers who had visited the wreck before me, including George Hoffman, Mike deCamp and John Dudas. And I am still very close to the first woman to dive

the wreck, Evelyn Dudas.

Gentile is one of my best friends. We have made many dives together on the *Andrea Doria*, *Empress of Ireland* and other wrecks, and he was on both my salvage expeditions.

**What was the feeling you had the first time diving the *Andrea Doria* wreck?**

Every dive on the *Andrea Doria* is an adventure. When you enter the water, you never know what the conditions are like on the bottom. It may be good visibility with no current on the wreck, or there may be a strong current, or it may be dark with bad visibility. You have to be prepared to dive in whatever conditions you find.



PHOTO COURTESY FONDO ZONCADA - ARCHIVIO FOTOTECA FONDAZIONE ANSALDO - GENOVA

A historical photo of the first-class lounge, with the statue of Admiral Andrea Doria, on the *Andrea Doria*

# profile

Historical photo taken from an airplane, showing another ship rescuing the passengers in a lifeboat from the sinking liner *Andrea Doria*, which is seen in the background, listing to the right, the side that was hit in the collision with the *Stockholm*.



HARRY TRASK / THE BOSTON TRAVELLER / WIKIMEDIA COMMONS / PUBLIC DOMAIN

While I was down on the wreck, sometimes I thought about how beautiful the ship was, both inside and out, when it was sailing, and how sad it is that it ended up lying on the bottom of the ocean. I also thought about the people who were on the ship and how they must have felt when the *Stockholm* hit the *Andrea Doria* and the terror they felt that night, not knowing if they would live or die.

## Afterthoughts

In June 2022, the Noble Maritime Collection in Staten Island, New York, will present a new exhibition about the Italian liner *SS Andrea Doria* and the successful and well-documented rescue of her passengers after she was struck by the Swedish liner *MS Stockholm* on 25 July 1956, while en route to New York. The exhibition—which is hosted by the Noble, a museum directed by *Ciro Galeano*—will explore the beauty of the mid-century ship, which was described as a float-

ing art museum, and her significance as the pride of post-WWII Italy. The museum staff is grateful to be working on this exhibition with *Moyer*, who was awarded salvage rights and named salvor-in-possession of the wreck in US federal court, as well as survivor *Pierette Simpson*, author of the nonfiction book, *Alive on the Andrea Doria! The Greatest Sea Rescue in History*, and the novel, *I Was Shipwrecked on the Andrea Doria!* ■

Based in Italy, author *Andrea Murdock Alpini* is a technical diving instructor for TDI, CMAS and PSAI. Diving since 1997, he is a professional diver focused on advanced trimix deep diving, log dives with open circuit, decompression studies, and research on wrecks, mines and caves. Diving uncommon spots and arranging dive expeditions, he shoots footage of wrecks and writes presentations for conferences and articles for dive publications and

websites such as *ScubaPortal*, *Relitti in Liguria*, *Nautica Report*, *ScubaZone*, *Ocean4Future*, *InDepth* and *X-Ray Mag*. He is also a member of the *Historical Diving Society Italy (HDSI)*, and holds a master's degree in architecture and an MBA in economics of arts. He is the founder of *PHY Diving Equipment (phidiving.com)*, which specializes in undergarments for diving, as well as drysuits, hoods and tools for cave and wreck diving. Among other wrecks, he has dived the *Scapa Flow* wrecks heritage, *Malin Head's* wrecks and the *HMHS Britannic (-118m)*, *Fw58C (-110m)*, *SS Nina (-115m)*, *Motonave Viminale (-108m)*, *SS Marsala (-105m)*, *UJ-2208 (-108m)* and the submarine *U-455 (-119m)*—always on an open circuit system. His first book (in Italian), *Deep Blue*, about scuba diving exploration, was released in January 2020 (see [amazon.it](https://www.amazon.it)). For more information on courses, expeditions and dived wrecks, please visit: [wreckdiving.it](https://wreckdiving.it).

Let's talk about diving

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PHOTO COURTESY OF GUE

## Comprehensive Project Diver Program: GUE Conference 29 October 2022

**GUE will offer an exploration-grade level of diver training. The training is designed to support globally significant dive projects that GUE is well known for partaking in.**

In addition, the new Project Diver program takes the agency's decades of project experience to train divers to support community-led project dives.

The program will cover decompression science, hyperbaric medicine, underwater archeology, extreme exploration and technology innovations.

The workshop component of this training includes an event-oriented lecture open to all participants. This two-day format is followed by hands-on coaching in applying unique and sophisticated project techniques. Participants need to have GUE Fundamentals or a higher rating. GUE is calling this workshop the Core Module.

Participants will work with a qualified trainer to complete an Apprentice Diving Project following the Core Module. The most advanced of these programs is the Level 3: Project Diver.

It is designed to develop and refine a diver's ability to capture detailed documentation within remote and challenging environments, including deep open oceans or places deep inside complex underwater caves.

The pilot program took place in Dubai in May. A second Core Module will be held 24-26 and 29-30 October, 2022, at GUE Headquarters in High Springs, Florida, USA.

For more information, go to: [gue.com](http://gue.com) or email [info@gue.com](mailto:info@gue.com).

## There is still time to apply for the GUE NextGen Scholarship

**Applications for the NextGen Scholarship are being accepted until 1 July 2022 (23:59 GMT -12:00).**

Applicants between the ages of 21 and 30 have the opportunity to get a scholarship that will include:

- Free GUE training for one year
- A \$2,000 USD travel budget
- \$3,000 USD worth of diving equipment from Halcyon
- GUE Platinum level membership for two years
- Free registration for one GUE conference, including socials and field trips, as well as a meet-and-greet with GUE leadership
- NextGen Scholarship Mentor (a senior GUE instructor)
- Divers Alert Network (DAN) membership and dive acci-

- dent insurance
- NextGen apparel and swag to wear during GUE events and training
- GoPro camera to document a year as a NextGen Scholar.

To qualify, applicants must be 21 to 30 years of age and certified as Advanced Open Water divers (or equivalent), have conducted a minimum of 20 dives, be medically fit for diving and fluent in English.

In addition to learning, during their year as a NextGen Scholar, recipients will have to provide two blog posts and video entries for GUE's blog, InDepth, and write one Quest journal article about their experience. They must provide a GUE.tv submission, if requested, and provide content for a NextGen

Scholar profile on GUE.com. Furthermore, they must maintain a blog discussing progress during the scholarship, to be linked to their Scholar profile page, and also keep an active social media presence. Each recipient must also give a short presentation at the GUE conference and respond to inquiries from the next round of scholarship applicants. Finally, they must submit an end-of-scholarship report discussing their journey and what is next, accounting for finances and acknowledging GUE folks that helped.

The NextGen Scholarship is made possible by the generous donation of course spaces from GUE instructors. Use this link to submit an application: [gue.com/2022-nextgen-scholarship-application](http://gue.com/2022-nextgen-scholarship-application) ■

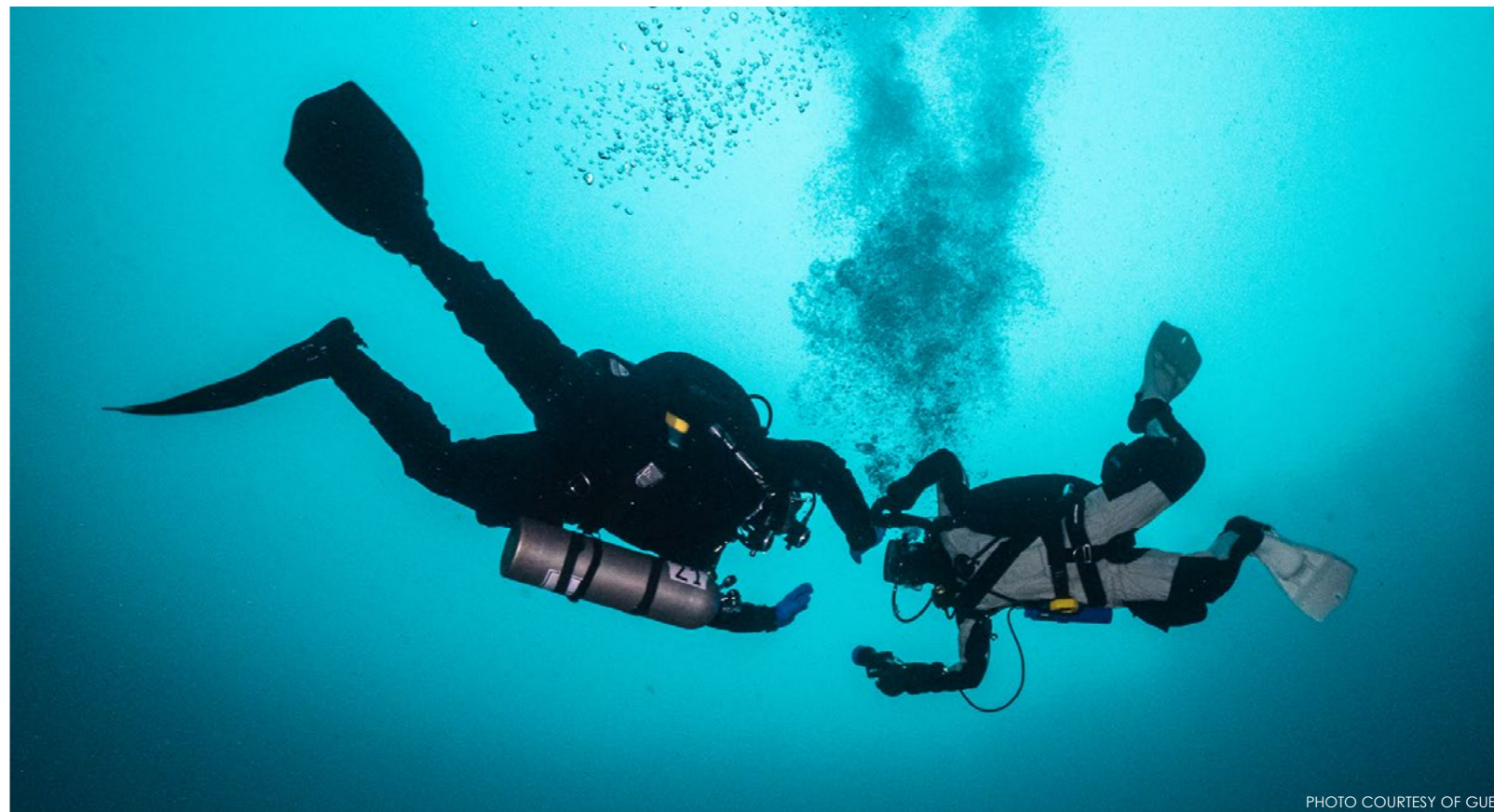


PHOTO COURTESY OF GUE

The Bay category,  
First Place: Rickard  
Andersson

Text by Annika Malmberg  
Translation edited by G. Symes  
Land photos by Annika Malmberg,  
Vilma Strömgren, Mattias Vendlegård  
Underwater photos by prize winners

**A new photo competition has taken root on the western coast of Sweden, in which local and international participants can enjoy an exciting week of shooting underwater in Smögen and compete for attractive prizes. The competition is hosted by the dive centre Smögen Dive & Experience (Smögen Dyk & Upplevelse). One of the contest's organisers, Annika Malmberg, shares the story of the event, from the initial idea to the final result, as well as plans for its future.**

For over 15 years, I have been a dive buddy to an underwater photographer. I have seen how the technology has developed, how the images have become more creative, and how more

divers are getting underwater cameras. Nowadays, it is almost unusual if there are not several cameras on a dive boat or at a dive site, alongside all the other dive equipment.

Competing in underwater photography is fantastic and fun but it can also be extremely frustrating. It is an adjudicated sport, and there are probably as many opinions about

the photo entries as there are people judging them.

Despite this, there is no doubt that year after year, divers will register for the Swedish Underwater Photography

Championship, and for me, it is not the prizes themselves that draws one the most but the opportunity to spend a long weekend with other divers with the same interest.



# Smögen Photo Week

— *A New Underwater Photo Contest is Born in Sweden*

Best-of-show Grand Prize: Rikard Godlund, for his photos in each category, Animal Portrait (right), Dive Environment (far right), and The Bay (below).



When one meets the community of divers who take part in this event, it is sometimes hard to believe that it is a competition, which can lead to a place on the Swedish national team. The helpfulness, exchange of knowledge and sheer joy that takes place during these competition days between participants is palpable.

The idea behind Smögen's photo competition was precisely about this camaraderie. How could we get more people to compete with their photos and experience this community? Our basic idea was that we would make it as simple as possible to get as many people as possible to want to join, with the following guidelines:

- Low registration fee
- No time pressure, with an opportunity to compete for several days
- Participants would be responsible for their own dive plans
- Easy-to-dive environments
- All types of cameras were permitted
- No requirements for dive certificates, so snorkellers/freedivers were also welcome

At the start of 2021, these ideas came together in a real project. After a pandemic without the opportunity to meet at dive fairs, we immediately noticed that the interest was great, and we regularly released new videos in which our sponsors revealed what the prize table would include, and where competition

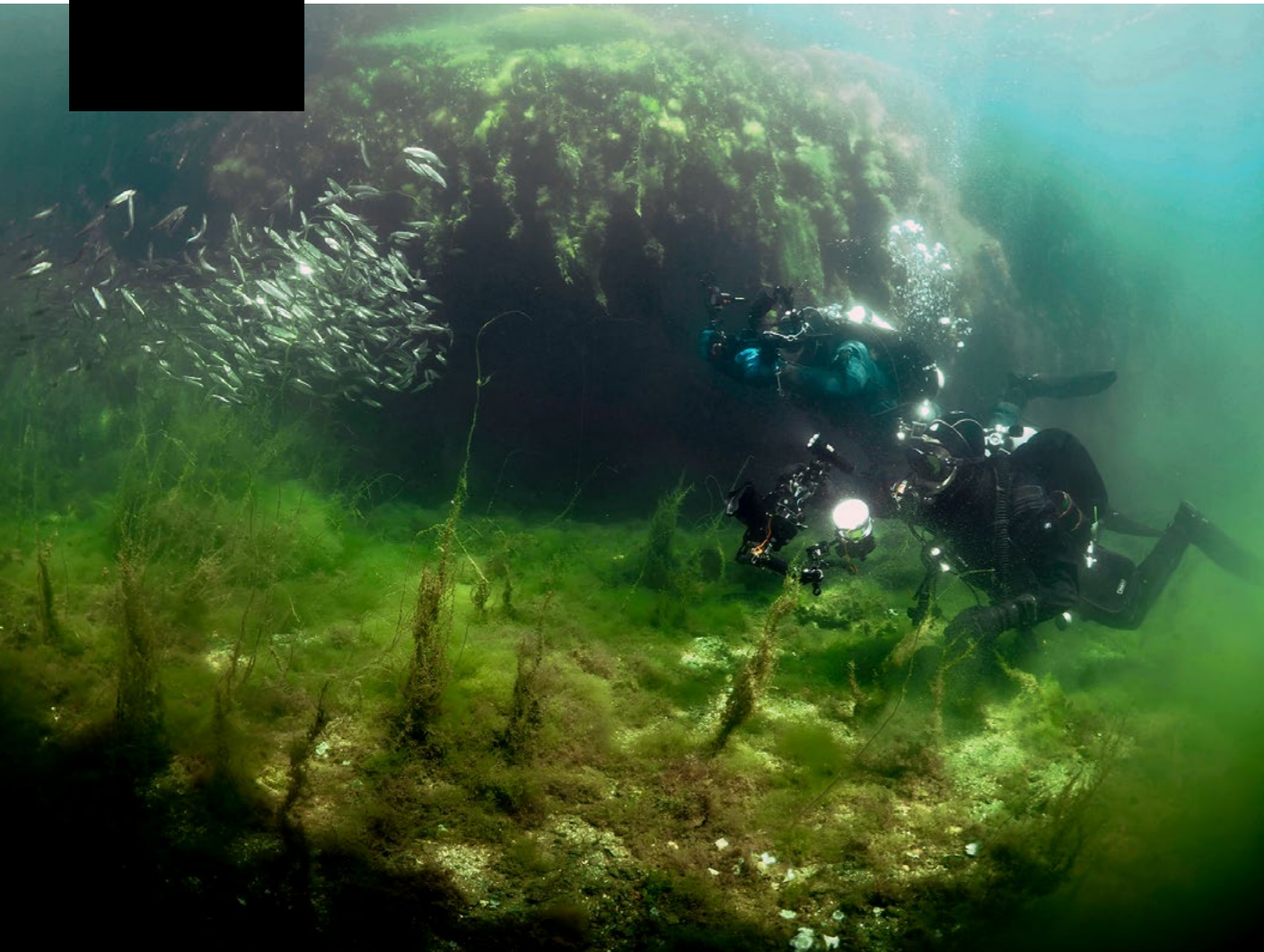
information was released.

Many people were curious, and we received very positive comments, but we had no idea how much interest there would be when we got to the week of competition.

### Contest setting

There are several fantastic dive centres on Sweden's western coast that offer different types of diving and experiences. One of the many granite cliffs on the western coast distinguishes the dive centre Smögen Dive & Experience from the rest. This cliff area is one of Sweden's most-visited tourist destinations—namely, Smögenbryggan, a quaint waterfront area in the town of

Dive Environment category, Second Place: Johan Björklund (right); Dive Environment category, Third Place: Peder Pålgård (below)



Dive Environment category, First Place: Fredrik Blomqvist (right)



Smögen. The dive centre is located in a protected bay at Kleven Harbour, where there is also a hostel.

The place for the competition offered experiences for the whole family. In addition to shore diving, boat diving and dive training, there was also a snorkelling trail, as well as opportunities for kayaking and stand-up paddling (SUP).

During the summer, it was also possible to do rock climbing, swimming and more. In addition to adventurous leaps from the rocks, the mountain also provided a sound escape from bustling city life, with warm summer evenings at Smögenbryggan.

During competition week, we had food trucks standing by at the dive centre, but just a five-minute walk away was one of the many excellent restaurants in Smögen.

### Competition week

The Swedish summer normally comprises sunny hot summer days but it can also be a little unpredictable, with rain and gusty winds. As we approached competition week in July, a big weight was lifted when we saw the forecast for glorious weather with temperatures over 25°C throughout the week.

However, how many participants and visitors would come to Smögen during competition week was still a big question.

One by one, however, they signed up. In the end, we had 32 photographers who submitted photos during the contest. Each photographer was allowed to submit a maximum of three photos, regardless of how many dives they did.

There were three different categories adapted for diving in the bay, and one could choose which categories to participate in. The participants paid



Expectations were high before the award ceremony (above) and 32 satisfied photographers were awarded prizes from the sponsors.

Animal Portrait category, First Place: Ronny Einarsson (left); Animal Portrait category, Second Place: Annika Persson (right); Animal Portrait category, Third Place: Ulrik Carlsson (below)



a registration fee of 150 SEK for each day they participated, and all kinds of cameras could be used in the competition, from small compact cameras to large professional cameras.

The three categories were:

• **Dive Environment:** In this category, participants would capture images of the underwater environment during a dive. They could take both wide views of the underwater environment, such as wide-angle underwater landscapes, but also views on a smaller scale of the underwater environment as in macro photography.

• **Animal Portrait:** In this category, participants would pho-

tograph any animal, but the focus of the shots must be on the animal.

• **The Bay:** Photography in Smögen Dive & Experience's own house reefs

It turned out to be a wonderful week, and it sometimes felt as if we were in the southern latitudes when folks leapt off the rocks into the water. Many participants tried out the snorkeling trail and went out on the bay with kayaks or SUPs.

The ice cream box was emptied quickly in the hot weather, and there were more refills from the ice cream supplier than in a normal week. The dive centre's information board, which lists divers

in the water, was quickly filled and had to be updated many times during the day to accommodate all divers who competed in The Bay category during the day.

### Final day

It was another morning with glorious sunshine. The air seemed to be filled with anticipation of "D-Day," and many wanted to go for one last dive

was quickly filled up, thanks to a demo exhibition by the competition's sponsors in which photographers and visitors squeezed into and tried out drysuits, as well as tested

to see if they could capture photos for submission that were just a little better.

The wooden deck at the dive centre was quickly filled up, thanks to a demo exhibition by the competition's sponsors in which photographers and visitors squeezed into and tried out drysuits, as well as tested

drones, flashlights, cameras and other gadgets for divers.

Tommy Jarnbrink, who coordinates the annual Scandinavian Dive Show (DykMässan) in Gothenburg, walked around and enjoyed the ambience. My guess was that he got a taste of what it would be like at the next DykMässan.

As we approached lunchtime, the remaining photographers were reminded that the jury would leave the dive





The Bay category,  
First Place:  
Rickard  
Andersson



The Bay category, Third Place: Patrik Kolmodin

centre at 2 p.m. and that all photos must be uploaded by then. Now, there was even more collaboration between the photographers, as USB sticks were shared, and online chat discussions took place about which photos should be submitted.

At 1:58 p.m., the last photo was uploaded, and the four jury members could begin their work amid peace and quiet in a secluded place.

While the jury worked, the prize table was sorted out. Thanks to our fantastic sponsors, we were able to give all the participating photographers a prize. The prizes for the first to tenth places had already been predetermined and presented, but prizes for the 11th to 32nd places were displayed in a large smorgasbord, which the photographers could view while waiting for the jury's decision.

There have probably never been so many visitors to Smögenbryggan as when we started to present the results. To increase the excitement further, the results for 11th to 32nd places were presented first, and the winners could then choose an optional prize kit from the prize table.

There was a great range of fantastic photos

that were submitted in the competition. We had many contest winners, but the biggest prize was taken home by a very proud and happy Rikard Godlund.

### Conclusion of the competition

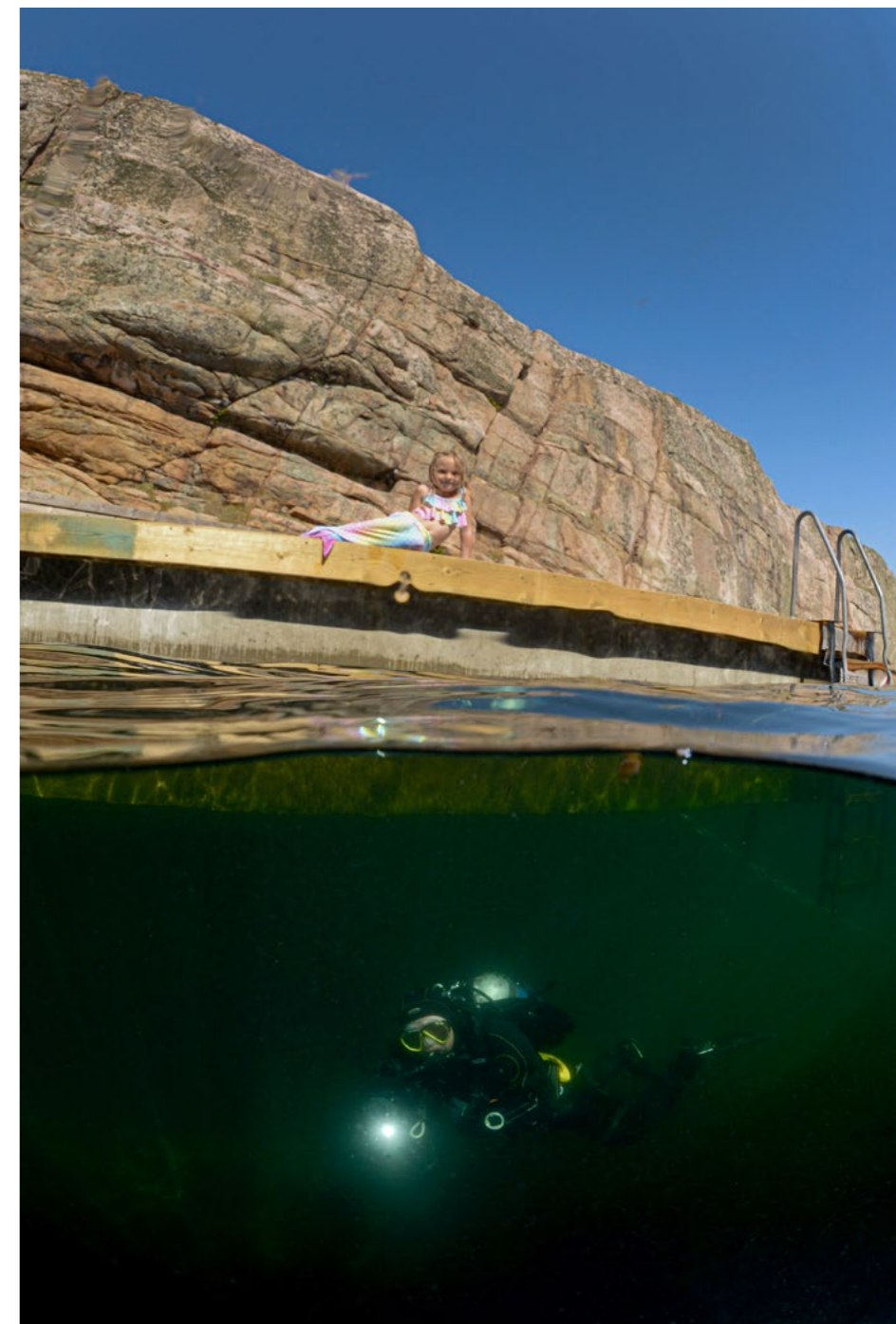
During the evening after the awards ceremony, I felt deflated at first, it was as if the air had escaped out of me. We had worked so intensively on this project for the last six months and, all of a sudden, it was over. At the beginning, it was just a fun idea, but it had resulted in an absolutely fantastic week in every way.

However, it did not take long before everyone's energy returned, and we started planning for Smögen's photo competition in 2022. After all the positive feedback from participants, visitors and sponsors, we saw that this competition could become an annual tradition long into the future.

The dates have already been set and the competition will take place in the same week as the first one, starting Monday, July 18th and ending Saturday, July 23rd. We have

The Bay category, Second  
Place: Jennie Soriano (below)

## Smögen



already started planning for different contest categories too; for example, there would be a category highlighting younger participants. We have already received an offer from one of the sponsors who would lend a camera during the competition to participants who do not own their own camera. Keep your eyes on Smögen Dyk & Upplevelse's social media pages, where information about the next competition will be released regularly.

Both Swedish and international participants



PHOTO COURTESY OF SMÖGEN DIVE & EXPERIENCE

Aerial view of the location where Smögen Photo Week took place, on the western coast of Sweden. Viken (The Bay) is an easily accessible dive site at the dive centre with varying depths, which allows everyone to be able to participate in the competition.

are welcome to participate, and you can now register for Smögen Photo Week 2022.

## Feedback from judges

The adjudication of photos by the four judges was carried out without them knowing who took the photos. They said, "It was relatively quick to pick out the ten pictures that we thought were best. The variety of submitted material was rich in content, creative and very mixed, which made it a very pleasant task to judge the pictures."

## Comment from a sponsor

Activities that activate divers are things that sponsors are happy to support. One of the sponsors said, "To be on site and

see all the divers in the competition was really nice, together with [being one of] several sponsors who were on site for demo day on Saturday."

The sponsors of the 2021 event included Agir, AquaFun, Aquatilis, CBM, Diving Travel Network, Dykcentrum Gullmarsfjorden, Dykeriet, DykMässan, Dyk.net, Dykning.net, Exposure Underwater, Fotografit, Fourth Element, ICA Supermarket Färgelanda, Lars Duvander, Moderskeppet, Musselbaren, Nanight, Olympus, Paddeln & Pedalen, Reel Diving, SiTech, Smögen Dyk & Upplevelse, SSDF, Ursuit and Waterproof. ■

Based on Sweden's west coast, Annika Malmberg grew up by the sea and has

been diving since 1993. Her diving career began when she ran several dive businesses and became a dive instructor. Together with Klas Malmberg, Annika runs the book publisher Aquatilis, publishing several marine biology books and articles, and has created snorkelling trails. She is most passionate about new projects like Havskollo (Sea School) for kids and Fototävlingen (Photo Week). For her, diving is a healing meditation for the soul.

For more information (in English and Swedish) and to register for the next photo competition, which takes place on 18-23 July 2022, please visit: [smogendyk.se/fotoveckan/](http://smogendyk.se/fotoveckan/)



Photo of starfish by Oscar Godlund, 14, the youngest participant

## Smögen

OG: I think the judges like it when you are a little unique. So, when I saw the chains, which I photographed, I thought that picture would stand out. Then, I found a starfish that hung on some sort of string. I thought it looked cool.

### What was fun?

OG: That everyone got an award was good, and that there were many who participated.

### Would you like to join again?

OG: Yes, but only if it is summer and warm in the water. I do not like to dive when it is cold.

### Is there something you think could be better next time?

OG: If you want more young people to participate, perhaps some of the prizes could be more aimed at young people. ■



The organisers and sponsors of the Smögen Photo Week competition

VILMA STRÖMGREN



## Sealife Micro Wide Angle Dome Lens

Sealife's newest lens is designed as an add-on for the Sealife Micro 3.0 compact underwater camera. The attachable lens converts the camera's inbuilt 19mm (full frame equivalent) lens to an equivalent focal length of 13.3mm, and provides minimal distortion and softness in the corners. [sealife-cameras.com](http://sealife-cameras.com)



## Panasonic Leica DG Summilux 9mm f/1.7 Lens

The new ultra-wide-angle prime lens for Micro Four Thirds, the Leica DG Summilux 9mm f/1.7 ASPH is constructed of 12 elements in nine groups and includes two aspherical elements, two extra-low dispersion (ED) elements, and one ultra-high refractive index (UHR) element. The 18mm full-frame equivalent lens has a minimum focusing distance of 3.7in (9.5cm) and weighs 4.6oz (130g). Dimensions: 2in long (52mm), and 2.4in (61mm) in diameter. The front filter thread is 55mm. The Leica DG Summilux 9mm f/1.7 ASPH lens will be available in late July 2022. [shop.panasonic.com](http://shop.panasonic.com)



## Backscatter Color Filter System

Backscatter's Color Filter System is compatible with Backscatter's MF-1 Mini Flash, Macro Wide MW-4300 video light and OS-1 optical snoot. The full bundle includes a bold filter set, pastel filter set and two holders, one of which is designed for the MF-1 strobe. [backscatter.com](http://backscatter.com)



## Saga Trio Wet Lens

This three-in-one macro wet lens system by Saga provides three levels of magnification combined in one device.

Using external levers, a +5 diopter or +10 diopter lens can be rotated into position or can be used together for a combined +15 diopter lens. Saga recommends 100mm or 105mm macro lenses for optimal quality, but 60mm, 150mm or 180mm are supported as well. The device easily attaches to macro ports with a 67mm thread. [sagadive.com](http://sagadive.com)



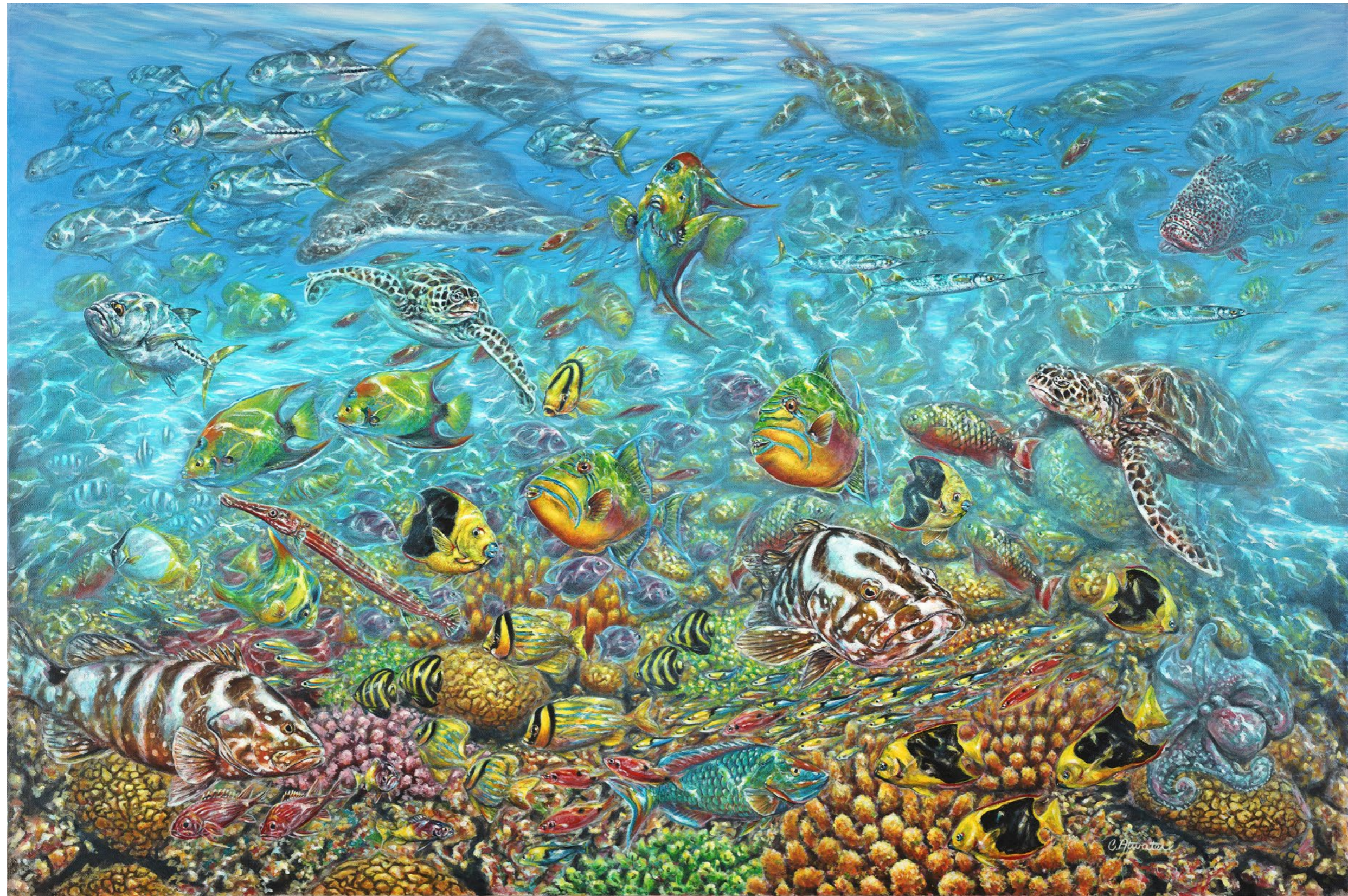
## Seacam Housing for Atomos Ninja V/V+ Monitor-Recorder

Seacam's housing is compatible with the Atomos Ninja V and Ninja V+ monitor-recorders and offers basic control of their functions, including REC (record), PLAY, MON (monitor) and UNI 2 (free buttons).

Like Seacam's camera housings, the unit comes with a standard leak detector. The unit weighs 1.85kg and is depth-rated to 80m. [seacam.com](http://seacam.com)



# Curtis Atwater



## P O R T F O L I O

Canadian artist Curtis Atwater creates beautiful paintings of marine life and underwater scenes that capture the light and dynamic motion of species under the waves. *X-Ray Mag* interviewed the artist to learn more about his creative process and perspectives.

Interview by G. Symes  
Artwork and images by Curtis Atwater

*X-RAY MAG:* Tell us about yourself, your background and how you became an artist.

CA: I have always had an interest in art. I had studied advertising and graphic design before entering the workforce and worked in various facets, including newspaper layout, political cartoons, illustration and cartoon city maps. I eventually transitioned to sales and marketing, while keeping art as a hobby and part-time business.

Being from Canada, I was able to spend much of my free time fishing and snorkelling our northern lakes and Great Lakes and, believe me, there are a lot of lakes in Canada to choose from. I have spent most of my on-water fishing time in Ontario, Vancouver Island, British Columbia coast, Nova Scotia, Turks and Caicos, Cuba,



Florida, Costa Rica and Mexico, where I combine fresh and saltwater experiences.

I enjoy painting both underwater scenes and terrestrial wildlife; in this way, I can mix it up a little to avoid boredom of any one subject matter.

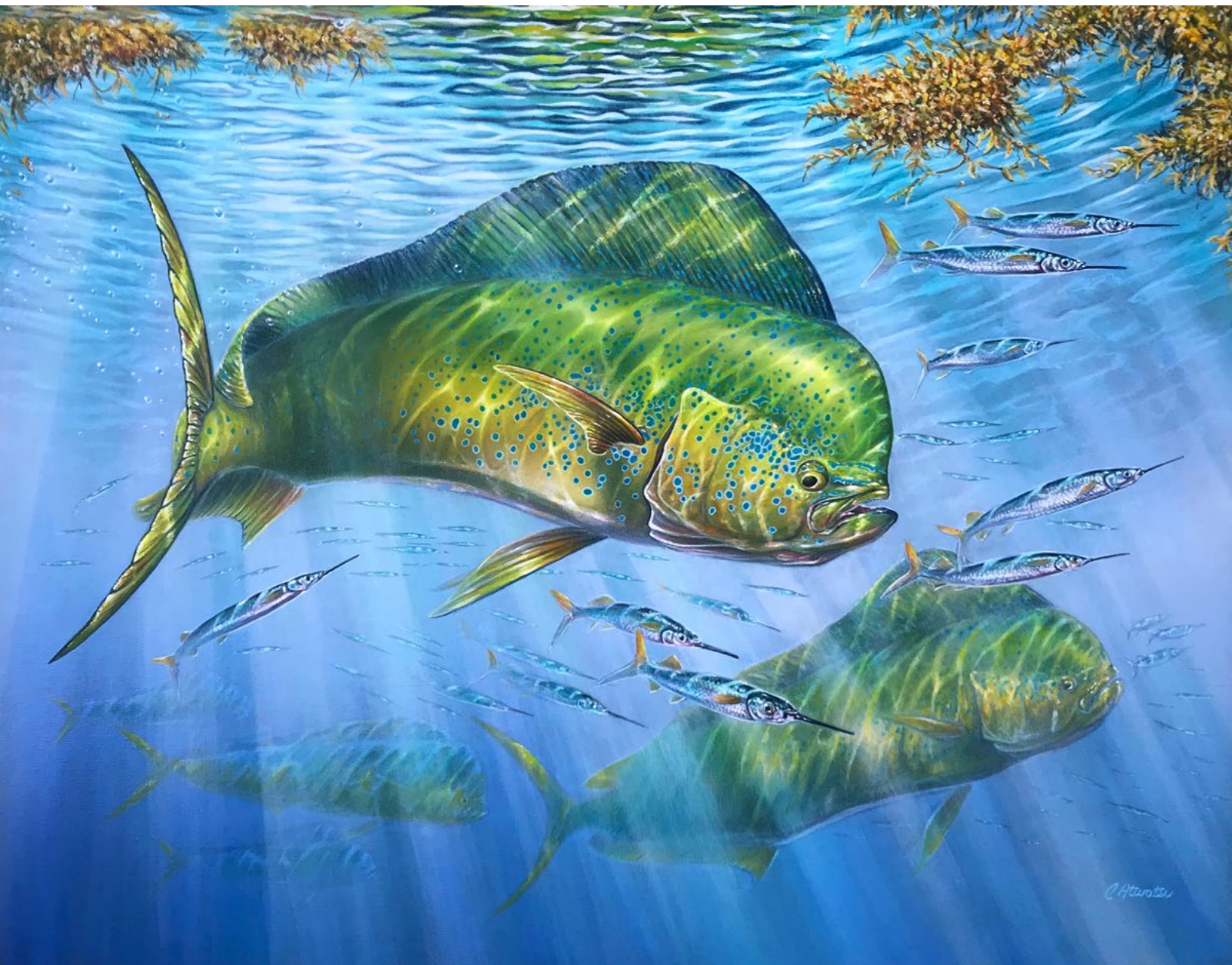
*X-RAY MAG:* Why marine life and underwater themes and how did you develop your style of painting?

CA: I worked mainly in the fishing and boating industry in Canada and the United States, which fit perfectly with my passion for angling. Spending

much of my free time on the water fishing, I put the two hobbies together and started drawing and painting underwater scenes.

I originally concentrated on North American freshwater species across Canada and then started travelling to the Caribbean a lot and devel-

*Coming Home*, 12 x 16in, acrylic on canvas board (above); *Close Call*, 12 x 16in, acrylic on canvas board (top right); and *The Caribbean Crowd*, 31.5 x 47in, acrylic on canvas board (previous page), by Curtis Atwater



Mahi-mahi, 22 x 28in, acrylic on canvas board, by Curtis Atwater

oped a keen interest in the diversity of the coral reef ecosystem. A lot of time was spent snorkelling and fishing in the Turks and Caicos Islands where I photographed and filmed the vibrant underwater life of the area.

I do not use elaborate underwater camera systems

for research. I mostly take my small Sony Cyber-shot DSC-TX30 or my GoPro Hero3 for quick access and spontaneous shots.

*X-RAY MAG: Who or what has inspired you and your artwork and why?*

CA: When I started actively painting, it was around the same time Robert Bateman was becoming extremely popular as the leading nature artist, and I became a keen fan of his work. His uncanny feel for design is what I most respect. I would say a lot of my techniques came from purchasing

and reading his books.

I have also greatly admired and definitely been influenced by some of the premier underwater artists like Stanley Meltzoff with his bold brushstrokes, Mark Susinno with his keen ability to depict natural lighting and underwater surface effects, and Larry Tople with his knack for creating action in his freshwater fishing scenes.

*X-RAY MAG: What is your artistic method or creative process?*

CA: I mostly use soft body acrylic paint and tend to water them down in baby food jars to apply multiple washes to my work until I get the results I want. I found acrylics a fast, forgiving medium that fit my lifestyle when I was juggling art and full-time work. Sometimes, I go

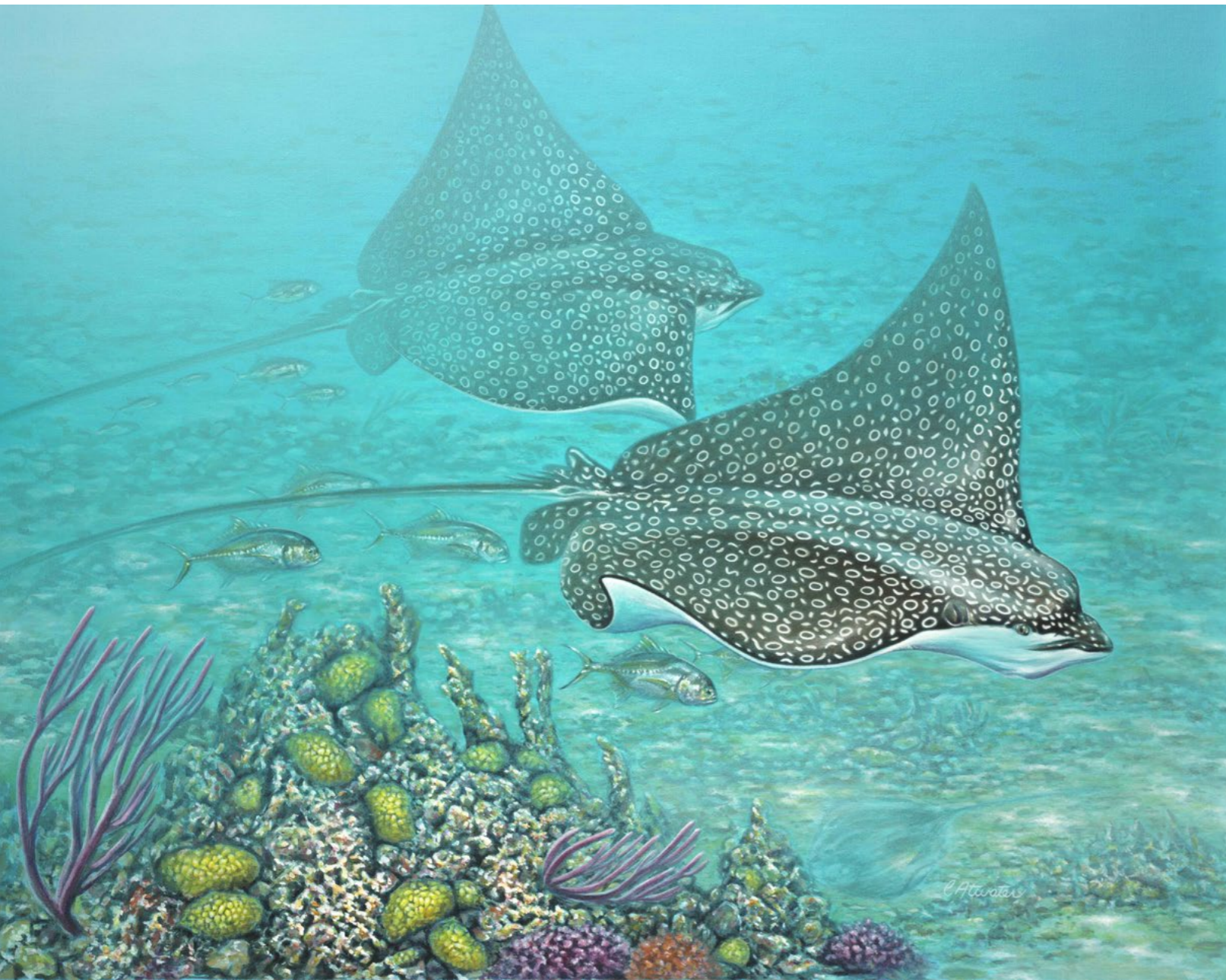
to hard body acrylics or water-based oils for a bold effect.

Originally, I used Masonite board and applied multiple layers of gesso, which created a smooth surface for detailed work. Now, I have a tendency to use pre-gesso canvas and boards—probably just becoming lazy these days.

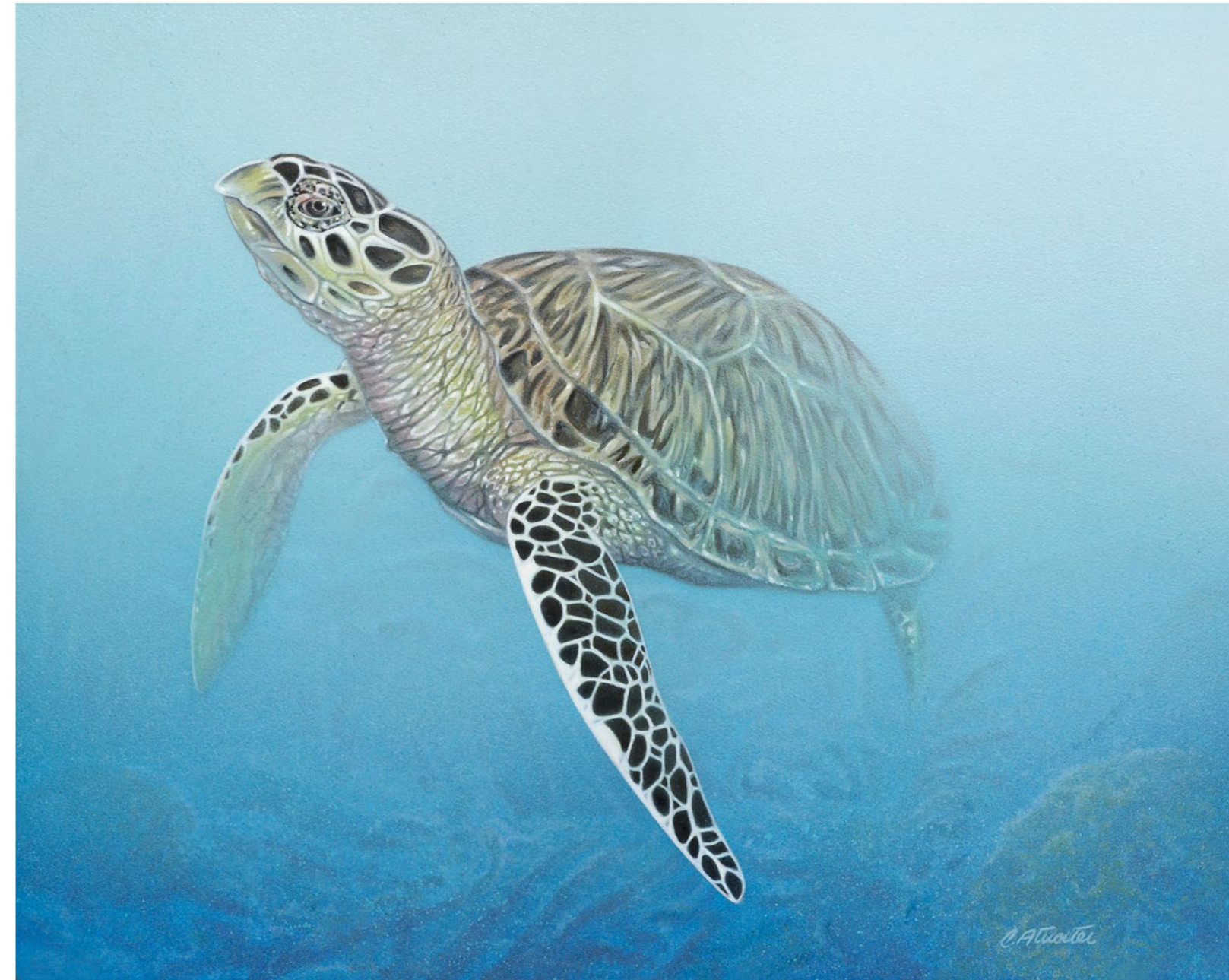
My painting begins with the idea, then many sketches using



Turtle Reef, 22 x 28in, acrylic on canvas, by Curtis Atwater



Caribbean Rays, 22 x 28in, acrylic on canvas board, by Curtis Atwater



Hawksbill Turtle, 12 x 15in, acrylic on board, by Curtis Atwater

mostly photographs I have taken and collected as reference. I then proceed to transfer the final sketched image to the board, and away I go, not always sure what will eventually happen.

*X-RAY MAG:* What is your relationship to the underwater world and coral reefs? How have your experiences underwater influenced your art? In

*your relationship with reefs and the sea, where have you had your favorite experiences?*

CA: Unfortunately, inner ear issues prevented me from pursuing scuba diving, so I concentrated on snorkelling as my main underwater activity. It is also an excellent family activity.

The underwater world of the Turks

and Caicos Islands, where I snorkel, is full of eagle rays, turtles and barracudas, to name a few, and I enjoy hanging with these folks as much as possible. The grace and beauty of these species never gets old, and just watching them is my biggest artistic influence.

I have never had any issues with any species, including sharks, but great barracudas can sometimes be hard to

read. Most ignore you or slowly swim away, but I have had a few that rush toward me and seem to veer away at the last minute, sometimes following right back close to shore. I am assuming these are territorial reactions or cases of mistaken identity.

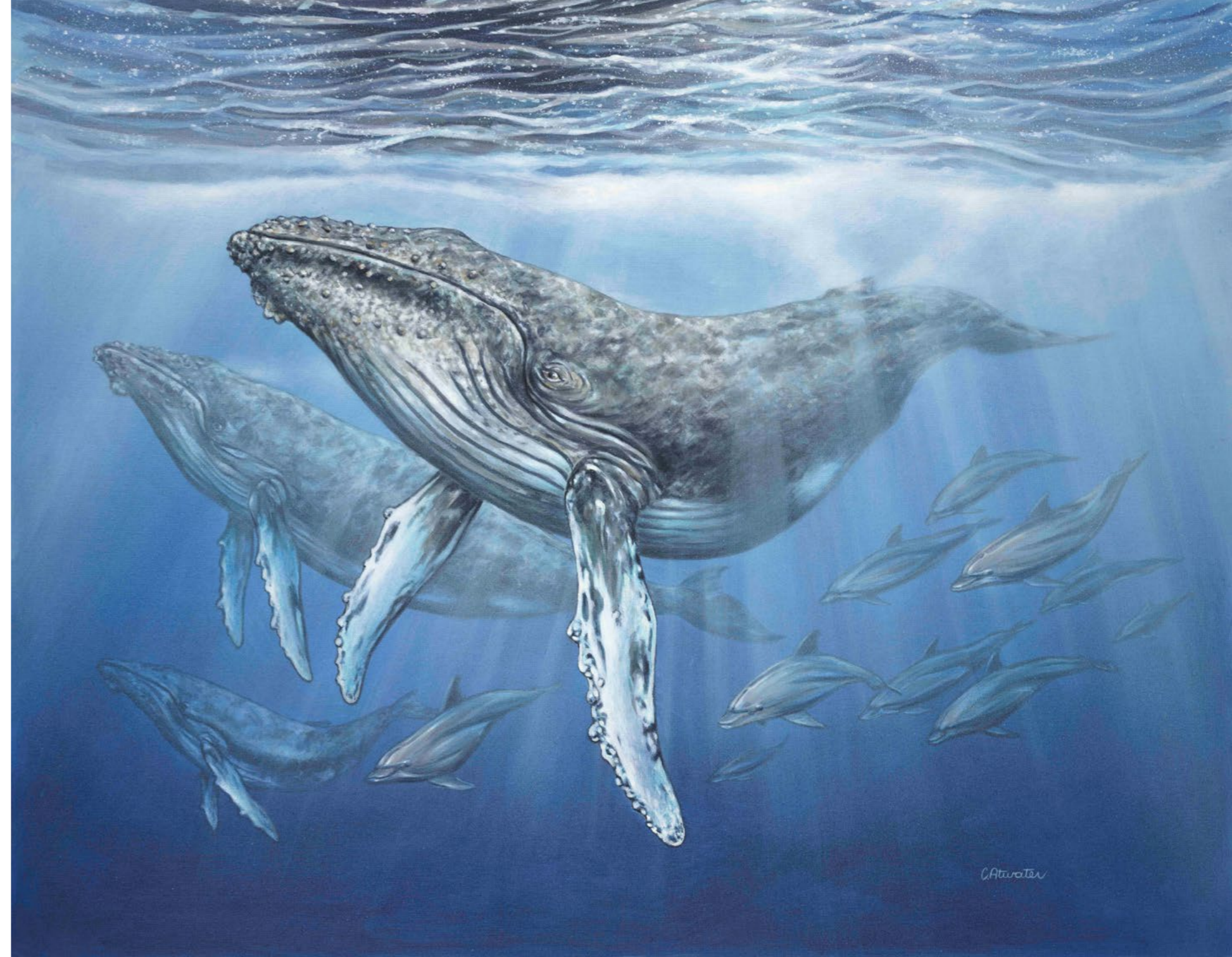
*X-RAY MAG:* What are your thoughts on ocean conservation and coral

*reef management and how does your artwork relate to these issues?*

CA: I would assume I am the same as anyone, in that I am all for cleaning up the oceans. The coral reefs I visit are certainly not what they were 20 years ago. When I recently visited South Asia, I could not believe the amounts of discarded plastic in the



Warrior King Chinook Salmon, by Curtis Atwater



Humpbacks, 22 x 28in, acrylic on canvas board (above); and Barracuda, 24 x 30in, acrylic on canvas board (top left), by Curtis Atwater

rivers and oceans in some areas.

Most reference material is gained through underwater photography and fishing when possible. I randomly photograph everything that I find interesting, including any fish species, coral varieties, plants, surface shots and different lighting effects—whatever might work for future paintings. I usually tape a multitude of photos over my artboard to use as reference for a painting.

**X-RAY MAG:** *What is the message or experience you want viewers of your artwork to have or understand?*

CA: I do not really have any message being portrayed through my work. It is all done for enjoyment. If people view my work and they like it, then fantastic; if not, no big deal.

**X-RAY MAG:** *What are the challeng-*

*es or benefits of being an artist in the world today? Any thoughts or advice for aspiring artists in ocean arts?*

CA: I would have to think it is a tough go, being a full-time artist. This is why I found it necessary to have a full-time job and use art as a hobby and part-time occupation. I did try the freelance artist route, but found I had to take projects I really did not





Clear Water Brown, 16 x 20in, mixed media (left), and The Shallows, 16 x 20in, acrylic on canvas board (below), by Curtis Atwater

enjoy just to pay the bills. There are some extremely talented artists out there, and they may find a niche that works.

As far as advice, I would have to say: try and paint what you have a passion for, if this is possible.

*X-RAY MAG:* How do people—adults and children—respond to your works?

CA: Some people like my work, and some do not. I have not done many shows in quite a while, so have not had much direct contact recently to elaborate on.

*X-RAY MAG:* What are your upcoming projects, art courses or events?

CA: I plan to continue painting more below and above water life, using

this interest as an excuse to further my travels to many additional Caribbean locations and take a journey through Indonesia and Australia, spending as much time as possible along the Great Barrier Reef.

*X-RAY MAG:* Lastly, is there anything else you would like to tell our readers about yourself and your artwork?

CA: I have been able to work on a lot of great projects and met many great people through my artistic ventures. I have had my work featured on provincial stamps through the Pacific Salmon Foundation for the province of British Columbia, Canada, and the Ontario Federation of Anglers and Hunters, collector coins through the Royal Canadian Mint of Atlantic salmon, sockeye salmon and Arctic char and a four-coin collection of Canadian freshwater fish, and many magazine and book covers in North

America and Europe. In addition, I have published many limited edition prints of freshwater game fish and wildlife of North America, so I would say it has been quite a satisfying pursuit so far. Some of my paintings can be viewed through the Artists for Conservation website. ■

For more information or to purchase artwork, please visit the artist's webpage at: [artistsforconservation.org/artists/1249](http://artistsforconservation.org/artists/1249)