

THE CORAL RANGERS

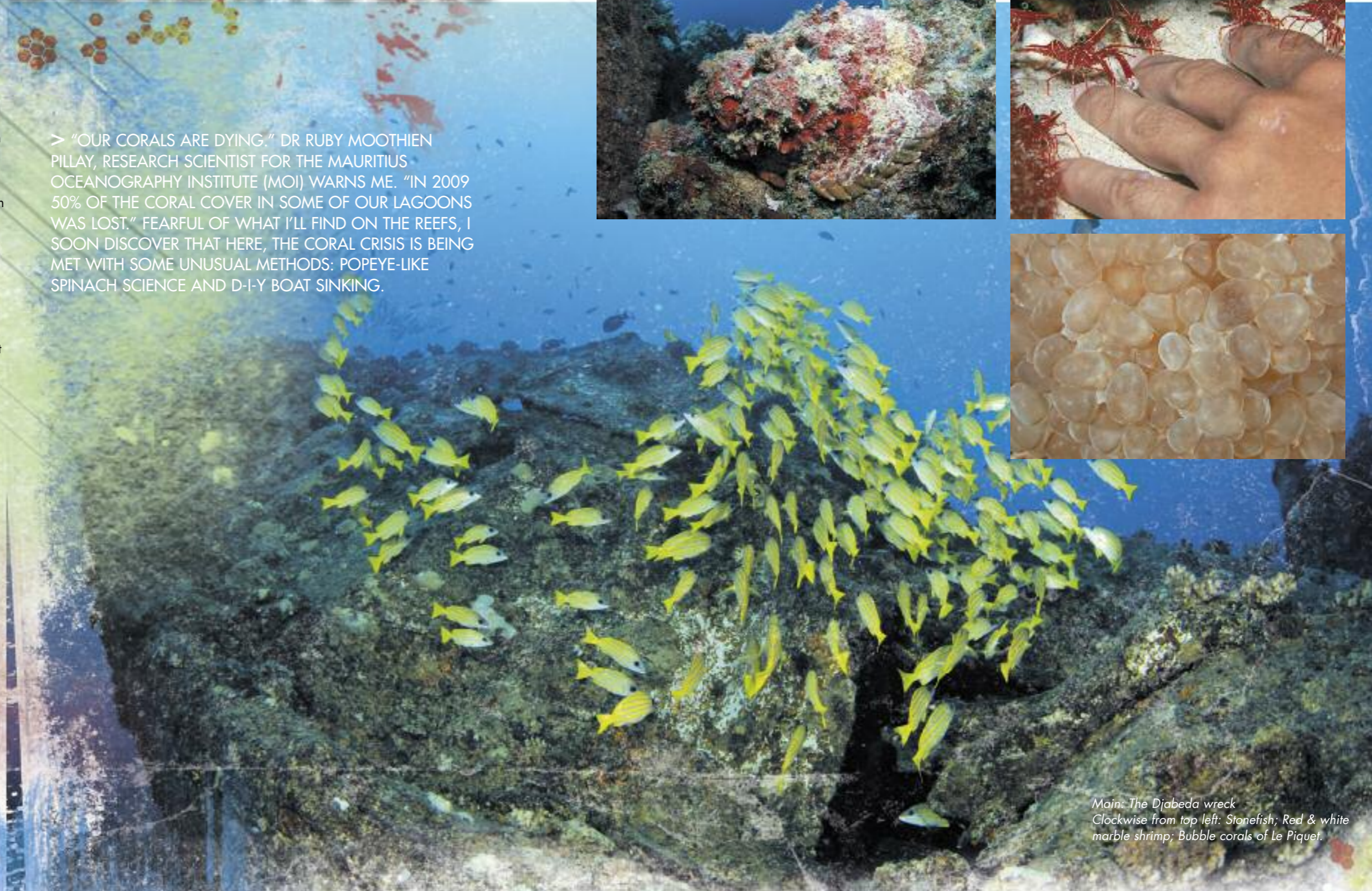
In response to Dr Pillay's warning, the Mauritian Marine Conservation Society (MMCS) recommends divers choose purposefully sunken wrecks as dive sites. So for my first dive I head out to *Water Lilly*, the island's oldest wreck, with local French Mauritian underwater photographer Mathieu Bayon.

Water Lilly's blue silhouette soon emerges from the white sandy bottom, with the wreck of the *Emily* alongside. At about 18m the local resident, a smiling triggerfish with buck teeth swims over to my hand like a dog after a friendly pat, then spins his bulbous eyes. At 25m Mathieu and I reach soft sand and a dozen scattered tyres. Reminding myself not to wear so many weights next time, I pump some air into my jacket and swim up and into the belly of the wrecks; 30 years underwater has successfully grown hard and soft corals all over them both. Their metal bodies are covered in brain-like sinularia corals, as well as false black coral, which is actually a bottle green colour and looks like a giant game of Tetris.

There are molluscs and clams smiling inside the round, hard corals like vibrant lips. A shy resident moray eel pokes her long face out of a hole in the deck. Schools of bluestripe snapper and black and whitestripe scissortail sergeant pass peacefully between *Water Lilly* and *Emily*. A brave butterflyfish goes head-first into Mathieu's BCD pocket searching for bread, then follows him for the rest of the dive, slipping in and out of the pocket like a yellow letter in an envelope.

After seeing the success of *Water Lilly* and *Emily* as a viable surface for rich corals, I swim over to check the surface of the tyres; they're covered in sand and green algae which I poke at without interest. Mathieu, noting my scepticism, beckons me and swims towards a stonefish floating between two tyres. He wiggles his finger and the

> "OUR CORALS ARE DYING." DR RUBY MOOTHEN PILLAY, RESEARCH SCIENTIST FOR THE MAURITIUS OCEANOGRAPHY INSTITUTE (MOI) WARNS ME. "IN 2009 50% OF THE CORAL COVER IN SOME OF OUR LAGOONS WAS LOST." FEARFUL OF WHAT I'LL FIND ON THE REEFS, I SOON DISCOVER THAT HERE, THE CORAL CRISIS IS BEING MET WITH SOME UNUSUAL METHODS: POPEYE-LIKE SPINACH SCIENCE AND D-I-Y BOAT SINKING.



Main: The Djabeda wreck
Clockwise from top left: Stonefish; Red & white marble shrimp; Bubble corals of Le Piquet.



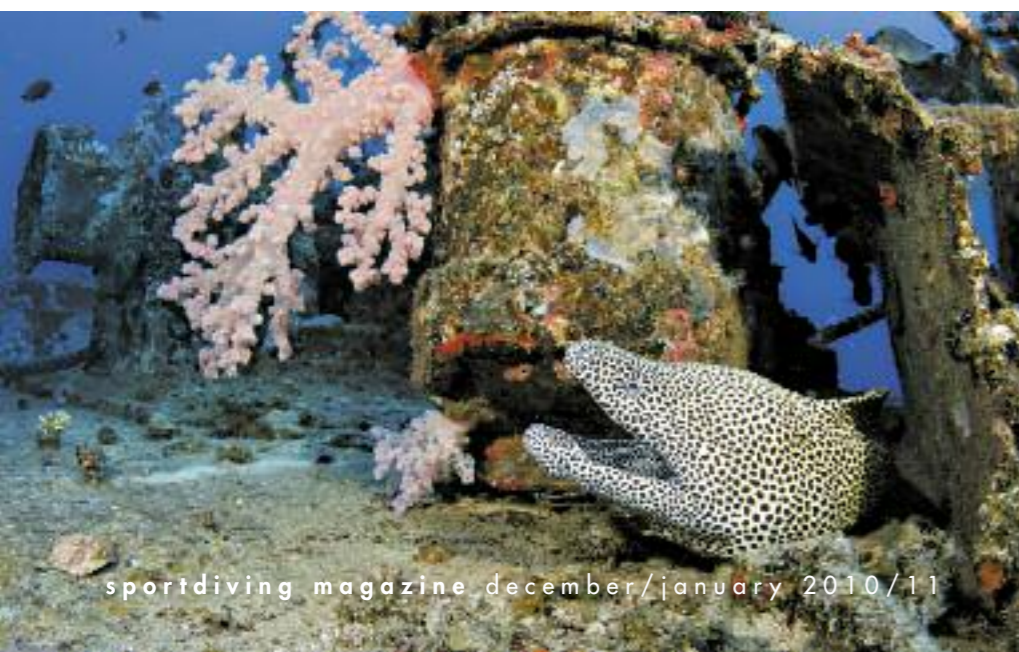
stonefish grumpily swims away, leaving a round space between the tyres. Mathieu places his hand flat in the middle removing his regulator, to avoid causing bubbles, and grins. What on earth is he doing? Red and white marble shrimps emerge from inside the tyre, gingerly looking up at us. In seconds four shrimps scuttle out and set to work eating dead skin off Mathieu's cuticles.

"I should call it Mathieu's underwater manicure service," he jokes back on the boat. Mathieu is a firm believer in artificial wrecks to combat the coral crisis. He sank the 45m long old fishing boat *Hoi-Siong* to create another vibrant site.

"The wreck is sunk to give corals something to hold onto. It takes years, but after just six months you can see the difference. First there's a few fish, then the reef comes. In the long term you want the whole structure to rust away and only the coral should stay." Boat sinking, or rather 'wreck sinking', is a diver's dream as it turns barren landscapes into reefs.

I meet with the NGO Reef Conservation Mauritius, supported by the Indian Ocean Commission, to find out if wrecks are the future of diving. Their Beach Resource Officer Nathalie Perrine welcomes me to her home in the wetlands of Perebere. "Our first ever project was to install mooring buoys so fishermen don't drop anchors on to the coral and destroy them," she says, sipping vanilla tea. "I agree, artificial reefs are vital. When the corals reproduce, the spores need a hard surface to attach to. In some places, unless there's a wreck, they will fall into the sand and die."

But sinking a ship is a complex operation. In Japan and Taiwan, expensive 30-40m steel constructions are sunk with cages specific to the fish they aim to catch. Because certain fish (or lobster) enjoy particular habitation, they can be fooled into moving in. But for boat sinkers like Mathieu, who wasn't sinking *Hoi-Siong* with a promise of lobster sales, the wreck



had to be sunk on a budget. "Towing the old fishing boat from the capital Port Louis all the way south took nine hours. The sea was rough and the cable kept breaking. We finished with a normal rope but instead of going at five knots we were at two knots." Once there, Mathieu made holes in the hull and filled the wreck with water using a fire hose from the other boat. "Once it was level with the sea, it sank in 45 minutes. But the longest and most expensive part of this operation isn't obtaining the boat, transporting it or even sinking it," Mathieu says "it's the cleaning."

Cleaning? "Remember, you're sinking it to create an artificial reef. You don't want oil and diesel pollution." This is where Mauritian do-it-yourself seems to fall down and why artificial reefs are usually the product of government initiatives or the million-pound seafood production industry. According to Mathieu: "The government will give you the boat. It can be a seized fishing boat, for instance, left to rust in the harbour. What you then do is go to the cleaning company and say 'take whatever you want from the boat, like the copper, the glass...' and they can pay themselves with what they can find. That's what we did."

Successful artificial reefs in Mauritius has encouraged the sinking of old tug boats, fishing boats, gas carriers and even restaurant boats. The country now boasts 16 artificial wrecks that delight divers. There's also historical placings such as the almost entirely camouflaged *Lost Anchor*. My notes from this dive are: "Max depth: 26m. Strong currents! Seaweed was trembling and fish were swimming without going forward so it wasn't me being a complete weakling."

As well as these boat sinkers, the Mauritian government's official reef institution is the MOI. One of their major aims is the creation of coral gardens in front of tourist resorts. With coral life that includes tiny colourful flora, such as at the popular dive site *Japanese Garden*, or the bubble corals of *Le Piquet* (they look like a field of pink eggs), it's not surprising that the Prime Minister wants to safeguard their underwater heritage.

Dr Pillay says the MOI hope that eventually hotels and other private partners will join in the government's efforts. As R. H. Bradbury and R. M. Seymour wrote in their paper 'Coral reef



Top to bottom: *Japanese Garden*; *The Water Lily & Emily wrecks*.
Opposite top to bottom: *Lost Anchor*; *Black & white striped scissortail sergeant*;
The Djabeda wreck; *The Hoi-Siong wreck*.

science and the new commons: "We must escape from the prevailing idea that reef management is largely concerned with preserving 'wilderness'. We should think more like agricultural scientists." Thus tagging conservation with a human purpose such as boosting tourist landscapes in front of hotels is a more modern understanding of conservation.

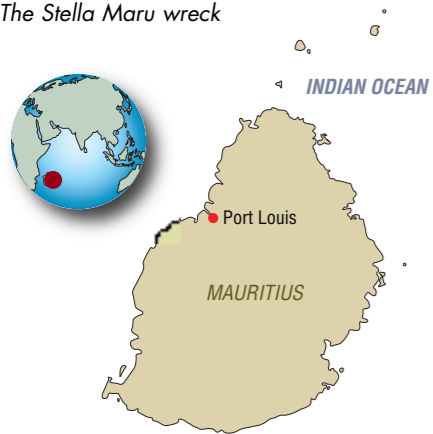
But P.A.D.I. instructor Pierre Mocellin warns that artificial reefs can't guarantee great dive sites. "The wreck *Silver Star* was sunk to 40m nearly 30 years ago. Normally it should have brought life to the area, but it hasn't. Luckily the wreck itself is beautiful so it still attracts divers.

The nearby reef has also remained deserted. We don't know why. It isn't that it was sunk too deep because other ships such as the *Djabeda* was sunk at the same depth and have an oasis of things to see."

The other problem with Mauritian artificial wrecks is that divers never know what they'll find after a cyclone has hit the area. The famous *Stella Maru*, a 44m steel fishing boat, used to be on its side and nicely embedded in the silt; but the first cyclone made it sit upright and the second made it slide a considerable distance sideways. "You dive after a cyclone and your wreck has gone. There's



The Stella Maru wreck



nothing but sand!" Pierre says. "It's a bit embarrassing in front of your clients."

I think of those shrimps with their manicure business in the tyres by the *Water Lilly*. What would a cyclone do to their home? Then again, when I do dive the *Stella Maru*, a tiny red dart fish with a yellow punk hairdo shoulders up to me; he looks like he'd relish the challenge of a cyclone shifting his property sideways.

When I express my concerns to Dr Pillay, she reveals that MOI isn't just relying on artificial wrecks to boost corals, she also has a 'Popeye-spinach' plan: "We are conducting experiments on our farm-grown corals to study the shuffling of their symbionts once they're placed back at sea." For the non-underwater scientists of zooxanthellae genetics among us, this means the Mauritian government want their corals to be able to resist global warming.

So when natural corals get zapped, even those living on wrecks, we can still catch a flight to Mauritius and frolic amongst our planet's 500 million year old crops.

Q. What has damaged Mauritius's 870km2 reef area?

A. Cyclones; Population and economic growth; global warming (abnormal increase in seawater temperature and light); Overfishing; Algae growth caused by sugar cane fertiliser washed into the ocean.

The problems with artificial reefs.

Previous disastrous attempts to use artificial reefs for conservation include:
 USA: Florida, Osborne Reef in the 1970s: two million tyres were dumped underwater to create an artificial coral reef. The result was a seabed full of tyres that smashed and bounced all over each other, damaging any life that may have settled on them, as well as the natural reefs nearby.
 Malaysia/Indonesia: Artificial tyre reefs resulted in costly beach clean-up operations in 2002.

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