

# HOW TO MAKE A CORAL REEF



1.

Take an unwanted, decrepit, soon-to-be-scraped ship.



2.

Remove all toxins and potential debris.



3.

Send it to rest, at last, in cobalt Mauritian waters.



4.

Wait.



5.

Watch new life bloom and multiply around it.



TEXT Pippa de Bruyn  
PHOTOGRAPHS Udo Kefrig



THE OBSERVATION THAT AQUATIC LIFE WILL GRAVITATE TOWARDS ANY FIXED OR FLOATING BUOY FOR SHELTER, SPAWNING, FEEDING AND NAVIGATION WAS FIRST RECORDED BY 18TH CENTURY JAPANESE FISHERMEN



‘I want everyone off the boat now!’ Yann von Arnim, director of operations, barks as the *Tian Xiang* starts to keel. The timing is off – the tug crew has moved into position too soon; is pushing up against the 50-metre fishing vessel before the new porthole cuts that will determine the velocity of the ship’s descent to the ocean bed. The water that has been flowing steadily into the engine room since the valves were opened some minutes ago is no longer just sloshing around their feet, but coming in fast, a current weighting the *Tian Xiang* starboard.

The six divers on board are ready to leap off like the bedraggled rats that are usually the last to leave these sinking ships, but Nico Kux – a man paid to repair boats, not sink them – remains, intently focused on the glowing line of his blowtorch. As the last hole falls free, he too scrambles on deck, raising a brief cheer from the flotilla surrounding the *Tian Xiang*. Then the onlookers watch in silence as the boat is slowly consumed by the ocean. Finally just

her prow remains snout-like above the water, before that too is sucked down, air bubbles roiling to the surface as a plangent hoot from the coast guard salutes her passing.

‘Yes, some of us cry,’ responds Olivier Tyack, marine scientist and president of the Mauritius Marine Conservation Society (MMCS), when I ask about the last moments aboard these sinking beasts of burden. He shrugs. ‘To be honest, I always do. Every ship has a long and interesting history, but by the time they end up with us, no one wants them. I bought the *Tian Xiang* for 100 rupees. We all spend many hours on board; removing gas cylinders, oil, coolants, posters of Chinese girls. During this process you become quite attached. Watching a boat you know so intimately sink – it’s like a burial.’

Olivier grins. ‘But of course, once it’s settled in its new bed, we celebrate. Because within days the ship will be filled with pelagic fish; within months it will be covered in algae and weeds, sponges, hydroids, barnacles, anemones, halcyons; within a few years,

corals, sea cucumbers, starfish, sea urchins, crabs, squids. The rusty old boat we sent to the bottom of the sea will be reborn as an underwater garden, an oasis of life.’

We have arranged to meet in the lounge of Port Louis’ Labourdonnais, the city’s five-star waterfront hotel, where Olivier has just been lobbied by a silver-haired businessman. Olivier shakes his head. ‘He’s been asking if he can build a 1.6km long sandy road on one of the St Brandon reefs, so he can drag off a boat that’s capsized there. He’s been trying to get the ship off the reef for two months now. The Mauritius government can legally claim up to \$300 for every square metre of damage done to its reefs, so he’s pretty desperate for a solution.’ The request is somewhat ironic, given that the MMCS has garnered international recognition for creating artificial reefs by sinking boats, rather than destroying a natural reef to save one.

It’s lunch time, so we wander over to a waterside sandwich bar. While we wait for our order, gulls wheeling overhead, Olivier fills me in on why the MMCS likes to sink boats.

The observation that aquatic life will gravitate towards any fixed and floating buoy for shelter, spawning, feeding and navigation was apparently first recorded by 18th century Japanese fishermen, who developed ever more intricate structures to improve their catch. But it became a fashionable research topic in the 1970s and 1980s, when the Americans gave it the moniker FAD (fish aggregating device). In Mauritius it would be anything but a fad.

The first boat was sunk in 1980; the *Tian Xiang*, which was sunk in June last year, was the 16th. Nine of these have been categorised by divers as either having ‘very rich’ or ‘exceptional’ fauna and flora. Olivier attributes their success rate to careful site selection. ‘The ship has to settle on a thick, deep layer of sand. Over the years we have learnt that the ideal depth is around 40 metres – deep enough for the boat to stabilise on the bed but with enough sunlight penetration for flora to establish and flourish.

‘The timing is important, too – the ship must be stabilised well in advance of the start of the cyclone season. And it must descend fairly efficiently. The *Carp*, our eighth *sabordage*, took too long – more than 12 hours to sink. She was finally abandoned late at night and sank off the south-west coast near La Morne in the early hours, in such deep waters that for months we didn’t know exactly where she’d settled. But the fishermen knew. She was lying 71 metres deep, but they knew, because of the fish.’ →



CLOCKWISE FROM ABOVE  
A starfish finds a choice resting spot on what was one of two masts of the 38.5-metre *Silver Star*; the *Stella Maru*, a former Japanese fishing trawler, is considered one of the most photogenic wrecks; the mast looms up out of the reef on board the *Jabeda*, where inhabitants these days include moray eels, triggerfish, lionfish and sea slugs

PREVIOUS SPREAD  
Another view of the *Jabeda*, submerged for almost 20 years

Photographs: www.oceanpics.de

THE SECRET LIFE OF CORAL

- Nearly a quarter of all known marine creatures live on or around coral reefs.
- Fringing reef (younger reef that protects seagrass and other habitats in the resulting lagoons) used to surround much of Mauritius; there is some barrier reef left in the south-east and 22 atolls.
- Mauritian reefs house 159 species of scleractinian or hard corals – including the delightfully round and brainy *Ctenella chagius*.
- Corals can grow as slowly as 50mm a year (the speediest kinds expand by 7cm annually). So a coral head the size of a soccer ball can take over 50 years to grow.



A CASE OF LUXURY



- Back in 1992, a boffin calculated that global tourism associated with coral reefs brought in some \$1.9 trillion. That's 27 times more than fishing industries.
- Over 90 per cent of hotels and 50 per cent of industries in Mauritius are on the coast.
- A species of Mauritian marine sponge (it looks like a blob of mashed mango) has been found to have cancer-fighting capability.
- To try save rare corals, the Mauritian Oceanography Institute is experimenting with growing species on land in 'nurseries', where the temperature and conditions can be controlled. So far, so good they say.

**It's 7AM,** the Mauritian capital's port is bustling, and marine biologist Philippe la Hausse de Lalouvière, general manager of agro-industrial enterprise Les Moulins de la Concorde Ltd, is already seated behind his desk. According to Philippe, longest-serving committee member of the MMSC, 'the initial purpose was really to provide a respite for the over-fished natural reefs around Mauritius. But to understand the history of FADs in Mauritius, you have to know the history of scuba diving on the island.'

The first divers started arriving in the 1960s, inspired by the underwater adventures of Jacques Costeau, the man who popularised diving as a recreational activity worldwide. In 1964 they established the Mauritius Underwater Group (MUG). An informal social group who shared a passion for diving, members would meet weekly in a tiny bar in landlocked Vacoas, where they would share a few drinks, barbeque and shoot the breeze. It was here, towards the end of the 1970s, that the divers first started voicing their concerns about the

degradation of the island's once pristine reefs.

'At that time fishermen could just walk into a supermarket and buy dynamite, so they did. It was a crapshoot; total carnage. Then, as the population grew, we started seeing algae domination along the west coast, and biodiversity drop off. This was because the entire island's liquid waste – all that highly nutritive fecal matter – was being pumped directly out to sea. Anchors, unmoored boats, spearfishing, shell harvesting... there were no laws protecting the environment, and it was the divers who were witnessing first-hand the effect on the reefs.' In 1979 an offshoot of MUG was formed, the MMCS, to create awareness, to lobby for some kind of protection and, if possible, rehabilitate reefs, explains Philippe.

'A number of us were marine scientists, and aware that Japan and America were spending millions of dollars on developing artificial reefs to attract more marine life. There were also a few divers working as engineers in the Port Louis harbour, and they knew that old decommissioned ships with bankrupt or absent owners could become →

FROM TOP

The more glamorous waterfront section of Port Louis, the Mauritian capital. The area has been a harbour since 1638, when French ships passing round the Cape of Good Hope en route to the East stopped off here; spiky soft coral in the sea off Mauritius – not merely attractive, soft corals are vital for building reef habitats

Additional text: Janine Stephen. Port Louis photograph: Gallo/Getty Images

CELLINI



Auberge

celliniluggage.com

a real problem for the harbour master. Getting rid of an old ship costs money, but keeping a wreck afloat in the harbour during the cyclone season is an even bigger headache. So we approached the port authorities and they gave us the *Water Lily*, a 59-year-old water tanker that they had been holding on to for sentimental reasons. In August 1980 we towed the *Water Lily* out to Trou-aux-Biches,' Philippe displays a small smile, 'with 25kg of dynamite in her hold.'

'We didn't know what we were doing,' Yann von Arnim, current scientific advisor for underwater heritage at the MMCS, and the man usually in charge of operations during scuttling, is animated as he describes their first *sabotage*. 'We just blew *Water Lily* right out of the water. Within 30 seconds she was gone!' Yann, who discovered his first shipwreck off the coast of Corsica when he was 13, retains the boyish enthusiasm that resulted in a career in marine archaeology. 'Nine months later we sank the *Emily* just 20 metres from the *Water Lily*, this time by opening valves so we didn't damage the superstructure. We love these ships and prefer to see them as underwater museums rather than torn apart for scrap metal, or sunk in deep waters.'

Yann shrugs. 'But despite the damage, the *Water Lily* has become one of our richest dive sites; extremely popular. So these artificial reefs are not just aggregating fish but attracting divers. This is really sustainable conservation. Sure, a sunken fixture will attract or perhaps even produce a concentration of fish, but catching them will only provide a once-off profit. If those same fish are attracting thousands of divers, month after month, they are making much more money in the water than out.'

According to Pierre Szalay, the dive instructor who was instrumental in documenting and presenting the MMCS's work on artificial reefs to the International de l'Environnement Marin in 1994 (for which they garnered second prize), there are currently more than 70 dive centres servicing an average 8,000 divers who arrive every month in Mauritius\*. Many centres, like Pierre's, are located just minutes away from one or more of the 16 artificial reefs dotted along the island's west coast; others clamour for the next *sabotage* to be even closer to their clients. But perhaps the most enterprising entrepreneur is the man who realised how many people would prefer to see an underwater wreck without getting wet.

Luc Billard, owner of Blue Safari, bought *Star Hope* for 150,000 rupees and paid the cleaning costs for the MMCS to sink her in 1998. By now well practised, the MMCS report reads that it was a precise *sabotage*: the 40-metre Japanese fishing vessel went down in three hours and settled neatly on her keel in her new home on the ocean bed near Mont Choisy; subsequent damage to the superstructure was wrought by cyclone Diana. As an artificial reef it is rated 'very rich', and is probably the most visited shipwreck in the world. →

\* Figure achieved from the number of tourist arrivals in 2014 of which, research has shown, 10 to 12 per cent choose to dive.



I AM ALMOST NAUSEOUS WITH ANTICIPATION AS THE SUBMARINE PILOT KEEPS UP HIS SMOOTH PATTERN, PRETENDING NOW TO BE LOST, THEN URGING HIS YOUNGEST PASSENGER TO KEEP HER EYES PEELED FOR MERMAIDS

THE DRY VIEW  
The Blue Safari sub  
visits the *Star Hope*

