



WATER COLUMN

By Douglas
David Seifert



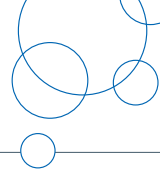
FLOW FEEDERS: crinoids and soft corals feed
in the current blowing over a Raja Ampat reef
All photography by Douglas Seifert



SAVING **THE LAST** GREAT REEFS

DOUGLAS SEIFERT

travels to Raja Ampat in Indonesia, where a British resort owner and his wife are working with the local community to enforce a no-take zone in the heart of the world's richest coral reef



From a distance, across the calm surface of the sea, you can make out what appears to be the silhouette of a giant whale, and another that could well be a monstrous nudibranch. In fact, they are rock islands: small and stout, their perpendicular cliffs are covered in dense tropical vegetation. Through the surface of the clear waters, lapping at the eroded undercut of the islands' base, can be seen an apparent mirroring of the dense growth of the terrestrial flora: this is a jungle of coral.

Although located far from just about everywhere, the secret is out: the 1,500 islands of the Raja Ampat (or Four Kings) archipelago of Indonesia, northwest of the island of New Guinea, make up the most lively, most biodiverse tropical marine region in the world.

In this remote corner of the globe, 565 species of coral (representing 70 per cent of the world's known coral species) and 1,200 species of fish thrive in clear blue waters beneath sunny tropical skies, relatively undisturbed by man. It is a glimpse of how reefs and fish populations must have been a hundred years ago.

The contributing factors for this richness are:

- millennia of stable sea temperatures, even during glacial ages when sea levels were lowered and mass extinctions occurred elsewhere;
- the very nature of the remoteness, removed via vast distances from heavily populated areas and only sparsely populated locally, which keeps the human influence – overfishing and destructive fishing practices – to a minimum;
- the diverse variety of habitats, from mangroves and intertidal zones to seagrass beds, patch reefs and coral reefs – in essence, a home for every type of marine organism; and
- its situation as a 'species crossroads' due to the geographic location of island landmasses buffering it and ocean currents passing between, bringing migratory invertebrate and fish species and their larval spawn from the Indonesian archipelago to the west and south, the Solomons Islands and Papua New Guinea to the east and the Philippines to the north.

In short, this is a place where conditions ideal to coral reef life have flourished for a long, long time without interference by man and his destructive influences.

So, what would you do if you found the most beautiful, most pristine coral reefs remaining in the world? If you are the kind of person who follows your heart, there is only one answer: you protect them. And on the small island of Batbitim, across the horizon from the large island of Misool, a small group of people is doing just that.

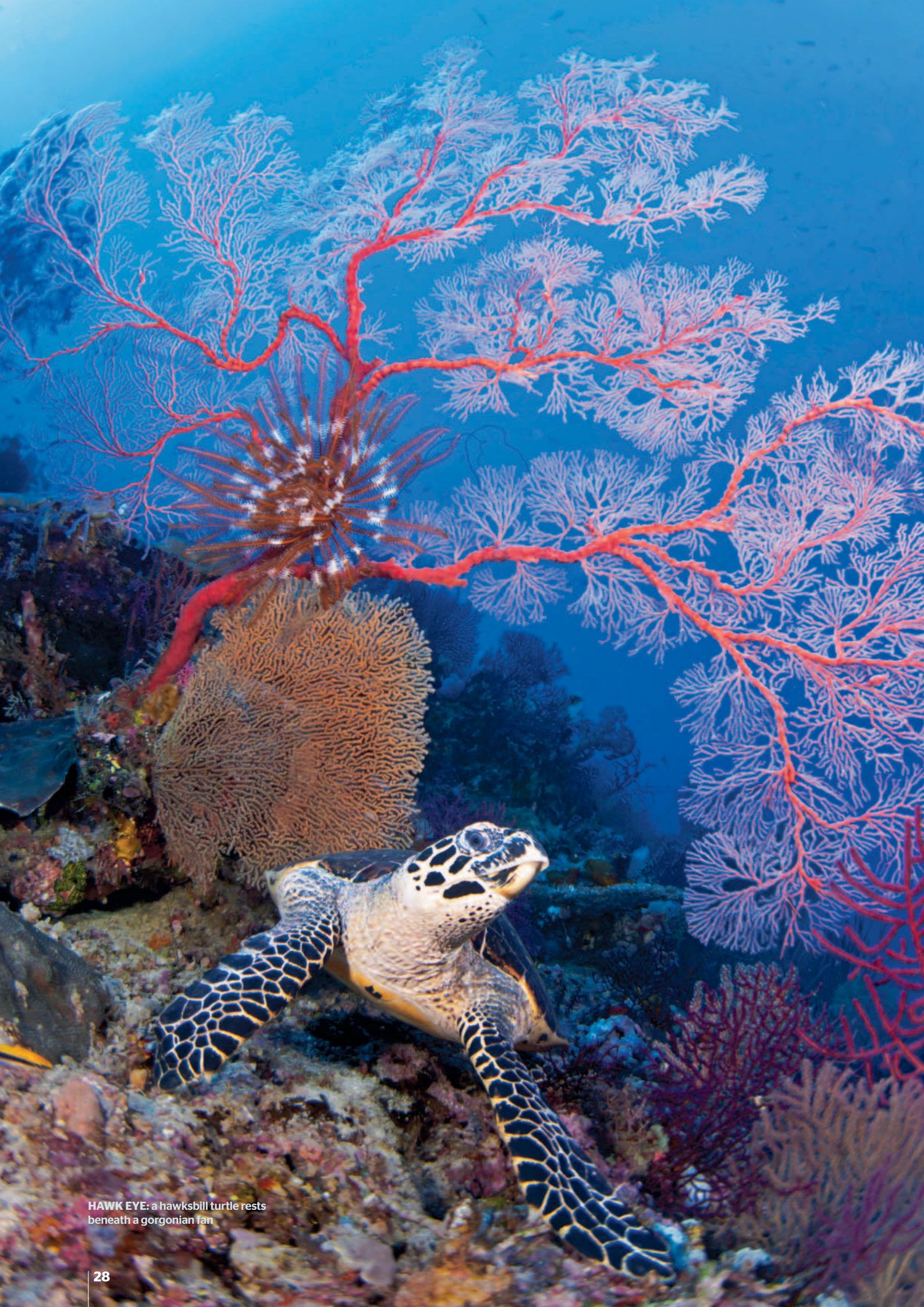
Back in 2003, British expat Andrew Miners had



HANGING OUT: a pufferfish shelters under a reef ledge

been manager and dive guide on board the Indonesian liveaboard Shakti for three years and had decided it was time to get off boats for good. He had spent a decade working in the dive industry and was ready for a change. After his years of exploring the rich reefs across the entirety of the Indonesian archipelago, he had concluded that this remote southern part of Raja Ampat was 'The Place'. He shared his idea of doing something different and his dream of preserving these reefs with his girlfriend, Marit, who was visiting from Thailand. She listened to his mad scheme, decided it wasn't too mad at all and stayed on, eventually becoming Mrs Miners.

From the start, Andy and Marit knew they wanted to do things differently, to do things right. The original plan was to open a »



HAWK EYE: a hawksbill turtle rests beneath a gorgonian fan

research and conservation centre for visiting scientists to come to study Raja Ampat's rich reefs. Funding such a project was not feasible, so Plan B was conceived: they would first build a holiday resort geared towards divers first to enable a research facility later on.

'I couldn't actually see a way to fund it,' Andy says. 'So the idea of the resort grew out of that. It was more the resort coming out of the conservation, as opposed to the conservation coming out of the resort.'

In addition to the major hurdle of finding investors to finance a highly speculative project, one of the biggest problems was that there was no (and there still isn't much) infrastructure. The area Andy had chosen to place the proposed resort was located 130 miles from the next nearest resort and the not quite cosmopolitan capital of Sorong. Still, he decided to go for it: 'build it and they will come' was his philosophy.

They knew they wanted to combine a real-world, ecologically friendly resort with an equitable partnership with the people who already lived there. The local people are politically Indonesians but culturally Papuans, and they have their own traditions.

Andy's fluency in Bahasa Indonesia served him well, and he was able to enter into discussions with the two local families who owned the islands, reefs and waters of the area where he wanted to build a resort. The island was the right size, had two lagoons, was located near many of Andy's favourite dive sites and was uninhabited, except occasionally as the campsite for transient shark fishermen. But the island alone was not enough. He wanted the reefs and fish too.

In 2005, after a year of on-site study and negotiations, he was able to negotiate a 25-year lease for not only the island, but for a 77-square-mile area surrounding the island, which encompasses many of the best dive sites. This no-take zone allowed nothing to be removed: no sea turtles or their eggs; no shark fins or sharks whole; no shellfish harvesting; no net fishing; no dynamite fishing; no line fishing. An absolute embargo on harvesting anything from the sea within this zone or from using any destructive methods to anchor. The reefs would be fully protected.

Why would the local people give away their rights to fish in these waters? Because real, effective conservation begins with local people.

The elders knew what the reefs were like in the past and how they had already declined in their lifetimes. They had seen outsiders from other islands, some from other countries, come in and remove nearly all the sharks, and decimate the larger predatory reef fish for the live fish trade. In this business, groupers and Napoleon wrasses are caught with cyanide, kept in cages until enough fish are gathered together, then shipped elsewhere in Asia, where they languish in restaurant aquariums until a customer points to the individual fish in the glass tank and it is netted, cooked and served tableside with all due speed. The elders had seen the carcasses of finned

sharks rotting in the shallows next to beaches, and the fins drying on bamboo racks spread out under the tropical sun. They experienced much lower catches of fewer food fish, and how much longer it took to catch a meal of fish than it had in the past. These outsiders plundering their waters were not respecting the locals' ownership rights and were, in effect, stealing their resources.

The Papuans have a tradition of *sasi*, which is the opening and closing of fishing seasons – the original kind of conservation measure taken at the local level for generations (and long before scientists and NGOs were even aware of Raja Ampat). The villagers knew it was in their best interests to preserve these reefs and their fish populations by implementing no-take zones, if for no other reason than their resources being stolen, without compensation, by outsiders. More importantly, it has been demonstrated by generations of *sasi* that there is a 'spillover effect' of fish moving into areas outside the protected zones that are more productive fishing grounds than anything that had existed previously.

In addition to the long-term lease to be paid directly to the two local families, agreements were made to hire most of the staff that would run the resort from the local village of Yellu, bringing employment, education, benefits and opportunity, whose lasting value vastly outweighs the economic value of fishing or even the long-term lease.



Real, effective conservation begins with local people

Once the agreement was reached with the village leaders and overseen by the *kepala desa* (or village headman) and government land-planning department, the first instalment of the lease had to be paid up front. An off-site investor provided the loan as well as start-up funds for what would become the Misool Eco Resort. A boat was purchased and rangers were trained, and the Misool Eco Resort No-Take Zone became a reality.

The local people are instrumental in running and policing the marine protected area. They have been trained as rangers and conduct routine patrols in search of any violators of the protected area. It should be no surprise that no-one is better qualified than a local who can speak the same language as any intruders, knows the territory like the back of their hand, and has not only the authority, but the vested interest to enforce the ownership rights of their own people. Often, a violator found illegally fishing simply does not know he is in a marine protected area; a simple conversation is enough to send the intruder out of the park boundaries to continue his fishing elsewhere. Other times, when it is a case of defiance and the intruders refuse to »

listen to reason or respect the locals' rights and the protected status of the area, the local police or navy can be enlisted. Thus the Misool Eco Resort No-Take Zone was implemented. The only thing missing was... the resort.

Andy found a kindred spirit in Thorben Niemann, a German journeyman carpenter, who has travelled the world learning carpentry techniques from different masters in different cultures. Together, they devised a construction plan using locally salvaged timber or repurposed wood. With a group of villagers from nearby Yellu, the pair began scrounging driftwood and fallen trees from the innumerable surrounding islands. As Thorben puts it: 'We didn't cut down any trees to build the resort.'

It was time-consuming and labour-intensive to find trees, some of which were buried below the sand on the beaches or had to be hauled over rugged terrain to get the wood out of thick forests. But in time, they found all their materials. In the end, they salvaged, by sheer physical brute force, about 600 tonnes of wood. Thorben's work is beautifully done, particularly his construction of the dining hall mandala roof, made of 12 ironwood posts precisely hewn and aligned with extreme care, so that without even using any nails, they support the weight of the thatched roofing material. The idea was to achieve a balance between using natural, environmentally appropriate materials and energy efficiency, so the cottages have high roofs to minimise heat buildup and are made of thatch because it is a highly efficient insulator.

The work was difficult and unrelenting, with daily challenges to be overcome. Only perseverance and teamwork made the project possible. But all work and no play leads to its own difficulties, so whenever possible, which never seemed often enough, the team would take some time off to go diving and explore new reef sites for the as-yet unfinished resort.

The waters around Batbitim yielded constant discoveries of interesting geological formations, beautiful reef structures and an exuberance of coral, fish and invertebrate life. They found sites such as Gorgonian Passage, where scores of enormous sea fans wave as divers drift with the incoming current, or Magic Mountain, where a manta ray cleaning station provides reliable manta sightings, and Birthday Cake, which looks like the best dessert ever with an orange soft coral icing covering all surfaces.

Shark sightings continued to be scarce, other than the relatively common wobbegong sharks and the so-called 'walking shark' (which briefly became a media darling a few years ago when news of its discovery caught the brief attention of the world) – or epaulette shark – found on

“The waters around Batbitim yielded constant discoveries of life



OCTOPUS' GARDEN: a reef octopus surveys its coral kingdom [top]; a damselfish flits around a gorgonian [above]

night dives. The other exception was, oddly enough, in the lagoon where the resort was being built. Although once the site of a shark-finning camp, juvenile blacktip sharks seemed drawn to the sandy, shallow lagoon.

Within three years, the first cottages and the dining room were completed and Misool Eco Resort was officially opened. Word of the great diving and the elegant resort began to spread. Construction and improvements are ongoing and the resort is expanding to meet the demand with more bungalows and infrastructure, all the while keeping the ecological footprint to the »

barest minimum. Plastic is banned from the island if it only has a one-time usage, though the island has its own freshwater well and a desalination plant, while waste water is recycled in garden treatment systems.

As exploration of the reefs continued further and further from the resort, Andy and Marit's attentions became focused on a group of islands to the east called Daram. The islands, an hour away by speedboat, are uninhabited, but serve as base camps for itinerant fishermen from distant islands, such as Sulawesi or mainland Papua. Mostly they use the islands for drying shark fins, though that catch has declined precipitously in the past decade. There was evidence of other types of destructive fishing practices as well.

Below the surface, the reefs are teeming with an explosion of colourful, abundant fish and hard and soft corals to rival the rich sites around Misool Eco Resort. However, by watching the fish populations and conducting an informal census, it was obvious that many of the predatory species, besides the sharks, were underrepresented on such an apparently healthy reef. Napoleon wrasse, groupers and snappers were not in the numbers they should have been. The conclusion was evident: the live fish trade was active at Daram. If that wasn't bad enough, the discovery of a bottle filled with a caked chemical powder confirmed another alarming threat.

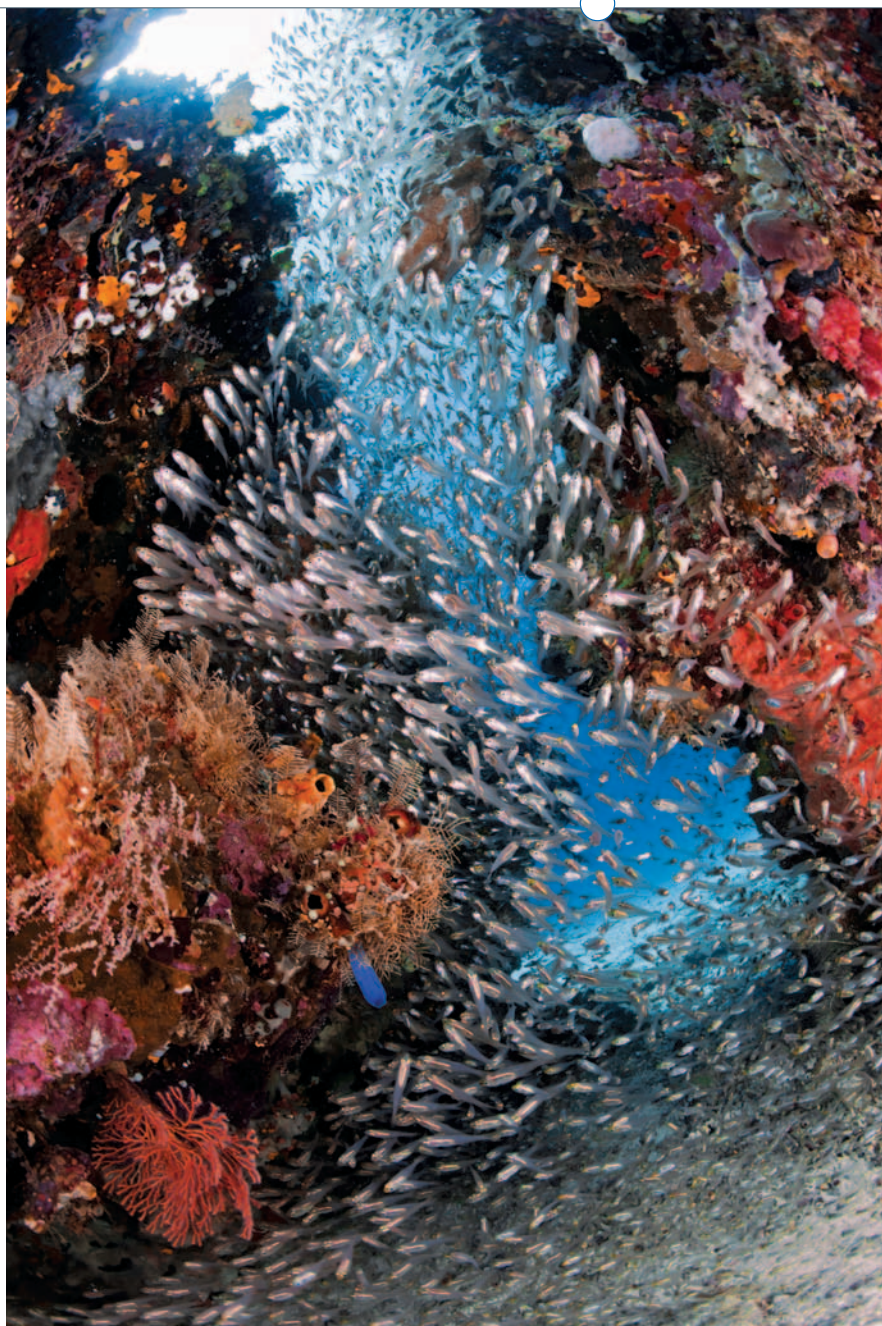
Dynamite or blast fishing is highly effective at killing fish – and everything else within the blast zone. Entire reef communities, hundreds or thousands of years in the building, are levelled in a single blast, reduced to lifeless rubble from which recovery is painfully slow. There are vast areas of Indonesia where the reefs lie in ruin, now able to support only a handful of species.

Andy and Marit decided that they had to extend the protected area, which has proven so successful around their resort, to the Daram Islands. The rightful owners of the islands – three families from two villages – have been identified and are as well aware of the prosperity that the Misool Eco Resort has brought to the villagers of Yellu while protecting their marine resources. They have expressed their keenness to introduce a system duplicating Misool's no-take zone, which would entail their training and employment as rangers.

The process is ongoing. Logistically, what is required is a long-term lease with the owners, which has been agreed to pending funding and the construction of a manned ranger station, a patrol boat, fuel and supplies and rangers' salaries. The challenges are largely economical, but not overly expensive. By Western standards, money goes a long way in eastern Indonesia.

The proposed Daram Marine Protected Area would link up with the Misool no-take zone and create a 1,200 sq km (463 square-mile) marine reserve, one of the largest in Indonesia. It must be enacted and funded now. ●

- A special 'thank you' to Andy and Marit Miners and Thorben Niemann of Misool Eco Resort (www.misoolcoresort.com), and to dive



Andy and Marit decided they had to extend the protected area to Daram

CLASS ROOM:
a school of glassy sweepers occupies a coral cavern

guides Lauren Siba and Sangut Santoso, rangers Abdul, Jainudin and Bapak, and all the staff for showing us the beauty of Misool and Daram, and to Shawn Heinrichs of Blue Sphere Media (www.bluespheremedia.com), who tirelessly spreads the word about Misool and Daram. Thanks to Maurine Shimlock, Burt Jones and Jos Pet of The Seven Seas (www.thesevenseas.net) for getting us out to Daram. The Misool Conservation Centre is a UK-based charity – for further information, visit www.misoolcoresort.com