

To live with the sea in Madagascar

BY GARTH CRIPPS

Conserving coral reefs is challenging anywhere in the world, but perhaps no more than in South West Madagascar. The Vezo – the traditional fishermen of the area – are amongst the poorest in the world. In this arid and remote region, they rely on fishing for food and money. Their population doubles every 10 – 15 years, and with no other means of survival they have overfished stocks to the point of collapse. This over-exploitation, combined with climate change and sedimentation from up-stream deforestation, has led to the widespread degradation of coral reefs. The very resource on which the Vezo depend is in steep decline.

To help prevent its demise, they must establish fishing reserves – areas of reef left untouched where fish stocks and the ecosystem can restore themselves over time. But how can they countenance closing areas to fishing when most depend on fishing these reefs for their daily living?

Yet today, 6,500 people from 25 villages have come together to create a marine protected area (MPA) that spans 650 km² and includes permanent and temporary fishing reserves. The protected area is called Velondriake – to live with the sea in Malagasy. It has become a highly-regarded community-managed MPA, honoured by the IUCN/UN Seed Award and the UNDP Equator Prize. Through it, local people have not only increased the productivity of their fisheries, but have also conserved the extraordinary marine biodiversity of the area. Blue Ventures – a British social enterprise that helped local people to establish the MPA – has created new ways for fishers to earn money through growing seaweed and sea cucumbers. The fishing reserves and aquaculture are supported by partnerships between Velondriake and private enterprises, which were brokered





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Left Page: A fisherman on a reef flat the day of the opening of a temporary fishing reserve. Most young men will dive for larger octopus on the outer slopes of the reef; women, children and the elderly glean octopus on the reef flat at low tide using two spears to tease the octopus out of its den.

Top: Madame Coco of the Andavadoaka Women's Association shows sea cucumber juveniles. Villagers raise the juveniles, which come from a hatchery, in their own pens and then sell them back to the supplier once they are adults.

Bottom: A Vezo fisherman holding a barracuda which he caught at night with a hand-line. The isolation of Velondriake means that fish are normally salted and dried, then sold to middlemen for a pittance. Only octopus keeps fresh long enough to be trucked out on ice to the nearest town, 180 km south.

by Blue Ventures. Velondriake and Blue Ventures are now building an eco-lodge on land set aside by the community. It will accommodate the 5,000 tourist bed-nights a year that Blue Ventures already brings to the area, generating income for the running of the MPA and the development of the community. Blue Ventures also provides women in the remote villages of the area with



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contraception, as well as pre- and post-natal medical care. Scholarships created by the project have enabled more than 200 children from particularly poor households to go to school. Some of the first children who had scholarships for primary school are now attending university with the project's support. More than just using the MPA to effectively husband natural resources, it serves as a framework to develop new livelihoods and to tackle the social challenges that residents face.

How did they achieve this?

For the Vezo one species dominates the fishing economy: octopus. Ten years ago, fishing was mostly for subsistence,

with only surplus catch dried for local sale. However, commercial exporters began buying seafood in the region in the early 2000s and quickly increased the price for octopus. This new demand greatly increased fishing, to the point where it threatened the viability of octopus stocks.

In 2003, the village of Andavadoaka began working with Blue Ventures to see how they could stop the decline of octopus stocks. We suggested they use temporary fishing reserves. After about a year of building consensus for this and establishing a traditional law to ensure it was respected, the community closed a 200 ha reef flat to fishing for seven

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months. Importantly the fishing reserve was also supported by Copefrito - the principal seafood exporter of the region. When this first temporary reserve was reopened, the octopus that fishers caught were double the weight compared to those caught prior to the reserve, and they caught many more. The fishing reserve had increased fishers' earnings and inspired neighbouring communities to establish their own. By October 2006, 22 villages neighbouring Andavadoaka had established their own temporary reserves. The very real benefits that the temporary reserves brought to fishers galvanized them to go even further in managing their marine resources. They established permanent reserves protecting coral reefs, seagrass beds and mangrove forests; and outlawed destructive fishing methods. These actions formed the foundation for a fully-fledged community-managed MPA, consolidating these efforts into a coherent management structure: Velondriake was born.

The government of Madagascar used the results of the octopus reserves to

create new national regulations for the species, and over the last seven years Velondriake's model for octopus fisheries management has spread far and wide. Today, communities over 300 km of Madagascar's southwestern coastline have put into place over 100 short term reserves. Fishers from elsewhere in Madagascar, as well as Rodriguez and the Comoros, have come to Velondriake to learn about the reserves.

Fisheries data collected over the last seven years has shown beyond doubt that the temporary fishing reserves bring higher earnings to both traditional fishers and seafood exporters alike. Indeed, Copefrito (the principal seafood exporter of the region) recognises the commercial value of the reserves and has agreed to pay villagers who implement them a higher price for their octopus. This market demand now strongly motivates fishers to carry on with the reserves – an internal, economic incentive is driving community conservation.

In 2010, Blue Ventures began the long process of putting the fishery through assessment for Marine Stewardship

Council certification of sustainability. This certification will increase the value of the fishery, providing further incentive to each actor in the supply chain to maintain the fishing reserves.

In addition to the long-term conservation of fisheries, a key part of Blue Ventures' work in Velondriake is a sustainable aquaculture program that works with residents to farm seaweed (*Kappaphycus alvarezii*) and grow sea cucumbers (*Holothuria scabra*) for international export. Sea cucumbers were once abundant in the wild, but the high price they fetch in Asia has driven their overharvesting. Southwest Madagascar's extensive seagrass lagoons provide an ideal spot for raising sea cucumbers, and the nearby city of Toliara is home to one of the only commercial hatcheries in the world. Blue Ventures has worked in partnership with this company – Madagascar Holothurie – to develop village-based sea cucumber farming, as well as to ensure the purchase of adults for export.

Similarly, the seaweed aquaculture that Blue Ventures has developed involves



An elderly lady with an octopus that she has just speared. The water is discoloured by the ink the octopus released to try to hide itself. Octopus fishing on reef flats is particularly important to women and the elderly. Even if they do not have a sailboat or nets needed to fish further out at sea, they can still earn money by gleaning octopus on reef flats accessible by foot at low tide. This also makes octopus prone to overexploitation.



Bic Manahira from Blue Ventures meets with fishermen in Velondriake to discuss implementation of a far offshore fishing reserve. Most of BV's staff, like Bic, are local Vezo.

a strong partnership with a private company and exploits an existing market demand. Seaweed is grown on lines in shallow inter-tidal zones off the coasts of several villages within Velondriake. The crop is harvested after six weeks, dried, and sold to the export company.

While the principal aim of farming seaweed and sea cucumbers is for local fishers to make money, both provide an alternative livelihood to fishing, as well as generating benefits for the wider marine ecosystem in themselves.

Blue Ventures and Copefrito are promoting the octopus reserves, MSC sustainable fisheries certification and village-based aquaculture beyond Velondriake to the larger region. Together, they are contributing to the development of a regional green economy, giving conservation a chance to succeed in the long term.

Women in Velondriake give birth to 6.7 children on average. If unabated, population growth will outstrip the capacity of what is a fragile and already degraded ecosystem to sustain a fishing-dependent population. Blue Ventures' family planning and community health programme provides reproductive health

services and supplies to the Velondriake villages. Women are able to choose when and how many children they have. Not only do smaller, healthier families reduce pressure on the area's fragile natural resources, practicing family planning and improving household sanitation can also increase family welfare. For example, mothers have more time to contribute to household income and are less physically burdened by multiple, closely-spaced births. Likewise, families with well-spaced, healthy children often save more money and ensure that all children have adequate nutrition, clothing, and fees for school.

Velondriake protects only 45 km of Madagascar's 5,600 km long coastline. If ecological processes and fisheries (and the people and businesses who depend on them) are to be sustained, 30% of coastal ecosystems must be protected. Anything less than this will not stop their decline. Our challenge is to achieve this level of protection over the next five to ten years. Blue Ventures is working with a range of partners to replicate the Velondriake model, leveraging the power of social enterprise so that the vision of protecting an ecologically meaningful

proportion of Madagascar's coastal and marine habitats is fulfilled before it is too late. ●

GARTH CRIPPS has spent the last five years working in Madagascar with Blue Ventures, mostly in South West Madagascar. He has a strong interest in the human story behind conservation and has studied the migration of traditional fishers to the remote Barren Isles. He previously worked in Gabon for the Zoological Society of London. Currently he is building Blue Ventures' blue carbon programme, with a focus on mangrove REDD+.

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