

WRITTEN WITH BLUE INK

STORIES ABOUT THE CONSERVATION
OF THE MESOAMERICAN
REEF SYSTEM

*Written with blue ink: Stories about the conservation of
the Mesoamerican Reef System*

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ISBN 978-9929-40-711-4
Printed in Guatemala.

This book was written with the support of the German Cooperation through
KfW.

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INTRODUCTION

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Field projects supported by the Mesoamerican Reef Fund (MAR Fund) need to be systematized, documented and narrated to spread success stories and share lessons learned from failures. The scope of activities conducted in protected areas has been greater than expected, and key players have identified their benefits, and how they have contributed to the development of their areas.

Sharing success stories through the eyes of persons operating in the area (field implementers) is key, since it is a way to creatively communicate project accomplishments. For that reason, with the support of the German Cooperation through KfW, the German Development Bank, MAR Fund hired the services of an expert in social and environmental narrative, Adriana Navarro Ramírez, who traveled to the four countries where Phase I of the Marine Resource Conservation in Central America Project took place, and interviewed key players there during the months of June and July 2017. With the interviews and her experiences in the areas, she compiled, in the form of stories, the outcomes and effects of the project on people responsible for the Mesoamerican Reef System (MAR).

Adriana Navarro Ramírez, who has a degree in Communications, has worked for 17 years in media outlets as a journalist, co-editor and editor. She has been in charge of Communication Departments in public and private organizations and is convinced that communications and education are key to the economic and social development of communities. Adriana's main interest has been to promote human rights, culture and respect for the environment, in order to help improve the quality of life of urban and rural communities in Mexico and of society at large.

Here are the stories collected in each of the areas protected by the project in Mexico, Guatemala, Belize and Honduras. It is a journey to the geographies that frame the Continental Caribbean and where readers will find a fascinating testimony of hope and an example of change.

WRITTEN WITH BLUE INK



I am Adriana Navarro Ramírez, a Mexican national who enjoys writing, collecting words and engaging in lengthy conversations. In addition, I nurture my obsession to travel, and I try to construct and deconstruct myself every day. I profess profound respect, love and admiration for my country and for Latin America, a geographic space of contrasts, of endless hope, honest smiles, inequalities, struggles and revolutions, unequal landscape and home to impressive natural and cultural wealth.

I have been a journalist most of my professional life. The search for peace, justice, the promotion of art, culture and human rights motivate me to write, but I am comforted by giving a voice to the oppressed.

I never thought that the day would come when I would also write for nature and its powerful ensemble of species that form a mosaic of diversity, color, landscape and flavors which are all closely linked to human wellbeing.

This publication is made up of eight stories that render witness to a journey throughout the Mesoamerican Reef region, a journey that transformed my heart with marine hues, lit it like the Caribbean Sea, and turned it into a blue heart.

All eight stories, two for each one of the countries that share the Mesoamerican Reef System: Mexico, Guatemala, Belize and Honduras, describe the efforts of common people, civil organizations, groups of scientists and government officials in favor of conservation and the good use of natural riches, a vital pillar of economic and social wellbeing in the Continental Caribbean. These efforts were financially and technically supported with resources contributed by the German government and other national and international donors to the Mesoamerican Reef Fund (MAR Fund). The projects, put together in a regional conservation program, were carried out between August 2012 and March 2017.

The journey begins in the state of Quintana Roo, Mexico, in the Yum Balam Flora and Fauna Protection Area, which is approximately the boundary of the Mesoamerican Reef System in the north. I tell of the disappearance of fish and the response from fishermen who, in the good sense, become complicit with the sea to ensure that it remains a source of wealth and sustenance. I also share what happens when you look to the sky and discover community bird watching, a creative and virtuous ever-growing source of employment.

The first story, “The Guardians of Yum Balam”, is a collective reflection on the importance of caring for natural resources and biodiversity which, organized in a particular way in reef barriers, seagrasses, mangroves and coastline dunes, are our allies to face the attack of meteorological phenomena, increasingly intense due to the effects of climate change.

The second place that I visit is the Holbox Island and its marine immensity. The island is in the Northern Coast of Quintana Roo and the whale shark lives in its waters, in the area that ecotourism service providers know as El Azul.

I describe the docile giants and the efforts by fishermen, service providers and authorities to regulate watching them and swimming with them, and to ensure the presence of the whale shark in the long term. I plunge into the Caribbean Sea and spend a morning in the ocean, swimming with the largest fish in the world, a unique and amazing experience that borders on the spiritual, and that completely changes the way I perceive the sea.

I finish the second story: “Descending to the immensity of the whale shark” with an interview inland, in Holbox, of a Colombian woman who has adopted Mexico and has been adopted by the country, and who has taken ownership of the commitment to classify and recycle trash in the island, in addition to setting up a new wild and domestic animal sanctuary.

My third destination is the Punta de Manabique Wildlife Refuge (RVSPM in Spanish), in Guatemala, where I interview rangers, defenders of that paradise, and I tell of their efforts to reduce deforestation and soil use changes, and of the way that MAR Fund supported the provision of equipment for the refuge. I finish the third story, “The barefoot heroes of Manabique” with a brief thought about sharing with the children of rural schools, about the concept of natural limits, and about the surprising common commitment to preserve lands and waters and to give children and future grandchildren the opportunity to survive.

The fourth site, that marks half of the journey, is Puerto Barrios. The intention is to document, through interviews, the opinion of La Graciosa community leaders, who are determined to recover the formerly abundant marine life of the area. Poor weather conditions prevent us from sailing to our destination, but does not diminish the richness of our interviews with other fish guardians who wish the “Transformation of the Guatemalan ocean” and

dream of nets that don’t harm the resources but which help them live with dignity. Like in so many other places of Latin America, the evidence and the messages conveyed through the interviews point to the need for government and citizens to join efforts in participatory processes to define more equitable fishing management models.

I continue my journey and reach the fifth site, already in Belize, where I meet Co, the mountain spirit, and I have the privilege of interviewing him about the gift that he has with plants and trees. I speak with him about Xucaneb, the sacred mountain, transformed in practice into a civil society organization that promotes tree planting. I document the extraordinary work of the Toledo Institute for Development and Environment (TIDE), one of whose objectives is to generate revenues for communities through sustainable activities and the co-management of forest and marine resources of Port Honduras Marine Reserve. In this place I have an unusual experience when I enter the night jungle, and darkness and sounds make me think that huge felines will devour me during the night. Luckily, a group of women rescue me from my torment.

Also, in Belize, in Punta Gorda, Toledo District, I encounter Víctor, a young diver whose soul and heart are keenly set on caring for the sea. “Instructions to fall in love with the Ocean” outlines the creation of the Community Researchers Program that TIDE promotes and Victor participated in, and through which he learned with other youths to interpret important data under water. It is a program which practically involves people in the care for the reef system. Victor discovers new skills, and experiences a radical transformation as a human being.

Celia and Joe, who lead TIDE conservation actions, tell how they have cared for the natural reserve of Belize for the last 20 years and of the programs that they have implemented to protect ecosystems. To me, they are an example of how, day after day, challenges are overcome, how their daily struggle is real and how, with will, intelligence and commitment, they find guidance to survive any wreck, whether at sea or land.

I finish my journey in the island of Roatan, in Honduras. It is a destination where the best things happen under water, and which allows me to interview the submarine heroes that protect the treasures of the island with an innovative campaign anchored in the pride of locals. The support of MAR Fund in the Roatan island made it possible to train a new generation of expert local divers that use their new subaquatic skills to operate responsibly as diving guides and to promote the reef's conservation. The Protect our Pride Program (POP) bets in favor of people and the huge power to bring about change that communities gain when they organize around a cause. What better place than Roatan to catch the spirit of divers and dive into open waters for the first time? That is why the story is called "Anything to be under water", a concept that I understand as unreachable only now: to float in the blue, full-of-life eternity hidden by the surface. I promise to come back.

My last stop focuses on the land environment of Roatan. I document the challenges and accomplishments of the Bay Islands Conservation Association (BICA) in its education program for children. After a remarkable arrival in the facilities of a green classroom, I confirm that the concept of social fabric exists, and that the people at BICA weave a unique network of wealth focusing on people, mangroves, coral, fish and the proud canopies of green palm trees. I spend two days of vast learning with volunteer youths of the mangrove and with the Group of Artisan Women of Roatan (AWR) who,

just like BICA, received resources from MAR Fund for technical and administrative training in the area of craft-making. "The hands that weave palm trees" is the result of that training.

Thus, after more than three weeks of adventure, hundreds of conversations with impressive persons, twenty dawns and twenty sunsets, I was transformed.

The stories of hope shared by the communities in Mexico, Guatemala, Belize and Honduras, in cooperation with MAR Fund, show the best of mankind in caring for nature.

For those of us who live in distant skies, these stories are, to paraphrase poet Fijman, new visions of land and sea; of bows and stars and sunrises. They pluck us out of grey streets and our monotone habits of civilized men and women.

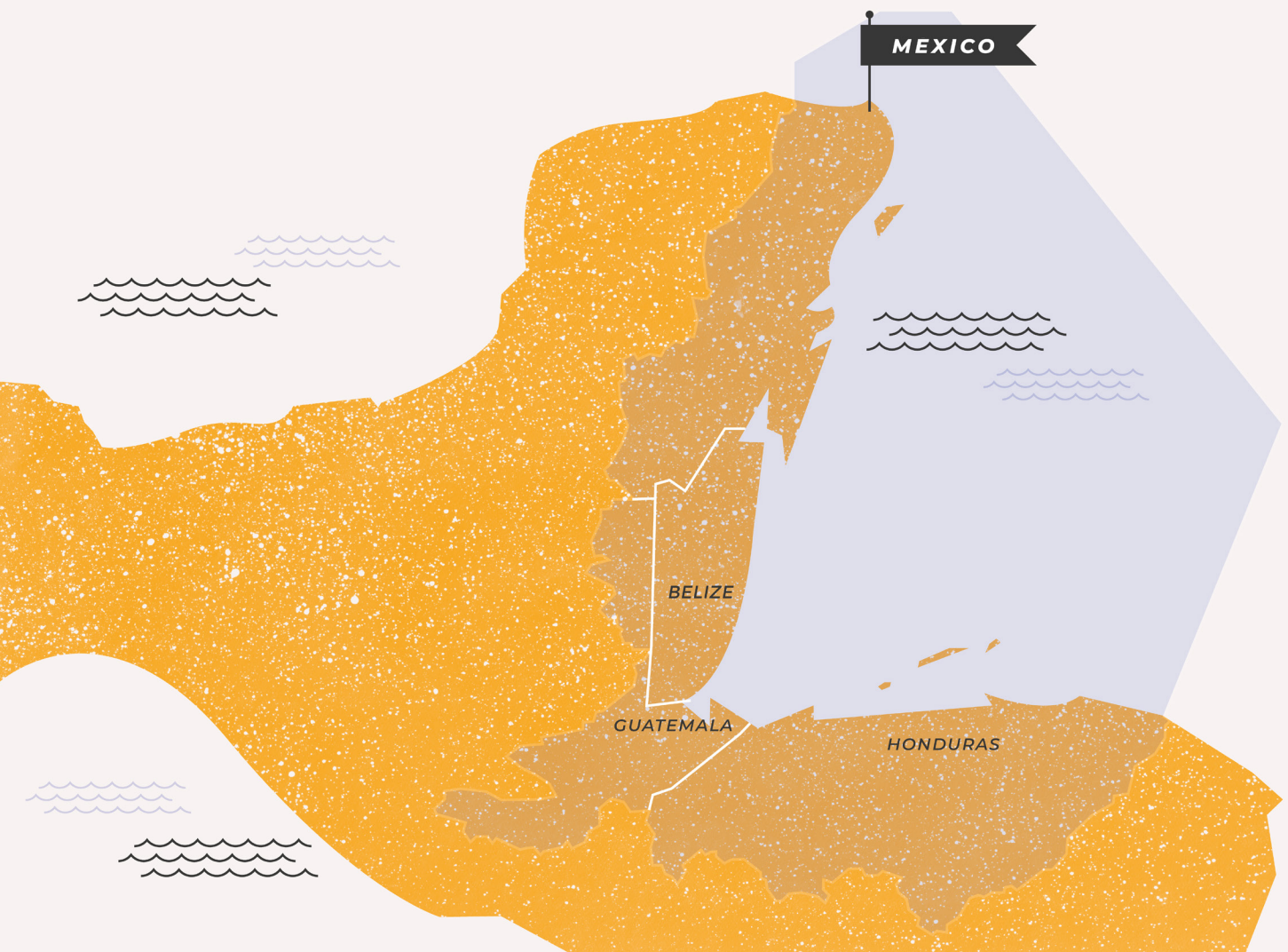
Now, far from the region, in a city in western Mexico, I complete the stories and wonder what comes next. I recognize the greatness of the people I met, dedicated in body and soul to bringing light to regions affected and darkened by destruction and abandonment, and transforming them into spaces of light that preserve life. There is so much to do and so much human and natural wealth that can align in favor of common good in this privileged region that I see no more option than to join this legion with my skills and my new blue heart.

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Lorenzo J. de Rosenzweig

MEXICO



THE GUARDIANS OF YUM BALAM

*One day, the offspring of the jaguar will rise from their lethargy
and claim the land that was seized from their ancestors.*

Maya Prayer

At Yum Balam, the entire sky is of a gleaming blue. It is a place where green stands out, and is dotted by palm trees. The name of the region dates back to the ancient Maya and means Señor Jaguar (Lord Jaguar).

In the worldview of the ancient Maya, the jaguar was known as the lord of the jungle, symbol of ferocity and greatness because it faced the forces of the underworld to resurface victoriously at dawn. It is likely that this belief has its origin in the jaguar's habit of hunting at sundown, during the dark of night and in the early hours of the day.

For the ancestors of today's inhabitants of the region, Yum Balam was the site of divine force, under the domain of the Sun and the Moon, the territory that has the power of things in heaven and earth. The Yum Balam or Señor Jaguar region is located in southeastern Mexico, in the state of Quintana Roo, in the municipalities Lázaro Cárdenas and Isla Mujeres. It covers 152,052 hectares of paradise, formed by an impressive bluish-green sea, rainforests, mangroves, estuaries, large flood areas, coastal lagoons, wetlands, coastal islands and corals.

If you get on a boat and go deep into the blue for a couple of hours, you can see, close to the coast, loving manatees that protect their young; and already offshore, you will appreciate the acrobatics of dolphins; turtles swimming in shells that are over one meter long; lonely stingrays that decorate the reef; and whale sharks that take their imposing ten-ton bodies to the surface in search for plankton to eat.

Other marvels live in the jungle where the palm trees and cedars intercept the intense sun rays: endangered animals such as jaguars, ocelots, spider monkeys and various species of parakeets and parrots. Also living there, in the depths of the jungle, are white tail deer, racoons, badgers and white-lip peccaries.

And when you look to the sky you see a large variety of birds gracing the sunset: elegant frigate birds, white ibis, boat-billed heron, Guiana cock-of-the-rock, gulls and cormorants. In the horizon you see pink flamingoes, passing the time on sand banks; and your ear perceives swallows, as if the wind brought their song from the mangrove.

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Lorenzo J. de Rosenzweig



“Very few areas of the world bring together a number of ecosystems in the same site” says José Juan Pérez Ramírez, Director of the Yum Balam Flora and Fauna Protection Area.

However, this unique and mystical biosphere has been exposed to serious ecological loss due to strong demand by developers who build more and more condos, hotels and restaurants, because of lack of surveillance on the part of authorities, due to violation of the laws and due to economic and political pressures.

Fortunately, there are guardians who defend the harmony of the habitat to make sure that Yum Balam will resurface victoriously each dawn. And those guardians are the people.

THE FISH THAT DISAPPEAR

When lobsters, snappers, groupers, gray mullets, snook, squids and the rest of the fishing resources stopped swimming in the sea surrounding the people of Chiquilá, when they were no longer seen along the coasts of the Holbox Island (both locations belong to Yum Balam) fishermen worried.

They organized a committee, spoke among them, and to the community owners of San Ángel, Solferino and Kantunilkin (names of the other communities that live in Yum Balam) and, among all of them, thought of ways to protect the community area of the tragedy that was destroying their fishing assets.

They convinced the municipal president to listen to their requests, took their proposals to the Governor and then, thanks to their persistence, were heard by the president of the Republic.

It was thanks to them that Yum Balam was officially declared flora and fauna protection area in 1994.

José Juan Pérez Ramírez, in charge of the protection of the area for the National Commission of Natural

Protected Areas (Conanp), explains that when fish capture volumes drop, efforts to catch them increase.

A long time ago, fishermen worked with 10-mesh nets (measure of the mesh opening that light goes through) and fished up to six hundred kilograms per night. Now, they fish farther out and use 20 to 30-mesh nets (smaller mesh openings) in order to accomplish the same capture volume. When they use these nets, fish juveniles, mollusks and crustaceans, which are of lower commercial value, become trapped, and even worse, fishermen affect the natural productivity of the resource because it does not reach commercial size. “In the past, you could find three-kilo lobsters and now, maybe only one and a half kilos” José Juan Pérez Ramírez says.

The problem is further compounded when fishermen violate closed seasons and thus interfere in the reproduction of the species and affect the potential abundance of commercial varieties such as snappers, groupers, snook or lobster.

It doesn’t help either that restaurants ask for small lobsters because, presumably, they taste better. Demand for baby lobsters causes fishermen to catch them despite the closed season, Pérez Ramírez adds.

And it is that unfortunately, at Yum Balam —like in other regions— some people get up from their hammock thinking that there is no more law than theirs, and therefore, drunk on money and without awareness of the value of collective assets, they violate the greatness of our *Señor Jaguar*.

COMPLICIT WITH THE SEA

A few kilometers away from the waves, José Antele Marcial, a dark, short fisherman who came to the Chiquilá region more than thirty years ago, tells us, at the living room of his home, surrounded by old trees, that he as well as tens of families, left Veracruz in the eighties to come to the virgin territory of Yum Balam.

“We came to Chiquilá 33 years ago in search for fishing. The fish had left Veracruz, and that is why we came here. Shortly thereafter, we organized in fishing cooperatives. Here, ninety percent of the population engages in fishing”, José Antele, known by the people as Chepe, tells us.

Chepe knows the geography of Yum Balam like the palm of his hand, since he worked with the federal authorities to regulate community-owned lands. In his wanderings, Chepe witnessed the growth of the population with persons, not only from Quintana Roo, but also families from Yucatán and his neighbors from Veracruz. They all came attracted by thriving fishing.

Quite tanned and with the cap way down to his eyes, Chepe explains that today they have seven fishing cooperatives and three that operate with permits that are organized to respect closed seasons and share the fishing wealth.

Chepe, who lives surrounded by the sea breeze, draws from memory the bad times he had in Veracruz —the coast where he was born— where artisanal fishing collapsed due to clandestine activity. He knows that combating illicit fishing in Yum Balam

is harder because there is no management plan for the area, meaning that there are no clear rules to plan development or to demand that government agencies, fishermen, businessmen and community members define their obligations regarding access to natural resources to thus meet their citizen obligations.

Without a management plan, the jungle is subject to excessive tree logging; mangroves are filled; construction without permits takes place; closed seasons are violated; and those behaviors are not sanctioned. “There are people who resist the publication of the management plan because there is a lot of money involved”, he says while he rests his gaze on his bare feet.

In such conditions, Chepe is keen on nurturing a will to balance the ecosystem in Yum Balam, and states that institutions like the Mesoamerican Reef Fund (MAR Fund) are key partners to fulfill his dreams.

MAR Fund is a non-profit civil society organization that was created in 2004 from a participatory and inclusive design promoted by four national environmental funds. Its mission is to protect the Mesoamerican Reef System (MAR), that is,



Lorenzo J. de Rosenzweig

approximately one thousand kilometers of Caribbean coast in México, Guatemala, Belize and Honduras, through funding and technical support with a regional vision.

“They worry about us at MAR Fund. They struggle to ensure that we have some financial resources and that is appreciated. Thanks to MAR Fund project we have two engines for the boats, plus one new vessel. With it, we have already toured the shark whale area twice to promote respect for the rules”, he adds, with a clear, pride-filled voice.

He adds that the project provided equipment for an office to improve surveillance in the area, and offered leadership workshops to ensure participation of the people in activities that will improve care for natural resources.

“I believe that they, like I, have conservation in their soul. In Veracruz, I never had the luck to know dolphins, manatees, deer or turkeys, but when I got here, I saw the wealth of our biodiversity. For that reason, the area needs to be cared for”, he explains with coastline serenity.

Close to don Chepe’s home, in front of the ocean, William Aguiñaga Chay, President of the Chiquilá port cooperatives, wears a white shirt that sticks to his chest like the bow masks that tear the sea breeze, and explains that before MAR Fund donated the engines, poachers would get away. “With the engines donated by MAR Fund, we catch them on the first try. With them, we have achieved very important results: we seize skiffs that transport smaller fish and we have expanded the inspection and surveillance area up to Cabo Catoche”.

Surveillance is dangerous work, says Aguiñaga, for those who are caught breaking the laws attack community guards. “They get close to our boats, tie themselves to stern and drag us to sink us. That leaves us no choice but to cut the ties. We see with sadness that the National Commission of Natural

Protected Areas (Conanp), the Federal Environmental Protection Agency (Profepa) or the National Commission of Fisheries and Aquiculture (Conapesca) do not go out to patrol. Maybe because they do not get paid much, or because they have no money for fuel”.

But he insists in saying that thanks to the vessel with new engines, they can now take two navy officers, a ranger, a Port Captain officer and two crewmembers with them. “Six persons to guard the area is a great accomplishment” Aguiñaga says, satisfied and full.

“I am very thankful to organizations like MAR Fund that support us and think of our future. The only way to survive in this environment is by taking care of it, protecting it and giving species the opportunity to reproduce”, he concludes and smiles under the bright shower of moon rays.



Adriana Navarro

LOOKING TO THE SKY

When the entire jungle murmurs, birds take flight at Yum Balam, and some stop to look to the sky to enjoy air acrobats, take note of their colorful wings and memorize their song.

You can see Francisca Anteale by the side of a swamp, a 25-year-old young woman who patiently watches the winged beings. Tens of children have joined her in her passion, and go out with her, explore the species in their habitat and train their ear in bird language.

Young Anteale, whom people call Chica, says that her love for birds comes from when she was a child: "If you live in rural areas, you cannot avoid hearing the song of birds. Back then I did not know who they were; they had not been introduced to me".

Of her own initiative, Chica enrolled in the Community Bird Monitoring Network of the National Commission for the Knowledge and Use of Biodiversity (Conabio) and then registered to be an instructor in the Sal a Pajarear (go out birdwatching) program.

"Birds are not something that you learn about overnight. You need practice, liking them, and patience. When you hear a song and you do not know who it is, you wait until you see the bird; when you have it in front of you, the feeling is much like when you are introduced to a person by name. I try to share that feeling with the children, without saturating them with too many data, so that they will not lose interest in the recognition of species", says Chica, with a gaze that penetrates your soul.

Cheila Loeza lives in Chiquilá and recently celebrated her tenth birthday; she is one of the girls that joined the birdwatching tours. She says that the cinnamon-color hummingbird and the black toucan were some of her favorite in the last birdwatching outing. "I would tell children that want to kill birds that they are wrong, because birds are important in the ecosystem: they help plants to grow because when they eat fruit, they spread seeds for the jungle to regenerate naturally. In addition, some birds control

mosquito pests", she says, with a very serious face, as she pushes her black hair back, while she takes care of her little sister who has not yet learned to talk.

For Chica, chipes or bijiritas, small, 13-centimeter birds that cross the Gulf of Mexico to find shelter from the cold in the United States and Canada, are some of the species she finds most surprising, since they fly over kilometers of sky in search for the sun of Yum Balam.

Chica Anteale says that the people of her land are privileged to see several types of environment: beaches, mangroves, swamps, pasture lands, jungles and savannahs, and the species that live there.

"The beach is refuge to pelicans and sea gulls. During migration season, you can see grey plovers that run along the seashore and fly away when the wave comes. When the wave recedes, they come back to eat anything that moves", says Chica, while, in the horizon, birds celebrate life noisily.

In the swamps, she explains, you find herons, roseate spoonbills and ibis. "They are very thin long-legged birds, precisely to be able to walk over the mud and feed there. In the jungle we see very colorful birds like trogons, toucans, momotus or watch birds, and birds that blend in with the olive green of the vegetation".

She says that her most satisfactory experience has been to organize the first Bird Festival in Yum Balam, with the assistance of the Mesoamerican Reef Fund (MAR Fund) because it marked a precedent for the region.

"The community attended the presentations offered by experts, and interest in birds on the part of the people grew. In addition, I was able to work with children to monitor birds and document 160 of the 300 species in the region", she says, while in the distance you could perceive the restless shadow of a

seagull flapping her wings in the sky.

“With the support of MAR Fund, bird specialists came and spoke to us about them. In addition, we were able to print T-shirts for participants to feel identified with the topic. In fact, the very same people that used to criticize us for spying on birds with small telescopes (binoculars) changed their opinion of us and of their environment”.

Under the numbing breeze of the trees, Chica resorts to memory: “One day I found a boy with a sling, harassing the birds. The boy asked me why I spied on birds. When I explained their importance, he asked to join the birdwatchers”.

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TO CONSERVE YUM BALAM

Carlos Loria, fisherman from Yucatán who settled in Chiquilá 11 years ago, who leads tours to promote marine bird conservation and participated in the first festival to honor birds, worries when he learns of a fire or sees mangroves filled with cement, or bruised or dead trees.

José Juan has the same concern. He explains that the ecosystems in Yum Balam where birds live, reproduce, feed and find refuge, are very vulnerable. “Climate conditions from the effects of climate change make fire propagation easier”.

A study of 2016 by the National Commission of Natural Protected Areas (Conanp), indicates that “climate-related disasters have already caused huge damage and high economic costs for the region. One of the most devastating fires occurred in 1989, after hurricane Gilbert, where more than three hundred thousand hectares of vegetation were lost”.

Pérez Ramírez explains that the easy spreading of the fire is due to the fact that Yum Balam is aligned along the hurricane route, where intense winds make trees fall and dry, and this turns them into fuel.

But not only fire is responsible for destroying the green; so are developers and markets demanding precious woods such as cedar and mahogany; or high commercial value woods such as ziricote and guayacán; or hardwoods such as zapote, ramon, chechén, pucté, tzalam and jabín, to build their hotels.

“Through competition, trees grow towards the sky in search of sun light, and after some time, they begin to thicken. When they are cut too early, as they are fully developing, they lose their timber potential. Now we only find trees with very thin tree trunks, less than 15 centimeters, while in the past they grew to up to one meter in diameter”.

José Juan explains that flower species have not been lost, but they are now smaller. He hopes that Yum Balam will soon have the right conditions for species to get some respite.

For people living in Yum Balam, the struggle to preserve Señor Jaguar is an everyday battle. Guardians like Cheila, Chepe, Chica, William and Carlos dream of a horizon where radiant green will shine, where the rays of the sun that filter in through silky clouds will be reflected in the blue sea of scattered clouds and where they can live with dignity in harmony with their territory. They are well aware that what happens on the ground impacts the health of reefs, and finally their own wellbeing and that of other living beings that share the unique and radiant Caribbean geography.

DESCENT TO THE IMMENSITY OF THE WHALE SHARK

Colossal and perfect, the cartilaginous giant slides its volume, its evolutionary victory, through the waters of time.

Anonymous

The extensive and majestic ocean has seduced humans from the beginning of time, not only for the warm shades that shimmer over the waves, but for the beginning of existence and the transitory state of life.

The broad sea incites us to cross it, gives us the yearning for travel. But its depth also means danger because descending to its waters can mean death, and emerging from it always means rebirth.

Under the constellation-laden night, navigating the sea, even with the guide of the Southern Cross or Polar Star, causes fear and fright. Human beings are terrorized of the unknown: underwater regions, dark cavities and the profound sea that shelters somber animals.

The imagination of ancient civilizations has plagued the blue horizon with huge malignant creatures; has filled it with gods and goddesses that frighten seamen; and through word of mouth, has told of mythical beasts that surface to devour seamen.

The oldest representation of a huge marine being is in a Norwegian cave and dates back to 1800 before Christ. The photo shows seamen in hot pursuit of a huge creature throwing a jet of water from its head.

In Babylon, goddess Tiamat was a malefic being that at times transformed into a whale and terrorized the ancient inhabitants of the Middle East. In Vietnam it was thought that whales were protective spirits that prevented shipwrecks. And, in Africa, it was believed that they were spiritual beings that helped people who settled on the shores of the sea.

Fear of being devoured by a marine monster is illustrated in the Biblical passages of Jonah, who was swallowed by a whale in order to come back and experience rebirth.

It is currently known that whale sharks are the largest fish in the planet. Although they have a huge mouth with twenty-seven thousand teeth, they have no interest in wolfing down seamen.



Adriana Navarro

The legends that describe a massive creature emerging from the depths of the sea to devour humans are now limited to books and movies, for the whale shark, unlike what one might think, eats mostly plankton, that is, minute animal and plant microorganisms that are suspended in sea water.

DOCILE GIANTS

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The whale shark is one of the most extraordinary marine beings of the planet: it can reach the size of an urban bus (15 to 18 meters long) and weigh the same as an airplane (up to 34 tons) according to data of the National Commission for the Knowledge and Use of Biodiversity (Conabio).

It is also known as the domino fish because the print on his body is similar to the table game tiles: its skin is blue-gray and seems drawn with white lines and dots throughout its back. It has a couple of dorsal fins and another couple of pectoral fins that help it remain stable in the water. It breathes through five large pairs of gills that allow it to extract oxygen from water. It is a filtering animal, which means that it swims with its mouth open to swallow small organisms like plankton, krill, shrimp, larvae and algae.

It has been seen swimming in temperate-warm seas in 125 countries in the world, except in the Mediterranean. Satellite monitoring show that it can cross up to thirteen thousand kilometers, from the Gulf of California to the neighborhood of Australia.

Because it is a docile animal that gathers to eat for many hours on the surface of the water, it is vulnerable to harpoon fishing. For that reason, some countries that traditionally captured it have decided to protect the species by banning its fishing.

Taiwan is the only place where it is fished because, in recent years, whale shark meat and fins have acquired a high commercial value, which threatens its conservation. In China, one single whale shark fin can be sold for around ten thousand dollars.

Whale sharks are in the endangered species list, for factors that deteriorate or modify their habitat. They are protected by the international provisions of the International Union for Conservation of Nature (IUCN), and, in Mexico, by the Official Mexican Standard NOM-059- SEMARNAT-2010.



At present, with knowledge of the characteristics of such spectacular animals, seamen that sail from Mexican coastlines go deep into the profound blue for several hours in search for these colossal beings to swim with them, appreciate their movements, and above all, care for their greatness.

THE WHALE SHARKS OF YUM BALAM

Holbox is a 43-kilometer long light island, where dew-wet leaves of the jungle and sandy footpaths lead natives and tourists to watch the sundown, while a sea breeze floats around. The horizon deploys such beauty that it makes you believe that you can understand the universe by watching it.

Holbox, that belongs to the Yum Balam Protection Area landscape, is in the state of Quintana Roo, in Southeastern Mexico. It is not only a splendidly attractive land but also one of the three areas in the country, —together with Los Angeles Bay (Baja California) La Paz Bay (Baja California Sur)— that have the privilege of watching the whale shark swim.

The fishermen who live in Holbox discovered —five generations ago— that whale sharks are good-natured animals that are no risk for humans. In fact, many seamen used to go out looking for them to hold on to one of their dorsal fins and stroll through the waves, following their pace. They would lie on their great body to feel owners of one of the great animals seen on earth, sea and skies.

Fishermen say that they have seen up to one hundred of these fish in the area, but the data of the National Commission for the Knowledge and Use of Biodiversity (Conabio) state that there are more than three hundred. They do agree that whale sharks meet in the transition zone of two marine currents:

the Gulf of Mexico and the Caribbean Sea —some three hours offshore— where plankton abounds.

Willy Betancourt Sabatinni, 61-year-old fisherman who stands out for his reddish skin and his light blue bright eyes, a native of Holbox Island, says that he dropped out of school at the age of 13 to fish. “I did not like school and did everything in fishing: diving, with nets and with longlines. Then I started with fishing tourism and whale shark watching”.

Sitting under a shade in the center of the island, Willy Betancourt recounts: “In the past, we used to grab the dorsal fin of the whale shark. We thought that was great. However, we noticed that after much touching, the sharks would quickly swim towards the depths. Now we know that ours was a poor practice when watching the species”.

A few meters away from Willy, facing the sea, Carmelo García, an inhabitant of Holbox, has lived with marine species since birth, and remembers that when he was three, he already went out with his father and grandfather to sea.

“We were used to seeing the whale shark. We saw him constantly. My grandfather and my father thought that animals never leave the area. They did not take into consideration the sighting dates that we now know to be from May to September. The only thing we did was approach them to fish the tasty olive color white-bellied cobias that swam around them”.

Carmelo García, whose face is sunburnt, framed by a grayish beard, remembers that in 2000, the people of Holbox started to take tourists to see the whale shark, but without following any kind of regulation. “We simply discovered that swimming with sharks could be very profitable, and we did it unrestricted”.

Fishermen organized in two cooperatives, Holbox and Chiquilá (the town across the island) in order to coordinate their tourism activity and respect the sea's colossus.

"We analyzed what could and could not be done. We self-regulated. With the support of federal, state and municipal authorities, we implemented good practices and, in 2003, wrote our own regulations that guarantee protection of the species, which today is a model for other States in Mexico and for other countries".

- 20 The Domino Project: whale shark ecology, population dynamics and management strategy definition in the Mexican Atlantic, implemented by Yum Balam fishermen and service providers, was institutionalized by the National Commission of Natural Protected Areas (Conanp) and established a code of ethics to carry out tourism activities associated to the species.

The Domino project defines the minimum distance to swim with sharks, forbids touching them and chase them, and makes the use of vests compulsory. It includes other restrictions such as no garbage throwing; you may not feed the fish; you may not fish where the whale shark is swimming; no sunblock, unless it is biodegradable; swim in couples to see them; and not swim excitedly. Carmelo García believes that these accomplishments add to the projects that the Mesoamerican Reef Fund (MAR Fund) has promoted.

MAR Fund was established in 2004 as a private and participatory regional conservation fund, with a Board of Directors formed by donors, experts and specialists from the Central American Environment and Development Commission, as well as directors of the environmental funds of Mexico, Guatemala, Belize and Honduras.

"Thanks to this organization (MAR Fund) we were able to travel to Baja California to train and exchange information with other service providers from the country. Guidelines resulted from these meetings: not more than 10 persons in vessels and do

controlled dives, two persons at a time, using

snorkel and fins to not scare away the whale sharks", Carmelo García says.

"Whale shark sightings are the hen of the golden eggs. For that reason, we must protect the activity, and be aware of the species to prevent punishment from nature. We do things right at my family business because we make a living from the four months that whale sharks visit us; in the remaining eight months we have to scratch everywhere to generate an income".

Carmelo and Willy know that some of their fellow fishermen break the whale shark sighting rules. They scold them and threaten with complaining to federal authorities. Both say that surveillance personnel are lacking for this activity, as well as more environmental education and first aid and water rescue training courses. Also needed is support to purchase four-stroke engines that are quieter, more cost effective, and less polluting; and it is essential that only Yum Balam native people be accredited as whale shark tourism service providers.

"There are people of the sea who cannot read or write. They are expert fishermen and seamen who flunk the written tests to become certified tourism service providers, and the positions are sometimes given to people who do not know about the sea. I believe that tourists are at greater risk for those decisions", Betancourt states.

A MORNING WITH THE LARGEST FISH OF THE WORLD

You first see a dark spot over the huge blue. A dorsal fin follows. Then, a very long, gray-blue and mysterious body, shining in the foamy waves. From the boat, visitors see the giant animal under their feet.

Fascinated, moved, fearful, they plunge in. A guide leads the swimming of the curious.

Next to them, a nine-and-a-half-meter long being slides at ease through the wavy sea. Behind their diving mask, visitors see the tiny eyes of the fish and its wide and flat head scanning the surface of the ocean in search of food.

Year after year, visitors from around the world come to the Holbox Island in search of the whale shark. Each day, up to four hundred curious persons climb on boats and skiffs and pay between fifty and one hundred dollars per tour. The 10-person vessels leave at seven in the morning to prevent excessive sea-sickness caused by the noon breeze. Even so, some do get sea-sick. They sail for three hours in the profoundly blue sea, with the aim to participate in the water dance of whale sharks. They follow their skipper's recommendations faithfully. They jump into the sea in couples and avoid touching the huge fish, even if they feel compelled to do it.

Few tourists disregard the rules and try to caress the striped and dotted skin of the shark, but, when it happens, the skipper stops the activity and lectures infringers on the importance of respecting the species.

The image of this large and majestic animal that glides next to them is impressive and unforgettable. An air of happiness and awe lingers in tourists' faces when they come out afloat.

Guides and skippers recognize that there are now more tourists aware of the need to care for nature, and tell one of their best experiences in the deep seas.

Captain Carmelo remembers: "The best thing that has happened to me is to see how people shed a tear of excitement when they swim with them and thank you for taking them to see the sharks".

For his part, Willy Betancourt says: "Several years ago we sailed with a gentleman who was unable to walk. That day, the whale sharks were nowhere to be seen. We spent a long time waiting for them to surface, until we saw the shadow of one close to the boat. Two guides held the gentleman to ease him down

into the sea. The whale shark did something that surprised us all: it remained static, like waiting for the gentleman to see him, like if it had understood the very peculiar situation faced by this person".

INLAND

A few meters from the shore, far away from the whale shark, in the middle of the Holbox Island lives Morelia Montes Varona, a Colombian woman naturalized Mexican. She is one of the best-known persons in Yum Balam, for her talent, her interest and her desire to help the community and the environment.

"I came to live in Holbox in 2004. It was a spur-of-the-moment decision, without much thinking. I dropped everything and became an activist", she says from the dining room of her house, as she tries to take the cats off the table and quiet around twenty dogs that are excited to hear her, and bark and play with her.

When Morelia came to the island, she wanted to participate in environmental solutions, and to fulfill her aim she approached government agencies that offered her to manage social programs. She says that she had a difficult time changing the mindset of the people and the poor management of the programs' resources. "When I agreed to operate the program as a temporary job, I designed a basic waste sorting scheme.



Fundación Albatros

I hired five persons from the community to jointly clean, sweep and reclaim the island. There was opposition from the people. But after a month and a half, the habit of separating waste into organic and inorganic had been implemented”.

She tells that out of her own initiative, she sought to improve the life of domestic fauna in the island. She introduced hygiene and deworming standards. “I would go from house to house bathing animals with special soaps to control ticks. People got to know me, and thought that I was a vet”.

In 2005, Morelia, the expert in animals, lived in an ecological house powered by solar panels and where she kept food in coolers. Morelia was happy with that life close to the sun, the song of birds and the hum of the sea. She did not know that in October of that year, the wind would sweep her house away. Hurricane Wilma destroyed everything.

Despite the setback, Morelia recovered and rented a house more inland in the island, not only for her, but to shelter homeless animals, where she currently lives with around thirty of them. In a short period of time, by reading and asking for help by phone from vets in Cancún, she learned to cure domestic fauna and promoted sterilization campaigns to contain dog and cat overpopulation in Holbox. People became used to receiving help from Morelia, to the point that they would even bring wildlife to her: pelicans, racoons and turtles.

“One day, a man came and said: ‘you pick it up, or I kill it!’ And I saw a three-meter long boa; huge! A lot of terrified people surrounded the animal. There was the Mayor and even the community commissioner. I asked a man to help me grab it. I gave him a dog cage. The man took off his shirt, threw it on the head of the boa, rolled it over and gave it to me. The man became the hero of the village. The best was that we were able to save it and release it the following day on the other side of the inlet”.

Distressed, she underscores that there is an urgent need for a vet and an animal care center to control domestic fauna not only in Holbox, but in all the communities of Yum Balam, and to conduct sterilization campaigns every year.

With an open smile and watching the racoon that plays on the bed with the dogs from the corner of her eye, she explains that she is most appreciative for the intervention of the Mesoamerican Reef Fund (MAR Fund). “They provided equipment and supported the consolidation of Alma Verde and Casa Wayuú. They built the infrastructure, provided computers, everything”.

Morelia is a member of both organizations and feels very proud of Alma Verde, a social organization created at the end of 2016 that engages in the protection of the Holbox Island through sanitation, environmental education, and support for wildlife and domestic fauna, marine turtle monitoring, and training to sort waste and produce homemade compost.

For its part, Casa Wayuú, located in Solferino – in a piece of land that Morelia owns – and established in 2016, coordinates conservation work with communities living in Yum Balam and works as a research and monitoring center for environmental education.

“With MAR Fund’s resources we have created a social movement that did not exist. People already know that there is support for conservation. For example, researchers can come and stay at Casa Wayuú and work with the equipment provided by MAR Fund; thanks to them we have an office with adequate equipment. Then, we monitor birds with children and provide mangrove workshops with Doctor Jorge Herrera”, says Morelia as a soft rain freshens up the environment.

“Through Casa Wayuú we are also monitoring land with soil use changes and destroy mangroves, in order to provide that information to Conabio (National Commission for the Knowledge and Use of Biodiversity) and other authorities. We generate proposals for the community to become conservationists and rangers, and we work a lot with children”, she adds, while she looks with her blue-green eyes at her roommates —dogs and cats—to prevent a strife.

Morelia meets with other activists that promote environmental education, such as Gerardo Ávila, who founded the Manaholchi civil organization, who engages in manatee monitoring and in waste sorting; and Leongina Ávila García, who, also with the sponsorship of MAR Fund, established a cooperative called Holbox Sirens that trains women to create embroidered crafts, and crafts in wood and glass.

Morelia, Gerardo and Leongina share an appreciation for the splendor of the natural landscape they live in, and together offer environmental education to the people, reclaim the island, conserve the place and help people find extra sources of income.

Gerardo says that one of his best experiences is to know that there are people interested in the health of the island: there is a group of youths that saw our work on Facebook and voluntarily decided to help us sort waste. These kids came from Cancún, helped us pick up all the trash cans scattered throughout Holbox and took them to my house, where we separated the material. When we finished, we washed our hands well and ate together as a big family”.

Leongina assures us that encouraging and instilling trust in women is one of the most rewarding experiences: “through MAR Fund we received training to get organized, and with the handcrafts we get additional money and attend trade fairs to sell curtains and mobiles made out of shells”.

The best experience for Morelia was the construction of a theme park in Solferino: “we invited the community to gather tires and take them to a barren field. The ladies, who in the beginning were upset because they had been summoned as if by force by the health sector, recovered their good spirits when they decorated the tires. Today, that barren field is a park with bridges, peaks and valleys and swings for children to play. It was a unique experience”.

Morelia concludes that life changed for her when she became interested in conservation: “It is very enriching to know that you are part of the change. I will continue to defend this place every day”.

Willy, Carmelo, Morelia, Gerardo and Leongina share something that is extraordinarily valuable and that is that they are the perfect solution for conservation and utilization of the natural resources that surround them. They are essential to develop resilient local economies, aligned to their environment and within the limits and capabilities of each ecosystem. They are part of the human capital that makes its best effort to lead a decent life and, at the same time, preserve the natural treasures of Mexico.

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Gabriela Ochoa

BELIZE



CO,

THE MOUNTAIN SPIRIT

*The heart of the earth emanates life
for forests, rivers and oceans,
just like always, from the great morning of the world [...]*

*The humblest of things shiver
with sacred thirst for life [...]*

Percy Bysshe Shelley

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Hilberto Co, mountain-man, has the gift of making trees grow. He is capable of changing the geography of Belize with his spirit. This Maya man can get rain, sun and carbon hidden in the sea breeze come together for jungle plants to pursue their journey to the sky in search of light.

When someone asks “Why is the San Pedro Columbia jungle so green?” the answer is, unquestionably, in the hands of the Shaman spirit of Hilberto Co.

This jungle-man records in his notebook the seeds that he has planted in the soil and the growth of the trees that are now close to the clouds. He keeps count of 9,300 trees that today, offer shade to the roads and protect the song of birds.

Hilberto, his wife Rosaria and their two children, Joslyn and Hilberto Jr., live in a wooden cabin built on top of San Pedro Columbia, in Toledo District, in Belize. They care for the wilderness and the Río Grande that crosses their community.

It is a sunny August morning and I am with the Co family. Seated at the entrance to their home on a tree trunk resting on the dirt floor, we talk, in broken English, loose phrases in Spanish and Maya words, about reforestation of the mountain that shelters us and listens to us talk about it.

Hilberto Co tells us that 2001 was a very difficult year for San Pedro Columbia. Hurricane Iris — the most destructive recorded in Belize since 1961 — unloaded heavy rains on the village that caused heavy runoffs. Iris reached wind gusts of up to 230 kilometers per hour upon impacting Belize territory. “The hurricane plucked trees and people’s homes out”, says Co, now turned rain-man.

With all his wisdom, Co, mountain-man, tells how, after seeing the damage on his land, he replaced each tree torn out by Iris. For him and his Maya worldview, hills are protectors, and a reciprocal aid relationship is established between persons and mountains.

Co, seed-man, visits every tree, waters it and takes it into the light for it to survive and have a long life. “To keep them is very important because it takes time, at least one year, for them to grow strong. In the first six months you must remain very close to them”.

The connection of Hilberto Co with the mountain dates back to his ancestors. The village where he lives is a sacred mountain where the ancient Maya offered sacrifices for fields to be fertile and for people to live fully. Wind caresses the jungle warmly. And by listening to this mountain- jungle-rain-seed-river-



wind man, it seems to me that I hear all the spirits of nature.

Rosaria, his wife, offers a cup of cocoa grown by the hands of the Co family. “Of course!” we reply. We drink and we talk about 2011, when Iris —the hurricane— exposed the soil, left it without shade and with stronger sunrays, with poorly fed animals and messed up fields.

“If we do not care for our Río Grande, who will? It is life. It takes us to sea. It feeds us. That is why we planted fruit trees around it, so that when fruits fall in, they feed the fish; so that when they are suspended on branches, they feed birds and iguanas. And when they fall to the ground, they feed us”.

We need to understand that climate is changing and that trees are our allies to protect us, Co, spirit-man says. “Trees connect with the clouds. If there are no trees, there is no rain; and if there is no rain, there is no life. At San Pedro Columbia we have planted flowers, cedars, mahogany, fruit and cocoa. We plant for each being living here”.

“When we started planting next to the current, people thought that we were crazy. Little by little, people changed their way of thinking. I explained to

each one that caring for the river is essential for life”,

he says and points with his finger to the village to show the coordinates of the affluent.

Hilberto Co, river-man, has transformed his surroundings. He planted the idea in his community and now the villagers are convinced of the importance of caring for plants. He patiently planted a seed in the conscience of people and his idea crossed borders. Scores of persons from different parts of the world come to San Pedro Columbia in search of Co, who teaches them the magic of making green giants grow.

XUCANEB, SACRED MOUNTAIN

The whisper of jungle leaves does not stop as we have our second cup of cocoa. Co tells us that he was born and grew in San Pedro Columbia, Belize. He completed primary school. His farmer father taught him to synchronize agricultural cycles with rain, wind, cold and hot seasons. He also taught him the way of life of the Maya, which he conserves to date.

In 2010, Co created the civil organization Xucaneb, which means secret mountain in Maya. The mission of Xucaneb is to get more people to join in tree planting. The Toledo Institute for Development and Environment (TIDE), a Belizean organization located in front of the sea – 20 minutes away from the Co home over the highway – helped him to define his idea.

One of TIDE’s objectives is to promote income generation through sustainable productive activities, and to support forest and marine resources co-management in Port Honduras Marine Reserve, that covers the marine corridor of the Maya mountains, a 414 sq.-kilometer conservation area.

With the Ridge to Reef program (R2R, as it is known), TIDE invites families, travelers and students of the whole world to conserve the protected Belize

reserve, together with locals. Thus, Xucaneb has received students, particularly British and American, who are interested in conservation and register in R2R and go to the mountain with Co.

“Students work very hard. We start at nine a.m. then, at 10:30 a.m. we eat a fruit or chocolate. At 12:30 we eat lunch and continue our work until three in the afternoon. It is a great experience, a spiritual exchange with nature”, Co says as he takes the cup of cocoa to his mouth. “My wife shows them how she embroiders napkins and how she weaves palm leaf baskets. They buy products from the village women and that is very helpful to the families living here. We are very grateful”.

Rosaria leaves the house. In her hands, she carries tens of handmade shawls. The embroideries shape macaws, toucans, turtles, suns, seas, flowers and mountains. She explains that the weaving tradition comes from here great-grandmother and that she has taught it to her daughter Joslyn.

I see them and think that the wisdom of the Co reaches beyond the life cycle of a human being, because they, like the ancient Maya, keep the perpetual order of the cosmos to ensure social wellbeing. And there is a tradition in their form of life that transcends time.

With his power —which is his will— and with the help of the R2R program students, Hilberto Co has made it possible for the leaves and roots of the 9,300 trees to retain carbon, generate oxygen and strengthen the resilience of the forest; and to help reduce soil erosion and the amount of sediment, nutrients and chemical agents reaching the river. He has accomplished the recharge of underground aquifers with better rainwater absorption. He has made this summer day and every other summer day that comes and goes feel fresher thanks to the shade of trees.

We walk with Hilberto Co, who takes us to the Río Grande. There he shows me the grove that protects

the water flow. He says that he would like to have a community center for his organization, Xucaneb, a computer, and an assistant. A center to promote environmental education, to raise awareness that events inland are reflected in the sea and in the reef; and to do research; and where students can delve into learning about the topic and understand in detail the benefits of the ecosystem.

He sees my recorder and says: “I wish to record an invitation”. With his kind voice he says: “I invite all the people to plant trees in the community where they live. Or, better still, to come here to San Pedro Columbia, Belize, and plant a tree. We will make sure that it grows fully because they, like people, animals, and stars, are sacred”.

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THE FOOTPRINT OF CAZ

We leave Hilberto Co’s village. We go back to Punta Gorda, in Toledo District, where the Toledo Institute for Development and Environment (TIDE) is headquartered; it is a non-profit organization recognized for its brilliant work in habitat conservation. With me is Caroline Oliver, Ridge to Reef (R2R) tour program manager.

Toledo District is 335 kilometers away from Belize City over the highway, and about twenty kilometers away from the San Pedro Columbia Maya community.

Belize is an incredibly diverse country from the biological and cultural points of view. It has 65 protected areas, more than sixty per cent forest cover and an important portion of the second largest reef system of the world. It is also exemplary for its efforts at biodiversity conservation. On the streets of Toledo District, you see garífuna, Rastafari, mestizo, creole, Maya and foreign communities living together.

The office of TIDE is in front of a dock that faces the Caribbean Sea and its many shades of blue.



Gabriela Ochoa

It is the most peaceful ocean that I have seen in my years of travels. It looks like a postcard.

Caroline is a young 32-year old British woman that people call Caz. She came to Punta Gorda, Belize, four years ago, as a TIDE volunteer. Now, she is the pillar of the organization. TIDE started to develop the R2R program in 2013, when she was a volunteer. When Caz became acquainted with it, she stayed in Belize to promote it and today is responsible for it.

“The R2R program is about training tourists in nature conservation and creating jobs for the Belize community” the expert on environment and economics says from her office’s desk. That is, the R2R program invites people who are interested in conservation to explore Port Honduras Marine Reserve, to obtain theoretical information and to carry out practical activities with the community for the benefit of the natural protected areas, as well as to receive training to obtain an open water diving certification.

R2R aims to conserve the ecosystem from the perspective of science. For that reason, the program is ideal for students of any discipline, but extends to families, couples, travelers, grandparents interested in the environment, who purchase a tour package designed especially for them. “Explorers help communities and at the same time, learn about conservation from them. The money that tourists spend in restaurants, stores, or captain

services remain in the community. It is a virtuous circle”, Caz, master in conservation and tourism, states, with her beautiful smile.

During the week, explorers work in the community. For example: they go to San Pedro Columbia to develop the Xucaneb project; they visit fishermen communities in Monkey River and Punta Negra, where they learn to make coconut oil; they go to the schools with children; they recycle waste that they pick up in the beaches; or they share information in talks with the communities about the threats that lionfish proliferation represents for the reef’s ecosystem. During the weekend they relax and swim in Blue Creek caves, they dive in spectacular submarine spots, they visit the ruins in Lubantunn and Nim Li Punit, they walk close to the Río Grande or learn to make chocolate according to Maya tradition.

Most of the students who come to R2R are from the United States because it is less expensive for them to travel to Central America. Individual travelers come from Great Britain, thanks to the advertisement published there by TIDE. “We receive young people, 20 and 21 years of age on average. But we have also welcomed six-year-old children to grandparents over seventy. They stay in the reserve up to six weeks and live with members of the community” Caz says.

For the great majority of visitors, this is the first time they leave their country and encounter a

new culture. “They open their eyes to a different world. They learn more than they expected. It is a beautiful experience among different races and cultures. Clearly, R2R explorers change their views about the environment and the way to engage with it”, Caz states, who before launching R2R worked in a scientific marine project in the Bahamas. Caz is convinced that the project would not have been possible without the support of the Mesoamerican Reef Fund (MAR Fund).

MAR Fund is a private not-for-profit international organization, regional in scope, which promotes financing for local conservation projects. During its first years, it focused its priorities on building the management of protected areas that are part of the Mesoamerican Reef System, shared by Mexico, Guatemala, Belize and Honduras. Recently, MAR Fund has expanded its field of action to invest also on matters of adaptation to climate change and artisanal fishery management and recovery.

“The experience with MAR Fund was awesome. The program would not have gone this far if they had not improved all of TIDE’s facilities, and provided new diving equipment. Its support to market the project was key. The trust that they placed on the project is what I value the most. The linkage between MAR Fund and R2R was great because one of the most attractive volunteer programs in the world was launched. Conservation actions have a direct repercussion on the reserve because volunteers solve specific problems”.

The challenge is to attract more people to R2R because it is a program capable of making people find new value in life. “I hope that people will become aware and make efforts to reduce their ecological footprint, that is, to reduce the environmental impact that comes from the production of the goods and services needed for human life. I am concerned to see the huge inequity that climate change causes, a result of capitalism and of excessive fuel consumption, for the poorest people feel it the most. There is profound inequality: low-income persons do not benefit from the trees cut in their forests to make room for cattle, because they do not go to McDonald’s to eat a hamburger”,

Caz, who feels passionate over working in marine conservation, says.

THE HOME OF SMILES

I leave the office of the Toledo Institute for Development and Environment (TIDE) in search of the house of Sylvia Muschamp, a housewife who lodges students of the Ridge to Reef (R2R) Program. Her home is one kilometer away from TIDE, in Hopeville, Punta Gorda. She lives in a two-story wooden house. A small dog wags its tail as it protects the entrance.

Sylvia welcomes me with a warm embrace. She tells me that TIDE explained the R2R program to her and she felt interested in becoming a hostess. She adapted a room to rent under the stairs of her house. Since 2014 to date she has lodged 30 persons, mostly 18 to 22-year-old students.

“I cook mainly Belizean dishes for them. We live as a family, my husband, my children and them. They tell us of their great adventures and show us pictures of their diving expeditions and of the animals they like. They say that they love our climate. They love fruit and vegetables and tortillas and beans”, says Sylvia as her grandchild tries to take his first steps in the living room. With an unforgettable smile she adds: “I have never had a bad experience. I always try to make them feel welcome. They are wonderful people. We soon get used to them. We learn much from their culture as they do of ours. When the R2R program ends, they don’t want to go back home, and we miss them a lot”.

From the kitchen where she prepares lime water, Sylvia says that R2R has been of great benefit for the community. “The young people participate in tourism; they help to preserve the resources of the villages and that brings economic benefits for all. Since I am a hostess, I feel surer of myself because I have a financial income. Additionally, I have seen that my children are more receptive, more open to learning, they like to share more with people”.

A NIGHT IN THE JUNGLE

At dusk the sky becomes red and orange. I sit to watch it from the seashore. A dense layer of fog hides the constellations from view. The ocean is calm. I get ready to walk over the lonely road of San Antonio in this corner of the world that bathes in the Caribbean Sea.

On the road I come across the Walucos restaurant-bar. It seems to me that it is the most famous in Punta Gorda, for most of the citizens are sharing there with Belikin beer. I walk in and order one. Men and women sit at my table to chat. We talk about the exceptional nature that surrounds us. Proud, they describe how wonderful it is to live in a natural reserve.

A Rastafarian man says that Punta Gorda is the best place to live because people are kind and their environment provides them fruits and fish, essential for life. He says that he wears long braided hair as a tribute to mother Earth. Rastas represent the roots of trees, the force of nature and the sustenance of existence and freedom. Throughout his 42 years of life, he has cut his hair only twice: once to place it on the tomb of his uncle and once more to place it on the tomb of his grandfather. Rastas give strength to his loved ones to follow their new destiny.

"Celebrating nature is essential for this community", I think. I leave Walucos and walk under the moonlight.

I go into the jungle in search for the Río Grande. I leave the whispers of the town behind. The murmur of the sea is very far away. Leaves ruffle under my feet. I walk on. I feel the silhouettes of Maya mountains; tree shades; I sense the looks of fauna. I move on. Dense foliage darkens the horizon. I hear the terse sound that the wind gets from the leaves. I enjoy the song of crickets, the crystal-clear voices of birds and their velvety flutter. I try to decipher the structure and the movement of lianas.

The outdoors brings howls; breathing of animals; secret looks. An animal roars. I stop. I sense him close. I shake like a wilted leaf about to fall from a tree. The sound of a branch that breaks. I jump. I want to go back. I cannot find my way. The jungle envelops me. The river sounds full. Maybe if I follow its flow, I will come out of the forest feathers that now confuse me.

Snout, tongue, eyes. I imagine a ferocious beast with black dots over its orange coat approaching my body, ready to swallow me. Mercy is a word that is not used much. But tonight, nerves compel me to say it. I freeze. I feel it watching me. It is waiting for its prey to be left to her fate. It relishes the banquet. I want to escape. I think about the stories yet to be written. The jaguar's saliva floats in the air. The eyes of the tiger. I turn around to face my fate with courage.

Behind me, two women watch me. They ask me if I am enjoying nature. "Of course," I reply, as I try to shake off the terror spread over my body. In a broken voice, I ask them to show me the way back to the town. The three of us walk under the shadows. They point out every sound coming out of the Belize jungle. I realize then that what I thought to be a tiger was actually a white-lipped peccary.

INSTRUCTIONS TO FALL IN LOVE WITH THE OCEAN

*If my voice were to die on the ground,
take it to the sea and leave it
on its shore.*

Rafael Alberti

“I love the sea. I have given it and will give it all my time, all my love; my full attention, because the ocean is invaluable” confesses Victor Williams at the dock of Punta Gorda, in Belize, on a sunny August afternoon.

Víctor is Belizean. He is an expert in marine species. He is a Libra, he is 26-years-of-age and tells his story: “I was born and grew up in this coastline, in Punta Gorda, Belize. My parents, grandparents and great-grandparents have always been fishermen, people of the sea”.

Punta Gorda, known as PG, is a six-thousand inhabitant community. It is a coastline town with wooden houses in the south of Toledo District. It is a famous port for travelers who sail in particularly

from Guatemala. It is the perfect place to explore the Maya culture, the cayes of the South, the Mesoamerican Reef, and to taste delicious cocoa.

Punta Gorda extends over to the Gulf of Honduras. Its streets border the sea and offer a spectacular and calm view of the Caribbean blue. It is ideal to get on a bike and cross the town on two wheels. Punta Gorda does not have a beach, but it is a lot of fun to jump – together with the natives – into the warm water of the sea from different docks over the road.

At the center of Punta Gorda is a triangular park with a clock tower painted blue and white, where people meet as the sun sets and chat in English, Maya, mestizo and creole. Around the main plaza are several grocery stores tended by Chinese and Maya;

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a fresh fruit market; and two banks. You can feel a strong smell of chocolate in the afternoon, since there are at least two cocoa factories that show tourists how the seeds are processed.

Punta Gorda has tropical forest, mountains, rivers, coral reefs and Maya villages. There are spots of reef eight kilometers away from the coast, and the barrier extends 35 kilometers inland. This is where Víctor has spent most of his life: in the sea, caring for coral and marine fauna.

Víctor William, a Marine Biology student and native of the community, has something that sets him apart from the rest of the people: his huge love for the ocean, his ability to care for it, his knowledge about species and the ease with which he can cross its depths. The Toledo Institute for Development and Environment (TIDE), located in Punta Gorda, saw Víctor's skills and invited him to be a community researcher in 2008, that is, to participate in the research and monitoring efforts of the Institute.

TIDE is a private organization established in 1997 to conserve the ecosystem of Belize, to protect the manatee from poaching, and to prevent marine degradation. It is one of the most important NGOs in the country. It protects Port Honduras Marine Reserve that extends particularly to the north of Punta Gorda and covers 160 sq. miles, equivalent to 414 sq. kilometers. The reserve is called like that

because it is in the Gulf of Honduras; it was named a protected area in 2000.

When TIDE invited Víctor to be a part of its organization, the young diver did not know that he would fall in love hopelessly with the sea, since he grew up in a family of commercial fishermen that did not know about caring for the ocean. In addition, when the reserve was declared a protected area, they were forced to leave their territory, and therefore conservation was neither a happy or endearing topic.

Despite the circumstances, Víctor stood out for his knowledge about the region and for the natural way he managed himself under water. The people always recommended him and TIDE called him to become a community researcher. "They interviewed me, I answered their questions, they liked it and this is how I got a place to train and become a researcher" the young man says, with his profound respect for turtles.

The Community Researcher Program, promoted by TIDE, offered a scholarship to outstanding young persons, like Víctor, to teach them to dive and to interpret important data under water. This was a springboard for researchers in pursuit of their calling, and as a practical way to involve people in caring for the reef system.

The program received financial support from the Mesoamerican Reef Fund (MAR Fund), a private organization that focuses its efforts on environmental conservation, invests financial resources and offers training in various natural reserves of Mexico, Guatemala, Belize and Honduras. MAR Fund is, in turn, sponsored by, among others, KfW, the German Development Bank, within the framework of the Project for the Conservation of Marine Resources in Central America.

Scholarship recipients were trained, hand in hand with TIDE, to measure the health of coral reefs, with the use of the Mesoamerica Reef System method (which is specific for the Mesoamerican Reef) and the

AGRRA (Atlantic Gulf Rapid Reef Assessment) method (for comparison with the rest of the Caribbean). They were trained to learn about the health of seagrasses using the SeagrassNet method, and mangrove ecosystem productivity using the Mesoamerican Reef System method. Additionally, they were trained to oversee turtle nests; to measure pink conch and lobster specimens; and to monitor water quality, including through nutrient and sediment analysis. They also learned to assess fish populations (fishing and market studies); to monitor lionfish control fishing; to collect otoliths, part of the internal ear of bony fish that allow you to determine their age; and to study intestine content and gonad (sexual organs of fish) development to understand their biology and population dynamics.

With all this knowledge, Víctor would go to the depths of the ocean. “There are different ways to measure conch: by size, inside length or thickness. Lobster is measured by the width of the head and the weight of the tail. In the case of seagrasses, you monitor leaf density. In the case of water, you analyze salinity, temperature and visibility. Samples are taken to the lab to determine what types of microorganisms exist”, he says excitedly, as if he were at the bottom of the sea measuring fish and analyzing chemical parameters.

THE VOICE OF THE SEA

Víctor knew the sea, but when he took a Community Researcher scholarship, his perspective of the ocean changed radically. “I had the experience of going into the sea, but the main difference is that now I no longer go in for commercial fishing, but to collect information. That was a drastic change”.

Víctor broke away with his past. “I was no longer the same person from that moment. I grew up taking things out of the sea, and now I was giving my time, my love, and my patience to understand it and to bring this knowledge to land. It was the biggest change: to learn to be a scientific diver rather than a commercial diver”.



Antonio Pastrana

The closed-bearded young man looks with intelligence and wisdom and states that the transformation did not occur only for him, but for his family as well. “My family had a difficult time understanding my work. They thought that I wanted to ban fishing. Later they understood that I sought to protect common assets. My conviction and my love for the sea were such that my father stopped fishing. My uncles continue to fish, but now they combine fishing with other trades to support their families. They understood that it is necessary to be responsible with the ocean because the fish are now smaller and fewer”.

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Víctor remembers that TIDE scholarship holders formed a group that followed protocols and organized outings to the sea throughout the year. “For example, if the plan was to go in January to monitor sea cucumbers, we would arrive early at TIDE, and get the boats, the diving gear and the scientific equipment ready. We would get food for the several weeks that we would spend working and sleeping in neighboring islands or on the boats”.

“Water monitoring was done each month; conch and lobster, twice per year; seagrasses, every six months. We counted turtle births, protected the eggs, moved them to protect them from the strong waves that might take them far away. We studied white, black and red mangrove”, he says with his kind voice.

At times, they would spend three weeks working in high seas, the young diver says. “It is very tiresome to sail for several weeks. You need a certain type of personality, mindset and predisposition. The sea is not for everyone. Some people do not like it. Others are afraid of the ocean. In addition, at times, diving with tanks may be dangerous and even mortal if you do not follow the rules”.

Being the bearer of bad news also dampened Víctor’s good mood. He was saddened by the pollution on the surface and in the depths. Because of Belize’s geographic location, Port Honduras Marine Reserve receives huge amounts of waste dragged by the currents, waste that adds on to the waste produced

by the Punta Gorda community. Also, climate change increases water temperature, which bleaches coral; and overfishing stresses fish, mollusk, and crustacean populations, all of which affects ecosystems.

“Corals die, they lose their color due to higher water temperature. There are reef areas that are completely desolate; they look like catacombs; all you see are rocks”, says Víctor, whose birthday is on October 2. “Coral is a very fragile species. Direct contact of a person with the reef damages it. Every time we establish contact with it, we remove its protection material and, with time, salt and water heat, they are destroyed”.



Lorenzo J. de Rosenzweig

Víctor, who is like a sea chronicler, a journalist who gives a voice to the ocean, tells us that the information that he brings to firm land has been useful for TIDE to find resources to restore certain areas. “Some areas have been rejuvenated and recovered. But other areas continue to be affected; for example, seagrasses are dispersed and their leaves grow very little”. Climate contingencies have been devastating for the region because, in less than six years, Belize has sustained damage from four hurricanes that have weakened the reef.

Víctor shares both good and bad news with the community. He explains to them that if they harm the sea and species, that harm will unavoidably be reflected in them, in the economy and in the wellbeing of the entire community. “Those of us out here are dependent on the sea in every way, not only for food. This town lives off tourism and commercial fishing. So, if we do not take care of it, we will be out of a job, of food and of reef”.

For Víctor, working with the team of community researchers was a personal growth factor because he engaged with persons committed with the environment. “I knew persons with a lot of spirit. People who grew up in this town and love their community. People who feel very close to this piece of water that is ours, this sea that identifies us as Belizeans”.

Wisdom is invaluable, he says. “I will never be able to make it up to the people of TIDE for all the knowledge they gave me, and to the sea for all it taught me. You learn to survive when you are alone in the ocean. You learn to be independent, to cook, to manage your life in isolation, to share your time with other persons, and all of that is knowledge gained”.

Victor explains that the way he looks at himself, the way he sees the sea and the development of his town has changed radically since he became community researcher. His mission is to teach the people to make a living from the sea without harming it, and for that purpose, he teaches them to fall in love with the sea, just like he did.

“I left TIDE a few months ago to study Marine Biology because I want to give the ocean all my knowledge, be its voice and offer it my hands to protect it”.

THE KISS OF STING RAYS

Víctor, who has an easy coast life smile, feels that his work as a marine researcher is the most attractive and fun of trades. As an example, he tells of the competitions he did with his lionfish fishing colleagues and the evenings talking about fauna sightings during their incursions.

“When the lionfish invaded the coral ecosystem, the Toledo Institute for Development and Environment (TIDE) started a program to control it. The lionfish, an invading species, does not have natural enemies. It affects the ecosystem when it feeds on native fish juveniles, which significantly reduces the collection of commercial value populations. We would do our research work, and on our free day, we would go out to the reef to catch them. We had competitions to see who could collect more lionfish. We would go out to sea with many of them and that was super fun, plus good for the health of the reef”.

Each day at the bottom of the sea is a magnificent and unique experience, he says. “After spending weeks out at sea, we would reach land and have a few beers. We would speak of the marine beasts that we saw: sting rays, sharks, manatees, and dolphins. The experience is unique. Some pay to see them”.

“I will never forget seeing two very large stingrays kissing. They got together like this”, he describes as he opens his eyes wide and places one hand in front of the other. “I was flabbergasted because I had never seen anything like it. I felt as if I had witnessed something mystical and intimate. I felt the life under the ocean”.

He explains that the sounds at the bottom of the ocean are relaxing and allow him to have an understanding with the universe. “It reminds me of who I am. I am nothing more than one more species, a very small part of the universe. Down there I am nothing. All my strength and my courage as a man, my mind as a man, are worth nothing. Down there, I am a visitor and nothing more”.

The idea of diving into the sea makes Víctor forget any trouble, sadness or fear because, he says, the ocean is bigger than any human problem.

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In the streets of Punta Gorda, on the highway to San Antonio, in front of the sea, is the office of the Toledo Institute for Development and Environment (TIDE), where Celia Mahung is the Executive Director.

TIDE is an organization that seeks to reduce the negative environmental impact of unsustainable natural resource production in Belize such as fishing, hunting or the indiscriminate tree logging of intensive agricultural models.

Celia, who has many years of experience in the topic of conservation, is one of the most widely recognized persons in her community for her interest in teaching and her constant work in favor of the environment.

“I was a teacher for many years in every grade and level, from elementary to university. I became very interested in conservation when I realized that we have many natural resources that were getting quickly depleted. I thought it urgent to raise awareness on ecosystem management and utilization to obtain long term benefits”, she says from her bright TIDE office. “As a teacher, I knew that I could influence other people. I have the skill to listen to and to convince parents, children, adolescents and complete families to work for common good. I knew

that I could transform my skills to conserve Belize resources”.

Since the beginning of TIDE, in 1997, Celia, as founder, was in charge of the area of education. “I had good knowledge of the organizations. When TIDE was created, I made my small contribution for it to continue to grow for the benefit of locals and of protected areas”.

Celia recalls that before the marine reserve area became protected, people fished illegally without respecting closed seasons. “Many locals fished to make a living, but populations of species were declining. In addition, they hunted manatees and used single filament gillnets to increase their fish catchment”.

Joe Villafranco, marine biologist and Development Director of TIDE, whose office is next to Celia’s, interjects: “People in Honduras, Guatemala and Belize used nets and took everything they could from the Gulf of Honduras, even endangered species. They took manatee meat, leaving only the carcass behind. Dolphins disappeared. The community started to understand that if they did not do something about it, resources would disappear”, Joe reflects about the past.

Then, TIDE promoted decrees to protect three natural areas in Punta Gorda, in Toledo District: Port Honduras Marine Reserve, Payne’s Creek National Park and Private Protected Lands. Once legal protection was approved, regulations became stricter: poaching was combatted, greater care was given to mangroves and programs were promoted to improve ecosystem resilience in the face of climate change.

High-seas patrolling and surveillance were sustained by TIDE, and the outcomes were astounding, for the sea became populated with dolphins and other major species that you now see swimming in the Gulf of Honduras a large part of the year. “You also see many

manatees and marine turtles. We have been able to see the positive impact of TIDE in the management of the reserve because we patrol day and night”, says Joe, born 40 years ago in Toledo District.

Another important accomplishment of TIDE, with the support of the communities in Port Honduras Marine Reserve (Barranco, Punta Gorda, Monkey River, Punta Negra and Placencia, among others), was to get the area declared oil production-free. In the beginning of 2015, the government of Belize had plans to open protected marine areas to offshore oil drilling. Fortunately, it encountered general opposition. A moratorium to oil exploration and production was declared in December 2015 throughout the Belize Reef System.

Port Honduras Marine Reserve currently covers three areas: an area for general use that allows regular

fishing and tourism; a preservation area, where populations are replenished; and a conservation area, where no activity beyond research is allowed.

Both Celia and Joe know that the sea sustains the economy of the people of Belize and that to overuse it would be to destroy the sustenance of hundreds of families. For that reason, TIDE does everything it can to take care of the ocean. They have been able to get the community interested in conservation and to understand that TIDE is there to help make sustainable use of resources and not to ban their extraction.

One of the advantages of Belize that makes it very competitive in terms of tourism is its biological diversity, Celia tells us. It is part of the second longest reef barrier of the world. Port Honduras Marine Reserve has 138 islands covered with mangrove in excellent conditions. It has healthy seagrasses, and commercial species, fish, lobster and pink conch, which are considered high commercial value sea products.

The “catch and release” sports fishing practice (which consists of fishing and releasing the species) is one of the best tourism attractions in Punta Gorda. In addition, visitors have the sea and beautiful areas to dive and snorkel. Joe says that sports fishing is a money maker. On a trip of several days, a person spends up to one thousand dollars, which help support communities like Monkey River and Punta Gorda.

“Punta Gorda has at least one hundred fishermen who engage in commercial fishing and one hundred more who engage in subsistence fishing. These are more than two hundred persons and their families that benefit financially from fishing in this area”, Joe estimates.

The positive actions by TIDE in the reserve and in the community would not have been possible without the support of the Mesoamerican Reef Fund (MAR Fund), Celia says, grateful. “MAR Fund was the great investment partner that allocated resources to



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create the TIDE infrastructure, that made it possible for the organization to grow in an orderly and quick manner”.

“The necessary tools that MAR Fund contributed made it easier to work in conservation, and it became more feasible to protect ground and marine resources. In addition, they helped us to improve our social program development capacity and helped us in research”, the expert teacher added.

The programs designed by the community were financially supported by MAR Fund. This helped household finances considerably. Joe Villafranco, who works for TIDE since 2003, explains that thanks to MAR Fund, they were able to invest in small businesses in communities. “For example, in Punta Negra, a restaurant was built, which creates jobs. A tour operator company was also promoted, which takes tourists to eat to the restaurant in Punta Negra. The community is small; you can say that 100% of the people benefited”.

A bridge was built in Monkey River so that people would not need to walk through the water anymore, and this attracted more tourists; Cuban houses (artificial shelters) were placed eight feet deep into the sea, where lobsters live; 300 licenses for commercial fishing were issued, and fishermen must report in detail their catch, the fishing gear they use and their profits. This is a practice that generates valuable statistics which make it possible to better manage fisheries.

On the other hand, the members of TIDE go to school to teach children about the importance of responsible fishing and the environment; and the organization has a scholarship program that covers school tuition and textbooks for the children of fishermen. “In summer camp, these children help clean and share information with their friends” Joe says, who was also responsible for the design of TIDE’s ground program.

“I personally have liked very much that we have been able to bring people together to fight in favor of conservation and that we have a huge opportunity to enjoy a healthy ecosystem thanks to the comprehensive approach that we have used to manage the reserve”.

Celia says that the best part was to work with young community researchers like Víctor. “Experience with them was great because they learned of the importance of conservation and finally, understood why TIDE makes such a big effort to take care of the ecosystem”.

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In watching and listening to Celia, Víctor and Joe, I think of a fragment of the Belize poem by Eric Lenin Camejo Ocaña:

*British influence in the American Caribbean.
Day after day, overcoming challenges; the daily
struggle is real and not in vain. With strong arms,
the vessel is guided with uncertainty, crossing a
big ocean to surely find dock and shelter, thus
rewarding its superhuman effort.*

GUATEMALA



THE BAREFOOT HEROES OF MANABIQUE

Their powerful voices merge with the solitude of the sea [...]

Luis Cardoza y Aragón

To go from Guatemala City to Punta de Manabique Wildlife Refuge (RVSPM) you need to get on a small plane, fly Northeast for one hour and appreciate from the sky – amidst the clouds – the magnificent sea and the emerald green of the jungle territory of the region.

Punta de Manabique is a peninsula that separates Amatique Bay from the Gulf of Honduras and forms an important coastal-marine wetland, located in the department of Izabal, in the municipality of Puerto Barrios in Guatemala. It is a door to natural paradise because its landscape covers flood-prone forests, bays, swamps, beaches, mangroves and lagoons. It is one of the most beautiful geographies of Guatemala and it lodges the RVSPM, the only protected coastal-marine area of the country.

Diversity in the environment's ecosystems contributes to a large plurality of wildlife. In addition, it is refuge for birds and several endangered mammals, like the manatee, the tapir and the jaguar. It also has coral reefs that lodge a large diversity of marine vertebrates and invertebrates.

The landing strip in Puerto Barrios, a place where vegetation embraces homes and covers streets with green, is in the military base.

Environmental conservation activities in this beautiful territory started in 1989, but it was not until 2005 that it was declared RVSPM, considered a wetland of global significance and one of the most important

sites for marine turtle feeding in Central America. The conservation area covers 153,000 hectares, of which 49,289 are ground and 102, 589 are wetlands and marine ecosystems.

At nightfall, in this part of Guatemala, the sky turns orange and one can hear the croaking of frogs sheltered in street vegetation, as people bid each other good night and stroll under the stars.

If you are around those roads, after a couple of conversations you realize that heroes live in Puerto Barrios who dedicate their lives, genuinely and boldly, to protecting natural resources despite the constant dangers that this means. Heroes who, with limited resources, defend the natural reserve at all costs from the strong threats of drug trafficking, deforestation, illegal hunting, the change in land use, river and sea pollution, and the weakness of the rule of Law, an issue that sadly makes most of Latin America ill.

DEFENDERS OF PARADISE

The office of the Technical Unit of Punta de Manabique Wildlife Refuge (RVSPM) is in one of the streets of Puerto Barrios, where Hendryc Obed Acevedo, a young 26-year-old age man, leads conservation activities with the support of 12 rangers and six technicians.

These 19 persons, who belong to the National Council of Protected Areas (Conap), are responsible for controlling, surveilling and recovering the environmental governance of RVSPM to protect the integrity of this valuable natural region.

Seated at a rectangular table, experts explain that one of the worse threats for the RVSPM is illegal forest logging, since some persons can transform those wooded lands to make room for livestock, which, in technical terms is known as “land use change”.

42 “Since the declaration in 2005 to date, we have lost 30% of the forest in the core area of the protected region due to the advancement of cattle. The ground area of the RVSPM covers 49,000 hectares, and of these, 15,000 are forest, but 30% has been logged”, Hendryc Obed Acevedo explains.

RVSPM is the second protected area with the largest deforestation in Guatemala. Conap data say that cattle breeding practices involve forest logging, making dikes and ditches, drainage of swamps and other wetlands, timber extraction, the introduction of non-native forest species, soil compacting, the use of agrochemicals to treat crops, and weed fumigation. These practices affect forest biodiversity directly.

Additionally, deforestation deteriorates natural habitats that are essential for ground species like jaguar, tapir, birds and, particularly amphibians, small indications of environmental alterations.

The problem becomes more serious in the RVSPM, since, as a protected area, it is an isolated territory that facilitates the proliferation of drug trafficking activities. According to the studies performed by the San Carlos de Guatemala State University, limited presence of authorities and inexistent legal certainty are key for criminal groups to take over natural reserves to introduce cattle that they use as front to launder the money from their illegal businesses.

The study “Protected Areas between Invasions and Lack of Governance” of that University, states: “There is permissiveness and abandonment in the area; a haven for illegality that allows huge legal or illegal economic powers to gain control. There is impunity for the powerful, who are protected and are not persecuted”.

When they learn of forest logging or of wetland draining and drying, protected area defenders receive these bad news as hard blows for the reserve, since soil degradation and canal flow changes cause soil sediment to move into water bodies, which affects its depth, flow and volume, and their water becomes unnavigable. The presence of sediment reduces the amount of light that reaches corals and their symbiotic algae. “The loss of these important ecological processes eventually leads to disaster, including the collapse of fisheries, water quality degradation and the disappearance of other living resources”, a Conap document states.

“We have made progress in data collection through all the claims we have filed. Unfortunately, that is as far as Conap can go. It is frustrating to see how the people who have the power and ability to assess penalties do not do their part. We see people who destroy a considerable amount of land and are set free for a very small bail. It does not make sense”, one of the rangers explains.

A young man who dreams of saving the reserve states: “We identify an illegal action and coordinate our response with security forces. The Prosecution produces information and requests our report to broaden their criteria. Then, we see them assessing ridiculous fines for 50 hectares logged, when it is evident that the ecological harm is greater and irreversible in the short term”.

With crossed arms and over tanned by the fierce sun, a thin man who lives in one of the communities of the protected area and is a ranger tells us what goes on inside the forest: “we cannot argue with the



loggers because they always want to silence us. They walk around with weapons and feel powerful. They seek to destroy everything and expect us to remain silent. They throw threats at us. They say that we need to let them work, for otherwise, they will be waiting for us at the road bend to harm us. They come with their loads and we just look on. I remember what my parents told me when I was a child: “To see and remain silent to have a long life”.

Although the rangers in Manabique cover hostile terrain, they have the mandate of caring for its geography, changing its reality, listening to its past, and imagining a better future for their land.

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THE PASSION OF COURAGEOUS PEOPLE

Before 2012, the Punta de Manabique Wildlife Refuge (RVSPM) was managed by a civil organization. Starting that year, the National Council of Protected Areas (Conap) took over the area to recover environmental governance.

When Conap acquired the commitment to care for the refuge by combatting logging and illegal fishing and reducing contamination, it obtained support from the Mesoamerican Reef Fund (MAR Fund) through the Project Conservation of Marine Resources in Central America, the director of RVSPM, Hendryc Obed Acevedo, explains.

The mission of MAR Fund is to inspire regional innovative solutions for critical issues in the Mesoamerican Reef through significant financial support and for the long term, in order for future generations to enjoy and benefit from a healthy reef system.

MAR Fund donated the facilities for RVSPM's Technical Unit. “All you see here was financed by them: computers, desks, vehicles and boats. In addition, they built the Institutional Operations Center (IOC) in the protected area of El Quetzalito to take care of the area directly” Hendryc Obed Acevedo say.

Juan Carlos Hernández, of the control area, states: “To me, the big success was the construction of the IOC to regulate and surveil the area from within. And with the computer equipment we can process geographic information and have better communications to organize our knowledge”.

Marisol Rodríguez, a young woman responsible for legal affairs at RVSPM, states that thanks to the support of MAR Fund they were able to enhance their presence in the area, and the people learned of the work of Conap. “The people and Conap joined forces to file more complaints and stop illegal actions”.

44 Her colleague, Julián Serrato, ranger, explains: “the MAR Project gave us equipment and capabilities to benefit the people who live in the area. We give them environmental education talks that encourage them to care for their environment”.

“I am grateful to the donors that strengthened us, although I wish there were more permanent control posts in the area for loggers to see that our surveillance is permanent”, Jorge Cruz, also a ranger, says.

To summarize, Hendryc Obed Acevedo states that the infrastructure and training by MAR Fund gave them a long-term vision and plans to conserve and protect ecosystems and improve marine-coastland practices.

“We were taught to use GPS, we were given vehicles, diving gear, boats, and training. The current problem is that there is not sufficient fuel to use the vehicles and the boats”.

The people who defend RVSPM agree that the main problem is that a large part of the eight thousand persons who live in the 22 communities of the area lack sufficient income and basic services such as education, drinking water, social security, health and transportation. This forces them to resort to illegal activities to survive.

“We see health centers that are abandoned, some schools without teachers, and communities that have no drinking water but only rain water”, Obed Acevedo adds.

It is fortunate for RVSPM that rangers do not give up despite adversity. “We know that Conap cannot do it on its own; we take advantage of the consolidated Technical Unit that MAR Fund gave us to create a working group with partners and a cooperation network through which they are ready to work with us. Some of the partners are: the Ministry of the Environment, National Defense, the Navy, and the Nature Protection Division (Diprona). They go out on patrols with us in the boat and the motorcycle that MAR Fund gave us” says Hendryc, one of the men who is most committed with the reserve, as the horizon, with its hair ruffled by palm trees that nest the sea breeze, bids the sun farewell.

PARTNERS IN CONSERVATION

A few kilometers away from the Technical Unit of the Punta de Manabique Wildlife Refuge (RVSPM) are the headquarters of Diprona, the Nature Protection Division that shelters a group of youths who proudly wear sand-color uniforms faded by the rain, sweat, sun and the passing of time. Although bright medals do not adorn the chests of those men, they have inside of them the most valuable possession: passion to do the best work and to defend the nature that surrounds them, their home and their sustenance.

The small space where they live is extremely hot. There, they sleep, eat, rest, and wait for the call to do surveillance tours of the 153,000 hectares of the natural reserve. These anonymous heroes of Punta de Manabique: Roderico Antonio Ríos, José Manuel Moscoso, José Ordóñez and Nelson Díaz, Diprona officials, tell how, to defend the landscapes, they have been forced to deal, not only with verbal insult, but also with threats by persons who wield machetes and block their path.

Diprona agents have only one vehicle that is more than a decade old, and in constant need for repair. In addition, it is not very useful because they never have enough fuel. They do not have skiffs or boats for marine patrolling, or four-wheelers to go into trails. They coordinate their work with the National Council of Protected Areas (Conap) to do surveillance in the vehicles donated by the Mesoamerican Reef Fund (MAR Fund).

“It is hard to do inspection because we need to do a lot of walking to reach the areas. The problem is that when we find people engaging in illegal activities, be it hunting iguanas or logging the forest, the complaint we file is nothing more than a piece of paper because the Prosecution does not dare to go into the reserve”, they say.

The people living in the protected area are low-income persons that engage mainly in coal production or fishing, and are hired by criminals to extract timber. “Many of them do not know that they are committing a crime. People are used by others with higher purchasing power who, unfortunately never set foot in a prison despite the ecological damage they cause the refuge”.

They remember one time when they stopped three persons who were logging trees. “When we stopped them, fifty community members came out with machetes to defend them, and we were forced to set them free”.

“Judges know nothing of the laws that protect the environment or do not wish to know them, when it should be the most important topic for the country. Only one per cent of the national budget is allocated for the environment. Our proposal is that the money obtained from environmental fines be allocated for fuel so that we can do more patrolling”, the nameless heroes plead.

The young rangers do not yield to machetes, their low salary or the threats. They should be cheered and their talent, dedication and courage celebrated.

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LIVING WITHIN THE PUNTA DE MANABIQUE WILDLIFE REFUGE

Noé Ortega Pérez, 42-years-of-age, who lives in El Quetzalito, one of the communities in the Punta



Ahmed Sobah

Manabique Wildlife Refuge (RVSPM), located one hour away from Puerto Barrios, explains that the name of the place comes from the imagination of Honduran nationals.

“Garifuna Hondurans (Black afro-descendant ethnic group and native of the Caribbean) who played ball with the natives here named the people “quetzalitos” because of our currency. That is why the region was registered under the name El Quetzalito”.

Noé, a slim fisherman who protects the species, is one of the three hundred inhabitants of El Quetzalito, a community that is close to Honduras and borders with the Motagua River and the Caribbean Sea. The settlement is dotted by green landscapes of African palm and banana plantations.

In the community, eight of every ten persons engage in lobster, shark, shad and snook fishing, while the rest of the citizens work in corn, bean, chilli and plantain agriculture, thanks to the flat and fertile land washed by the Motagua River.

Unfortunately, the problem of El Quetzalito is that it is located in the last part of the Motagua basin and

its watercourse is saturated with waste: plastic, cans, bags, rubber footwear and even hospital waste. This all goes into the sea.

“We have the good luck and the misfortune of living close to the Motagua River, which is source of life but has also polluted the coastline. There is enough trash even for “decoration”. It is necessary to sensitize all Guatemalans to stop dumping waste into the river” says Noé, who has been a ranger for more than a decade.

The Motagua River starts in the Department of El Quiché, in Northern Guatemala, crosses 14 departments and 95 municipalities. Its watercourse reaches 6,500 million cubic meters per year and drags tons of waste with it. During the rainy season, pollution increases due to pesticides and fertilizers that are also dragged.

Waste affects not only people but also turtle, fish and sea bird nesting and birth. These species are trapped in floating waste. In the case of coral reefs, pollution produces indirect effects that limit reproduction, growth, collection and development of coral.



Lorenzo J. de Rosenzweig

“The river has a serious impact on sea turtles because rather than catching and eating jellyfish, they eat polyethylene bags, get trapped in nylon waste, fishing monofilament and nets. They usually die. Fresh water and waste accumulation do not let them approach the beach. Fortunately, if you go to the sea you can still see manatees and dolphins”, Noé explains from the Institutional Operations Center (IOC), a house-office located across the mouth of the river.

Even though several institutions have made extraordinary efforts in the last year to clean the basin, it is still not enough. Adolfo Estrada Barrera, Industrial Engineer and representative of the Ministry of Environment and Natural Resources explains: “We placed four bio fences (made of mesh and plastic bottles) to catch waste. We hired 15 persons from El Quetzalito to work directly to clean the mouth of the river. There they pick up approximately one ton per day. Our plans are to build a warehouse to pile up waste, and a dam to catch waste”.

The negative impact of pollution from the Motagua River has a significant negative effect on the rest of the regions of the Mesoamerican Reef System because the Caribbean coasts of Mexico, Guatemala, Belize and Honduras are connected through the reef. For that reason, it is important to diversify and coordinate conservation efforts among countries, with a regional perspective, in order to ensure knowledge exchanges and practical solutions for the conservation of this ecosystem that is shared by the four countries.

Noé, who works in the community as an RVSPM ranger, knows that the Hondurans are always upset over water pollution, since their territory is eight kilometers away from Guatemala. He also knows that these offended Hondurans – although they have complained about the waste dragged by the river – also harm the natural reserve because they cross into Guatemalan territory to hunt iguanas or fish illegally. Unfortunately, they are not the only culprits; the citizens of El Quetzalito are, too.

“As rangers, we know who is hunting and fishing illegally. What we do is try to raise awareness in people to stop doing it, because they harm not only the natural areas of Guatemala, but of all the countries that share the reef. For that reason we seize fishing gear and vessels; we release the species that they keep in cages, like parrots or comb ducks, and between seven in the morning until five in the afternoon we patrol the beach to monitor turtle arrivals”, he explains with a straight face, as he looks at the waste wallowed by the tide.

Noé says that before the Mesoamerican Reef Fund (MAR Fund) support came, he worked with other colleagues 22 days with 8 days of rest – living in canvas tents to do the surveillance work.

“We spent around two years under canvas tents that rotted from the sun, water and air. When it rained, water seeped through and you had to snuggle in a corner in order not to get too wet. Thanks to God, MAR Fund built a house, the IOC, where we now sleep comfortably”.

For his part, Miguel Ángel Maldonado Gutiérrez, Noé’s colleague, who has been a ranger for more than eight years, says: “The facilities that we built with MAR Fund have been very helpful because now we enjoy some comfort. At present, we have a boat to do surveillance, and therefore we get quickly to the places where people catch iguanas. In the past we had to do this on foot”.

Noé Ortega, Miguel Ángel Maldonado and Salvador Troches, IOC rangers, explain that the boat donation by MAR Fund made their surveillance work easier. In the past, they walked up to 24 kilometers of beach to watch the area. The three rangers agree that their biggest satisfaction has been to communicate the importance of caring for the natural resources of the refuge to the people in the communities of Suiche III, Media Luna, Las Vegas, El Quetzalito y Los Quineles.

“With the support of MAR Fund, we go to the schools to talk to children. Students already know the damage involved in tree logging and animal hunting”, Miguel Ángel says as he shares his big coastal grin.

Noé continues on: “The nice thing about working here is to commit to protecting resources. Thanks to God, communities have been quite aware that these are limited resources: there are fewer all the time, the population continues to grow and we need to conserve what little we still have in order to secure our future”.

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Hendryc Obed Acevedo, Manuel Ochoa, Sebastián Chub, Marlon Vásquez, Mariano Aldana, Noé Ortega, Miguel Maldonado, Jorge Grijalva, Dugglio López, César Hernández, Salvador Troches, César de Paz, Evelio Reyes, Aura Ramírez, Julián Serraro, Juan Hernández, Marisol Rodríguez and Sergio Hernández are RVSPM vigilants that take care of their area without the aim to earn medals or conquer territories, but to preserve their land, to keep their water clean and to offer a subsistence opportunity to their children and to their future grand-children.

Lorenzo J. de Rosenzweig



GUATEMALA, THE LINES OF ITS HAND

Guatemala, poet and essayist Luis Cardoza y Aragón said, is a “land that rises to the sky in the swell of a jungle gravid with embryos. A land of powerful vowels that merge with the solitude of the sea. A land where colossal trees throw themselves headlong into the sky”.

Sadly, its jungle, its rivers (that cross it like vines), its peaks, its ravines, its seas and its inhabitants have stopped their vital movement mainly due to pollution, illegal logging, hunting and fishing. The social and environmental problems experienced by Guatemala are very similar to the aggression endured by other countries in Central America, where silence, repression, dispossession, poverty and injustice repeat themselves as a macabre and absurd carousel.

For the dominant economy and for most governments, development is equal to economic growth based on increased production and indiscriminate consumption of natural assets. However, this model translates into growing economic and social inequality, human rights violations and destruction of nature and biodiversity, which are factors that put the future of the region at risk.

Amartya Kumar Sen, Philosopher and Nobel Economic Science laureate, proposes a human development concept that could be replicated in Central America and that favors the values of human dignity and social justice, with evident social, economic and political benefits for communities. This model, like many others, depends on the integrity of natural capital.

There is hope despite the intimidation and poverty endured by the rangers of the refuge. The dream of a full and sustainable life for the communities of Guatemala remains alive.

TRANSFORMATION OF THE GUATEMALAN OCEAN

*Great stars of frost come with
the fish of shadows
that opens the path of dawn.*

Federico García Lorca

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It is a morning of August 2017. I am under the sky of Puerto Barrios, Guatemala, of a very well-defined Caribbean blue at this time of day. Night left behind it a profound smell of rain. I dreamt that huge dark roots stemmed from the sea, ready to protect fish and to sink vessels. I like to tell my dreams on an empty stomach to prevent them from coming true, but today I do not have an interlocutor to share the strange dreamlike scene. So, I better go over our plan for this day, which consists of going onboard and sailing for half an hour to La Graciosa, one of the three communities that use fishing resources, a renewable good.

The idea of going to La Graciosa, located in the Punta de Manabique Wildlife Refuge (RVSPM), is to document, through interviews, the opinion of the inhabitants of the coastline that are determined to recover marine life, once abundant, under the turquoise surface of the continental Caribbean.

The intent seemed simple: Sergio Hernández, expert in marine areas and custodian of RVSPM coasts, would pick me up at the hotel at eight in the morning, we would buy fuel for the boat and would take off. We would leave from Puerto Barrios to the coastal site of La Graciosa.

At the hotel restaurant I ordered fruit and coffee while I saw the TV showing images of clouds and rain coming together with

mute announcers who gestured as they read the information. It was easy to guess the bad weather forecast for that day.

Time went by without anyone approaching the lobby. After 45 minutes waiting, I texted to ask the reason for the delay but received no answer. The sky started to change from Caribbean blue to storm gray. When I saw the first drops of rain, I remembered the story that philosopher and historian Mircea Eliade told about Chinese mythology: "Fish that sleep in lakes or swim in rivers are capable of drinking downpours and preventing floods. But this morning, it did not look like there were sleepy fish in Guatemala's estuaries.

A day earlier, RVSPM rangers told me that like, in so many other places, the populations of fish in seas and rivers had declined gradually due to pollution, climate change and merciless overfishing. Now, manjúas, snook, snappers, lobsters and conch are endangered species in that region.

Civil organizations and government authorities have worked for more than one decade with community leaders to bring life back to these coasts. It was 2012 when three fishermen villages: La Graciosa, Santa Isabel and Punta Gruesa, and Gillnetters and Manjueros Fishermen Committee of Puerto Barrios established an agreement with the National Council

of Protected Areas (Conap) and signed an agreement to declare the first three fish replenishment zones of the RVSPM in Guatemala.

As I remembered the conversation with RVSPM rangers, Sergio, who would take me to La Graciosa, showed up. His hands had oil stains, thus revealing the reason for the delay. Sergio and the owner of the boat had spent several hours trying to repair it. They had removed the engine and had not been able to get it running. The new plan to go to La Graciosa depended on the sailing skills of César, a native ranger from the village, who would pick us up at the dock at the Conap office.

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We hurried. We climbed on the bus. We reached a gas station to get a gallon of fuel. On the way, Sergio told me that the main difficulty for Conap is that it only has one boat to do all the work needed, which complicated our transfer plan. The 12 rangers need to wait up to 15 days to get fuel and monitor 312 hectares of sea.

All of a sudden, the sky changed to the next gradient of darkness and dumped a big downpour on us. We ran to the office for shelter. We saw César come from the sea, soaked in rain. We were all dripping. César announced that a tropical storm with high waves

was coming, a risk for sailing. We decided to remain on land. With patience we saw César's kayak which, moored to the dock, waved idly to the rhythm of the waves.

THE GUARDIAN OF FISH

César de Paz, guard of Guatemalan coasts for the last 17 years, tells of his travels on the kayak across three bays in the refuge. He sails the cobalt blue surface in search of dolphins, manatees and bottlenose dolphins to write down in his notebook the place and time when he saw different species.

This slim, short man, sunburnt by the Caribbean sun, is one of the 12 rangers who care for the coasts and the bays of Punta de Manabique Wildlife Refuge (RVSPM). He searches his memory and tells us that he was born 47 years ago in La Graciosa, a community formed in the seventies by families from Puerto Barrios, and which is half an hour away, by boat from the dock of Barrios, in the department of Izabal.

La Graciosa is one of the 22 villages in the RVSPM. At night, its inhabitants use candles and lamps to light their homes, and take advantage of rainwater to cook, drink and wash their dishes and clothes, since they do not have electric power or drinking water. 70% of them are mestizo and 30% speak Maya q'eqchi'. The predominant language is Spanish. La Graciosa has a school, where only one teacher teaches primary grades to 22 children. They do not have a health promoter or a midwife. The closest health center is half an hour away in Puerto Barrios.

The landscape in La Graciosa is very beautiful, but in recent decades, plastic waste that comes from rivers and urban areas stains each natural corner.



Lorenzo J. de Rosenzweig

Selling coal and marketing fish are the main forms of livelihood for the families that live in La Graciosa, Santa Isabel, Estero Lagarto, Machaquitas Chiclero, Creek Negro, Machas del Mar, Cabo Tres Puntas, Punta de Manabique, and San Francisco del Mar, all of them within the RVSPM. “To produce 40 bags of coal you need 20 days of continuous work. First, you log the tree and cut the timber. You take it to the shore and load it on a boat to take it closer to the homes. Once it is covered with leaves, you light it and you gradually add sand to prevent full combustion, César explains.

The families that take advantage of forest products to obtain vegetable coal in a protected area must process monthly permits to market the end product in Puerto Barrios. On average, for 40 bags of coal, which means 20 days of work, they obtain 22 dollars. Citizens also take care of properties. They are hired by home owners to do maintenance and to guard beachfront houses. Through fishing, coal production, property maintenance and food harvesting (for self-consumption), a dweller of La Graciosa earns, on average by month, approximately 150 dollars.

Despite financial difficulties, the members of the community pledged to care for the sea. Artisanal fishermen were the first to detect the decline in the ecosystem’s productivity. Fish catchment had dropped considerably. For that reason, the communities of La Graciosa, Punta Gruesa and Santa Isabel, and the Gillnetters and Manjueros Fishermen Committee of Puerto Barrios promoted the first initiative to establish fish replenishment zones.

“Communities promised to not fish in protected areas any more. Many favored the decision, while others are still reluctant to accept it. But I speak to them to convince them of the benefits it brings to us as a community”, César adds. The objective of fish replenishment zones is, in the long term, for commercial value populations, such as manjús, snappers, cuberas, roncós, lisetas, chumbimbas



Gabriela Ochoa

and snook to recover, and for the reef to become strengthened for associated species in these natural areas to attain a more natural productivity.

“This initiative seems great, because children, little kiddies, will have the opportunity to see the fish that we once saw” César says from the dock as he sees the rain-laden clouds pass.

WITHOUT NETS IN THE SEA

And, how long did it take to accomplish this? 11 years of work were necessary to design and incorporate fish replenishment zones to the Punta de Manabique Wildlife Refuge (RVSPM), Sergio Hernández, a coastal-marine analyst of the Technical Unit of the Refuge remembers. Hernández explains that the working groups met every three months, from 2014 to 2016. They were financed by the Mesoamerican Reef Fund (MAR Fund), through the Project Conservation of Marine Resources in Central America.

The objective of MAR Fund is to finance the protection and conservation of ecologically unique and vulnerable marine ecosystems that make up the region, in addition to promoting resource conservation values, as well as inclusion of civil society in making decisions to guarantee the future availability of biotic resources in the region.

“With the support of MAR Fund, we accomplished a participatory process. The working group meetings took place in different villages where 330 persons were involved, among them, community leaders”.

The permanent closed season area, as it is known officially, covers a total of 312 hectares of sea. “In La Graciosa bay polygon are 86 hectares; en Punta Gruesa, 104 hectares; and in la Laguna de Santa Isabel, 122 hectares. Each one of these areas is defined by a polygon with buoys which warn that fishing gear is forbidden” adds Sergio Hernández. The objective is that in the long term, fish, mollusks and crustaceans, that are the sustenance and source of income for the inhabitants of the refuge, recover in number and size, and that the function of the ecosystem, reefs, seagrasses and mangroves, be strengthened. These are additionally nesting, rearing and feeding sites for many species.

Sergio Hernández, expert fisherman, explains that one of the priorities is the recovery of the manjúa habitat. This is a translucent, eight-centimeter in length fish, with a silver line along its body. The manjúa is important for RVSPM villages, for it is part of the culture and traditions of the region. Its white meat has small bones, but is very tasty and is used for snacks, fried, coated in flour, in tacos with lime or as fried patties with tomato sauce. Manjúas are also food for bottlenose dolphins (an endangered species in the area) and for carnivore fish populations. “Recovery areas protect the manjúa lifecycle, and are therefore also included in open sea. The areas fulfill an ecological role as they maintain the populations of this and other species”.

The project and the declaration also give protection to the four marine turtle species that live in the RVSPM: Olive Ridley, big-headed, green and hawksbill, to marine reptiles that feed in the reefs and in seagrass, as well as to a large diversity of organisms, including the emblematic manatee and the almost sixty species of birds whose home is the refuge.

SAILING BEYOND DIFFICULTIES

Guatemala and other developing countries of the Mesoamerican Reef System face the huge challenge of sufficient and regular availability of financial resources.

“Although the project gives talks and environmental education to communities, there is resistance on the part of groups of fishermen, who are not interested in protecting the resource and therefore do not participate in the training”.

Even with these limitations, the project was able to consolidate significant progress such as the creation of the Punta de Manabique Wildlife Refuge Technical Unit (RVSPM) and obtain equipment for technicians, for better management and control of the natural resources in the refuge.

“The equipment, like the patrol boat, the diving equipment and compressor to fill the diving tanks, as well as training, were the most valuable tools that MAR Fund (Mesoamerican Reef Fund) gave us”.

Sergio explains that one of the objectives of the National Council of Protected Areas (Conap) is to provide alternative sources of decent work and income, which was accomplished with the support of the project. “A couple of projects were strengthened to improve the quality of life of the community; three community stores were opened, a community development committee was created, and a refrigerator that operates with solar PV energy was provided”.

Better education conditions were established in the three communities, through the refurbishment of elementary schools. Specifically, the floors were painted and renewed, and the deteriorated pilings on which the classrooms were set were changed. A school made of coated drywall, a small library and a community kitchen were also built.

As we waited for the rain to subside, Sergio and César told me, in the office of Conap, that the establishment of the fish replenishment zones will make it possible to improve quality of life and recover the self-esteem and values of the members of communities involved.

At this time, I believe it important to recognize that the true ecological statements always become social discourse. Human and natural environments degrade together, and it is not possible to address the causes of natural deterioration if the root of the social problem is not addressed, which in this case is, the lack of utilities and deficient feeding, education, health and clothing, which persist in Punta de Manabique villages.

Guatemalan fishermen and their families have done their part: in 2012 they made the commitment of caring for the sea and its resources. Now it is up to the State to protect their human rights and provide sufficient support to give this first step sufficient support.

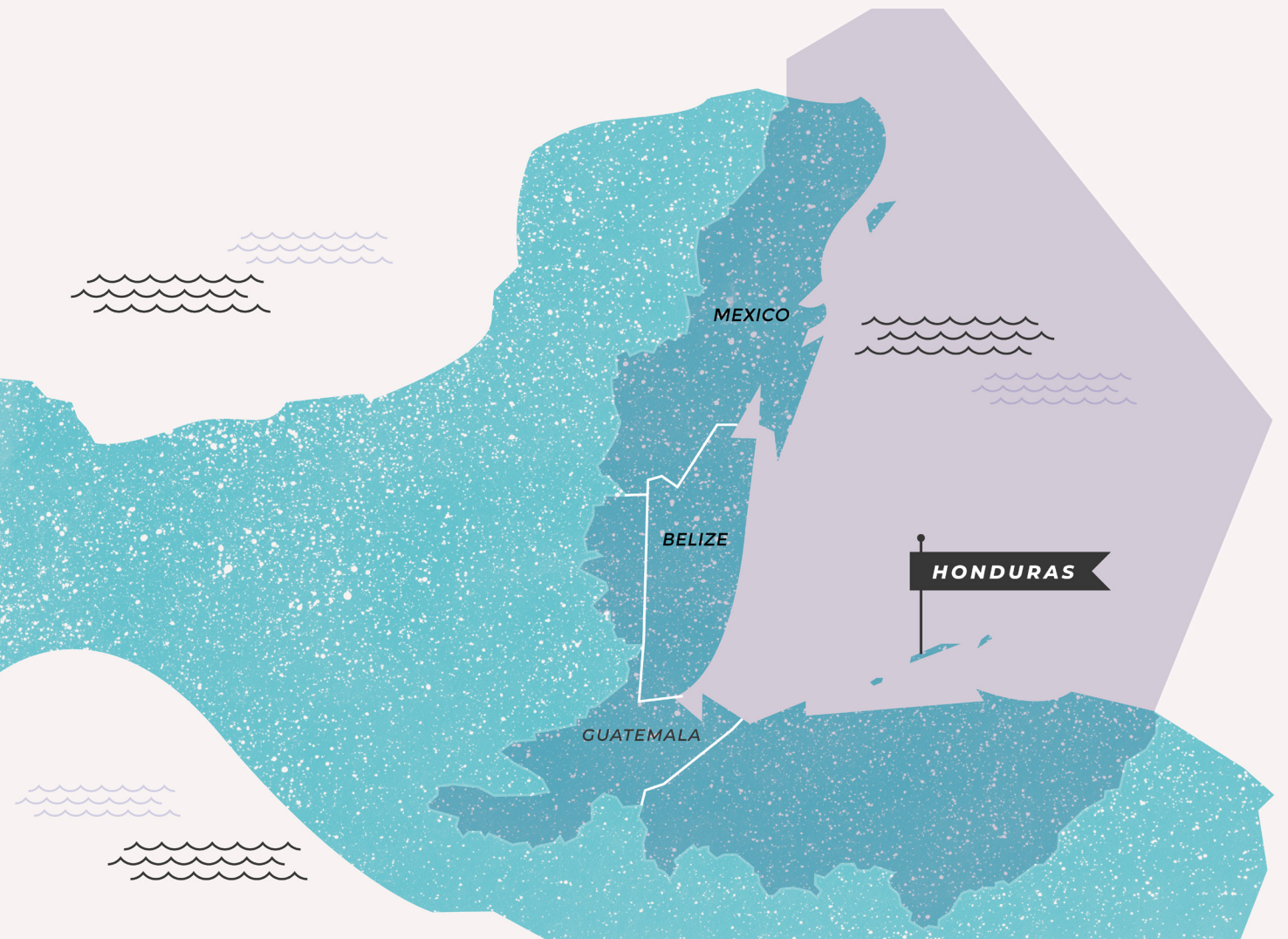
The mission of MAR Fund is to inspire regional and innovative solutions to address the critical problems of the Mesoamerican Reef through significant, long-term financial support so that future generations can enjoy and benefit from a healthy reef system.

RVSPM illustrates the mission and is a learning model worth sharing with other communities that dream of a more equitable and biodiverse world that becomes proud heritage for coming generations.



Fundación Albatros

HONDURAS



ANYTHING TO BE UNDER THE SEA

*He, the man with
tormented eyes,
who has looked at a thousand sea dawns,
has plucked me from the gray streets,
from my vile habits of civilized man
that have nothing to do in my destiny, in my feet, in my hands,
in my hungry eyes of a bow, a star and a dawn.*

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Jacobo Fijman

At 25, Guillermo Pastora knew paradise. It happened in 1997, when, for the first time, he visited the island of Roatan, in Honduras. “The first time that I came to this island was with my parents, and when I saw it, everything in it fascinated me. I knew the beaches of Honduras, but none with such crystal-clear water and so full of life like the water that embraces Roatan”, he explains with a magnificent smile.

At the time, Guillermo lived in Tegucigalpa, capital of Honduras, where he guided foreigners through the wonders of his city. When he came to Roatan, he had the feeling that he would live in this land surrounded by sea, jungle and coral, and sheltered by a carousel of sun and stars. The map of fate seemed to tell him that he had an important task to fulfill in this new Honduran geography. “I started to come to the island to do snorkeling, but then I wanted to dive. The first time that I dived in the depths of the sea was here, in the island”.

Guillermo gave up being a tour guide in Tegucigalpa and went to Roatan. In the island, he worked for Diamonds International, a company that sells jewelry and watches and which, through volunteer programs, provides support for civil organizations, among them, the Roatan Marine Park (RMP). It was so that Guillermo learned of the work of the organization, a

philanthropic organization that cares for the reef and the environment of the island.

Then, fate led him to meet Christi Eches, a tall, slim young woman, expert diver, who worked for RMP. She explained to him that the organization had a program called Protect Our Pride (POP) that trained Hondurans in professional diving.

POP, sponsored by MAR Fund and operated by the Roatan Marine Park, offered free of charge classes for natives to become certified as dive masters and dive into knowledge and care for the reef. When he heard of the program, Guillermo did not hesitate and enrolled. At that time, he did not imagine that his life would take a 180 degree turn: that he would spend more time in the depths of the sea than on surface; that his swimming partners would be eagle rays, morays, snappers and seahorses; that his charts would be nautical; and that caring for coral would be his constant passion.

CUSTODY OF THE ISLAND TREASURES

Behind the counter of a diving store in West Bay, the touristy side of Roatan, I meet Christi Eches, one of the most visionary women in the island. She welcomes me with a smile and offers me water.

We sit on high stools that surround the counter of the business and she tells me the story of her life. She was born in the island 32 years ago. She studied criminology in the United States but decided to change her profession when she realized the difficulties of applying her knowledge in her country. She chose to care for the sea. She got a job at the Roatan Marine Park where she taught environment to children and adults, she created manuals to dive into the sea, she became a diving instructor and responsible for community development programs.

When she saw that Roatan did not have enough Hondurans diving, Christi thought of the Protect Our Pride (POP) program. “Many Honduran tour guides would run after taxis— for a tip – shouting: “hey, friend, you forgot your coral fan”. These persons thought themselves owners of Roatan but had no respect for it. And I would say: “if you do not feel

proud of your island, or of your reef, how can you make others respect it?’.

She explains that in Roatan, most people’s livelihood is in tourism. “But if the reef disappears, if there is no safety in the streets, or if the landscape deteriorates and changes, tourists will choose not to come, and we, the Hondurans, will be out of a job and of an income. For that reason, I thought of promoting a program that would make us proud of the reef, to protect it before it disappears and leaves only algae-covered rocks”.

The first thing that Christi found was that the diving industry in Roatan, that started in the sixties, was in the hands of foreigners because diving was unaffordable for Hondurans, who also did not have enough free time to enjoy the sea. In Honduras, the population lives from hand to mouth, like in most of Latin America. That is, people buy the bare necessities for their family and use most of their time to work. “Starting to dive is very difficult, particularly if you are not in the tourism industry, because you need at least one thousand dollars and seven free weeks to take the first courses”.

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Francesca Diaco

Faced with this reality, Christi wondered “where are people going to find money and time? and how can they get a dive master license, if they need to pay \$115 with a credit card and they do not have one?”. The POP decided to pay for classes and materials. The only request, in exchange, was to have participants over 18 years of age who speak English and provide 10 hours of community service. The theory of change was that Hondurans would teach by setting the example of responsible diving and would also support the community by sorting waste, fixing garbage disposal bins or clean the beaches. And they needed to take pictures as evidence of the work done.

The Mesoamerican Reef Fund (MAR Fund) provided support, since 2012, to the POP program. MAR Fund is a key organization for the economic, cultural and environmental life of more than two million persons who live along the coasts of Mexico, Guatemala, Belize and Honduras.

During the first four years of life of the program, Christi dived with more than sixty Hondurans to train them specifically in topics of marine-coastal conservation, and in turtle and coral reef monitoring. Guillermo Pastora, who came from Tegucigalpa, a chaotic and violent city, was one of the first protectors of Roatan’s pride.

I remember what Guillermo said when we were on the sand that the big advantages of POP for him were that it meant becoming a diving instructor, become acquainted with the depths of the reef, and care for it for the important social, economic and ecological benefits that this marine ecosystem brings to the people of Roatan.

“In exchange for diving classes we were asked for hours of community service. I offered to be a volunteer at the Roatan Marine Park and made recycling boxes with the use of timber and fishing nets seized from poaching. I also planted mangrove, cleaned beaches, talked to children about responsible fishing and about the importance of caring for the reef”.

In order to have more time for conservation, diving, and to read about coral, Guillermo left the jewelry store and went to work for a bar. In addition, he became involved in fish monitoring, in particular of groupers, an activity that helped him to accumulate diving hours.

Later, he worked at a diving gear store as the manager’s assistant and in customer service. “Most of the time I was at the store and not in the water and for that reason, it took me six months to complete the hours needed to become a dive master, a diving professional who can charge for his services” Guillermo says as the drops of water that slide from his long hair crash against the sand.

After diving 60 times to more than forty meters under sea level, Guillermo became dive master in 2015. From that moment, he engages in instructing other divers.

“And then you realize that the students become more dedicated and more committed persons”, says Christi. “They rise earlier, they use their time wisely and invest in their objectives. And even though it is hard for Hondurans to learn to dive, it is possible”.

The POP program meant for Christi a door for her fellow citizens to have the opportunity to become diving instructors. Above all, it was the formula to promote their potential and make them better persons, aware of their environment, with better tools to grow in the community.

“Fortunately, MAR Fund (Mesoamerican Reef Fund) opened the road for a new generation of local divers that gives them the opportunity to make more money, talk about the reef, help to conserve it and respect the environment as a key element for good tourism development. They are better persons because they are better trained”.

He explains that the change of mindset is a hard and slow process because some hotel developers and house builders continue to harm seagrasses. “Maybe they remove it to feel the soft sand under their feet”, Christi says ironically. “They tear off mangroves because they say they smell badly.”

“Wetlands and swamps disappear. Basins are invaded and the culprits are perhaps not aware that they are, little by little, killing the island. Poaching is another threat to natural resources in Roatan”, Christi assures us. As she says these words, a shadow dampens the natural shine of her eyes.

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It so happens that Christi experienced a difficult episode when she and her colleagues seized fishing gear from a person who was fishing illegally. In retaliation, the man poured a gallon of gasoline over the Roatan Marine Park office. Fortunately, he could not set fire on it or harm anyone. Christi and her work colleagues filed the appropriate complaints but the individual was not arrested by the police. Christi resigned because she felt unsafe by the incident. This underscores the clear absence of the Rule of Law.

The spirit of strength of this young Honduran woman is admirable, for, despite these difficulties, her words intertwine to show a deep love and respect for marine ecosystems. Even though she left POP a few months before it ended, she does not give up and continues to bet in favor of more persons feeling proud of the more than ninety-five square kilometers of coral reef surrounding Roatan. She says that the best part of her work at POP was faith and betting in favor of people. “MAR Fund believed in us. It had more faith in the program than I expected. It had more faith than I could believe”.

On the other hand, her student Guillermo, who is now a diving instructor in the Roatan Dive Center, says: “POP changed my life. I feel fortunate of having been a part of the program. I was enthralled by the information that they provided. I remember sitting at the office of the Roatan Marine Park to read about the reef and they would take all the time to carefully



Pedro Lastra

explain how to conserve it". And he concludes: "Now I like to be underwater more than on firm ground. To always discover something different in the same diving place that I have visited two hundred times is proof that everything is in constant change down there. To be able to browse around and find a new site is another big satisfaction you get from diving. The peace that you feel down there, in the ocean, as if you were floating in space, is indescribable."

THE SPIRIT OF DIVERS

Divers, fish men and women, who seem to hide scales and invisible fins under neoprene, reveal to land people the safe ways to go into the depth of the sea. They explain how to breathe through the oxygen tank that we carry on our back; how to take water out of the mask; the way to depressurize to prevent harm for our ears and lungs; and the sign language to communicate under water. On the surface, they show us a map with our path and drawings that illustrate the fish and plants that we may see there, in the depths.

Fish women and men also have the quality that they move very quickly when they are on land: they carry the tanks, load them on the boat, and call the Roatan Dive Center captain before we start our trip to the center of the ocean.

Everyone sails happily. They celebrate the sea breeze. They smile at sundown. Their best celebration: to descend to the depths of the sea. I have a frozen human smile – with no scales – and list my disadvantages: I only know how to breathe through my nose, my passing through the world has been walking, and I have been to sea level only through a staircase. But there is always a first time to go to the center of the ocean.

We sit on the edge of the boat. I try to appease my city nervousness. I see the waves. I breathe deeply. One by one, we roll back into the abyss. Salt water

meets us. We remove air from our vests. We begin to go down to the most beautiful universe on earth.

ONE METER. THREE METERS. SEVEN METERS. TWELVE METERS.

A fish shaped like a black coffer and lit with white dots looks at us. Then I find out that it is called puffer. I see curious turtles that seem to follow the sea flight of great stingrays; lobsters rummage in search of food close to their caves; a sole is confused with sand.

I see huge submerged mountains, colorful floating gardens, coral walls that are home to toad fish, parrot fish and many velvety black fish families. It looks like they are out partying because of the elegance with which they show their fins and colored scales. The intense blue fish smile, the fluorescent swim alone and we, dressed in neoprene black, pass by many of the 167 species of fish that find shelter in the Roatan coral reef.

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We float, captive in the beauty of the Mesoamerican Reef, the second largest in the world after the Great Coral Reef in Australia. We move close to its rocky structure over the submarine platform that formed after thousands of years from coral skeletons and minute organisms.

It surprises me that the reef, that seems so fragile and rugged, is protection against the strong hurricane waves, and that seagrasses are their shield, since they trap sediment to protect it.

As we move in the depths, I remember the words of Guillermo, our guide: “the reef is a day care center for the fish. In the first stages of their life they remain close to the coral wall, for it offers them protection. Were it not for the reef, there would be no coast lines, or islands, or fish, or mollusks, or crustaceans to feed us.”

It was not until that day that I understood that the hope for earth is discovered by taking the leap to the hope of the planet that resides under the sea, where an immense and colorful architecture is displayed, a huge blue and smooth map that envelops you and suggests the sensation of being suspended in eternity.

SENTINELS OF ROATAN

As we leave the ocean, I encounter Eduardo Rico, a young man who exudes energy and offers a brimming smile. We meet at the office of the Roatan Marine Park, located in West End, a neighborhood full of restaurants, where divers come out of the sea under the light of the stars to celebrate the beautiful and strange creatures that they saw under the ocean.

Eduardo Rico, who has a long history in conservation, manages the Roatan Marine Park, a non-profit civil organization created in 2005 for the purpose of

contributing and using natural resources in the Sandy Bay-West End Marine Reserve responsibly.

Eduardo manages the surveillance of 941 hectares of land and sea, a strip that goes from 10 meters inland from the tide line to the contour line 60 meters deep.

The young biologist, born in Tegucigalpa 38 years ago, explains that one of the main missions of the Roatan Marine Park is to promote responsible tourism. Roatan is the only Bay Island with an international airport. In addition, each year it welcomes more than two million visitors who come by sea, attracted by diving, sports fishing and the beach. As an important cruise ship destination, during the high season, close to eight thousand persons come down from the giant floating hotels. Garbage and waste management for these brief but intense invasions, as well as their potential impact on fragile coral and marine spaces is a challenge for civil society and government, Eduardo says.

“Our strength as a conservation organization is in the installation of buoys for bay access canals. With the buoys we signal the places that fishermen and tour guides should follow without hitting the reef. We also work with four rangers to ensure that there is no illegal fishing, particularly of viperfish, lobster and pink conch”. Fifteen persons work at the Roatan Marine Park. They have their own resources that they get from donations and their four stores where they sell souvenirs and rent articles for recreational water activities.

For that non-profit organization, support from the Mesoamerican Reef Fund (MAR Fund) has been key, since, for five years, it strengthened surveillance in the reef by providing vessels and training its members to improve dialogue with tourists, as well as in self-defense techniques.

“The support of MAR Fund permitted our increased presence in the island. The result has been very

satisfactory. The positive impact of the field presence of rangers can already be seen in a slight increase in coral coverage, based on the evaluation of the AGRRA (Atlantic Gulf Rapid Reef Assessment) protocol. We attribute this to the presence of rangers”, he explains.

A well-conserved and attractive reef is essential for all of us. “We must take care of it and reduce illegal fishing in the protected area, as well as eradicate the use of harpoons and fishing nets”, says Eduardo, who confesses a profound fascination for octopus, because of their intelligence and ability to mimic sand color during the day and pale blue at night.

The four rangers of the Roatan Marine Park receive the support of the Honduran Navy to counter illegal actions such as unsafe practices in tourism activities, conch collection, mangrove logging and illegal fishing.

The park’s personnel also receive support through the reports it receives from the RMP iPatrol app,

whereby people use their smart phones to report illegal activities which harm the ecosystem.

From his small office in West End, full of papers and books, Eduardo says that his goal for next year is to duplicate the number of rangers to expand surveillance on the West side of the island. One of the community programs that he feels prouder of is Protect Our Pride (POP), promoted by MAR Fund, because it offered financial alternatives for the Honduran people and created better environmental awareness among locals and visitors.

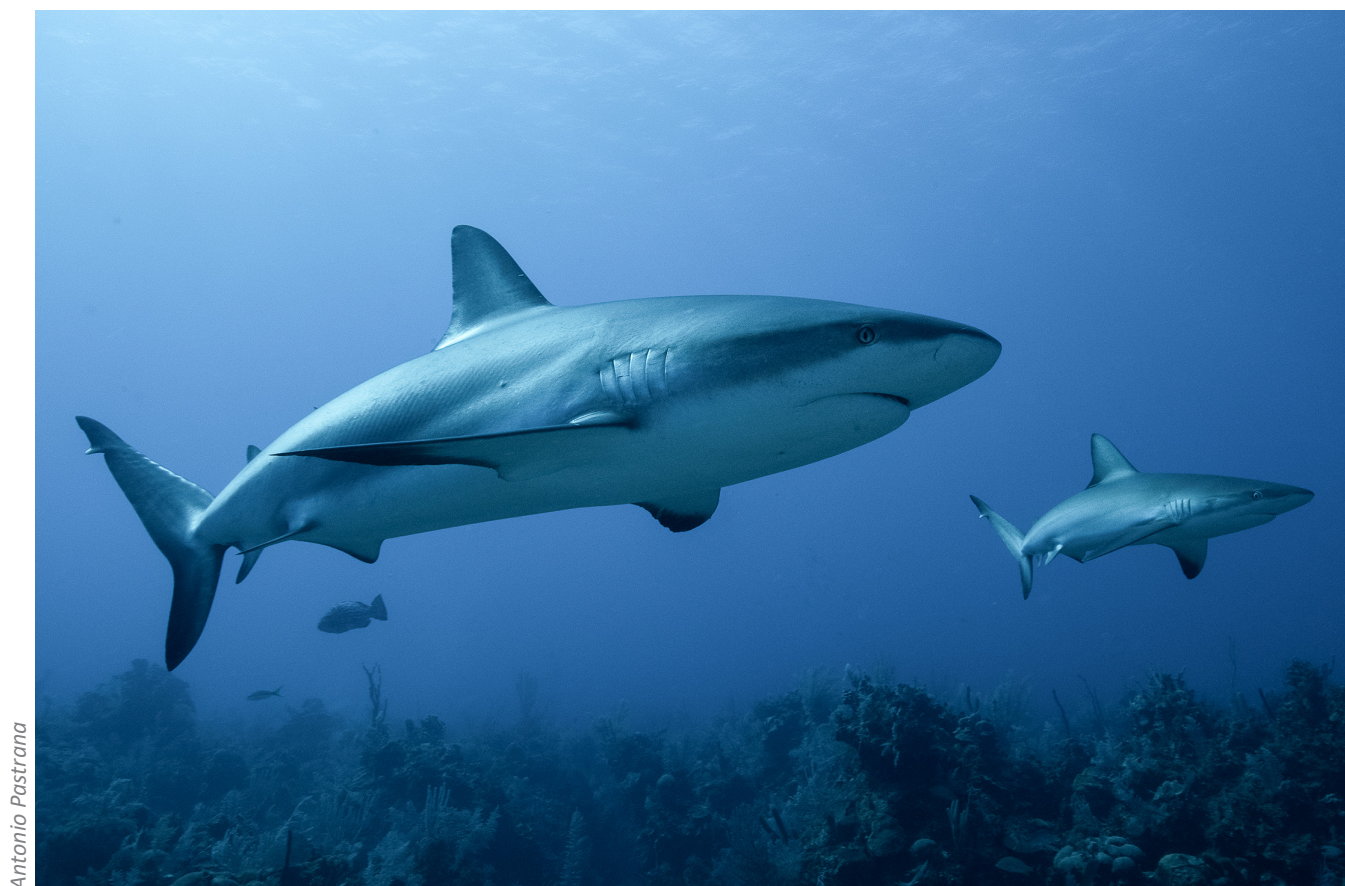
Eduardo, born for marine conservation, went to work for the Roatan Marine Park as a result of the passion that he found in people committed to care for the island. “I wanted to join in the effort and moved from Tegucigalpa to Roatan without thinking twice”.



Jeremy Bishop

Eduardo had enrolled in Electronic Engineering School but, influenced by his older brother who is a Biologist and taught him about plants and organisms, he changed careers and ended up studying Biology.

He believes that one of his biggest accomplishments was the declaration of the Montaña de Botaderos National Park in Honduras, as a protected area. Now, his biggest satisfaction is to work with Gael Gutiérrez, Karen Leía, Nicholas Bach, Leonel Ayala, Dagoberto Ramírez and Isaías Ramírez. They have joined capabilities and commitment at the Roatan Marine Park to reverse deterioration and provide a healthy and sustainable marine environment to this island, one of the jewels of the Honduran Caribbean.



Antonio Pastrana

THE HANDS THAT WEAWE PALM TREES

*I put these six verses in my bottle to the sea
with the secret intent that one day it will
reach an almost deserted beach,
and a child will find it and will open it,
and instead of verses will pull out stones
and relief and alerts and snails.*

Mario Benedetti

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I came to Roatan on a small plane of the size of the Italian Cinquecento, but with wings. Under me was an undulated light blue coastline with an indigo tinge.

This morning I drive along a narrow two-lane road. I drive a white double-cabin bus that I was given to use. Roatan – one of the most beautiful lands I have seen – is flanked by a whispering jungle that appears impenetrable.

Nidia Ramos, mi codriver, shows me the way. She had asked me the previous day if I knew how to drive. I said yes. I almost lost my credibility with her, because it took me a while to figure out that reverse is activated with the lever on the side of the steering wheel. In addition, the vehicle stopped on me a couple of times. Nidia was very kind and said that the drivers that use this bus always have the same problem.

We are in the facilities of the Bay Islands Conservation Association (BICA), a private organization that is nationally and internationally recognized for its extraordinary work in the conservation of Honduran ecosystems. We went to the Sandy Bay Model Elementary Education Center, the first school in the country with

a green classroom, a classroom built especially for environmental and nature conservation education. At present, this school is a teaching model for the country.

Along the road, palm trees throw their fans in every direction. Nidia, environmental education coordinator at BICA says that the nature conservancy education program called Green Classroom took three years to design and implement. It was delayed because of scarce financial resources in the school to pay for full time teachers in the green classroom and because teachers resisted the program, which meant more hours of work for them.

But the insistence of Nidia and the determination of the BICA experts in partnership with the Mesoamerican Reef Fund (MAR Fund) made it possible to educate teachers and children on the values of the reef's ecosystem, on the impact and consequences of climate change on it and the jungle, on the importance of separating and recycling waste, and on the significance of preserving fish, coral, mangroves and seagrass.

Teachers were convinced of the urgent need to having a green classroom. Since it opened in 2016,



they work every day to raise the awareness of 1,260 children who attend the Sandy Bay Model Elementary Education Center.

The tropical air envelopes us. Nidia instructs me to drive towards the jungle. The guard opens the gate of the school. We arrive at ten a.m., exactly for recess. One thousand children play in the yard. Some kick the ball. Some chase each other. Others run in rows. They stroll in groups. They share snacks. The explosion of laughter and sounds prevents them from seeing our arrival. Or perhaps they ignore us.

Nidia tells me to blow the horn. I do so several times, but the schoolchildren continue to parade in front of the windshield. I drive slowly. Little by little they make room for us. I look for room to park in the yard. Suddenly there is a big noise. One of the tires bursts the soccer ball. They boo us in chorus. What an approach! I think. I make a serious face to avoid public lynching.

The mob of children surround us. I take that time to ask them about their experience with the green classroom. "They teach us to sort waste", "to not throw it on the street", "to recycle". "They teach us how to care for animals, the environment and the Earth". "If we do not recycle, animals can die from so much trash. A turtle may think it is food and choke on plastic". "Trash causes diseases, and that is why you need to pick it up". I speak to ask them what animals they like. "I like rabbits". "I like turtles". "I prefer dogs". "And I love cats". After getting their answers in gusts, Ariana, Gabriela, Wendy, Paola, Rosa, Ana, who are 9, 10 and 11 years of age, run away.

I climb the stairs, soaked in sweat. I look from the corner of my eye, hoping that school children revenge for the burst soccer ball is not coming. Fortunately, they appear to have forgotten it.

I go into the classroom of teacher Gladys Ulloa, who has 32 years of experience as a teacher, and she

“We really liked the green classroom initiative. We have participated in several workshops where we were taught to teach kids to sort garbage. I see with pleasure that awareness of the importance to care for the island has improved. For example, we no longer use plastic bags in supermarkets. Each one of us carry our bag made of fabric or mesh to put our groceries in”. She continues to say: “In addition, the green classroom is also a school for parents. Values and care for the environment are rescued there. We show the children and their parents that the reef means jobs for the families, because most depend on the tourism industry. For that reason, we need to preserve the beauty of the island”.

In Gladys’s classroom, the walls are covered with colorful drawings of animals. Boxes lie on the floor: the yellow box is to put plastic waste in; the black box is for organic waste, the blue box is for paper, the green box is for aluminum and the one without color is for food waste. The teacher explains that paper is recycled to make models; aluminum and plastic are placed in the collection center in the playground to sell and to purchase school materials.

Olga Marina Quesada, a teacher with 20 years’ experience, says: “In the green classroom, each grade receives an environmental class once per week. Emphasis is placed on the importance of keeping the reef healthy, as it is the most precious heritage of the citizens of Roatan”.

The bell rings. The bustle and laughter stop. The uproar approaches the staircase. Children flock into the classrooms. They sit at their desks. A group of kids goes to each classroom to pick up the colorful boxes with sorted waste. I peek into the playground. I see children placing waste in the collection center.

Ramón Octavio Ramos, schoolmaster of the Sandy Bay Model Elementary Education Center, a teacher for the last 27 years, tells us that they need a teacher to work permanently in the green classroom but they have not been able to hire one due to lack of funds. He feels proud of the change of mindset in the teachers, children and parents to support conservation. Now, his goal is to promote the green

classroom in other schools to continue taking care of marine and land resources.

THE GREEN CLASSROOM

As we go down the stairs, we see the green classroom, a room with walls lit with water, reef, coral and fish that swim happily in their environment: walls painted by volunteers and by the children; models, giant spiders made of recycled material.

The Mesoamerican Reef Fund (MAR Fund) is the organization that supported the green classroom since its inception, in 2012. “Thanks to them, the classroom was opened, painted, and chairs, tables, computers, and air conditioning were brought in”, Nidia explains.

MAR Fund is essential to the cooperation of the four countries that share the reef: Mexico, Guatemala, Belize and Honduras. Its regional vision and its local actions are enriched through the exchange of conservation experiences.

Iris González, 14 years old, a student who became involved in the green classroom program to teach the younger kids says with great excitement: “I cannot deny that I was nervous when I stood in front of the children, but I liked that they asked about fish.

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Antonio Pastrana

I loved it because it is a way of caring for the environment and I learned a lot by teaching”.

Iris loves parrot fish, a key and iconic species of the reef, and she says: “Sometimes parents make mistakes. I see that they finish eating a “baleada” (a very tasty local dish made of flour tortillas, beans, scrambled eggs, avocado and cheese) and they throw their napkins on the floor, instead of keeping the area clean and setting the example for their children. I insist with the children that we need a healthy environment for us, for the reef and for animals”. Her best experience was to dive with her teacher Nidia, to see parrot fish, angelfish, butterfly fish and to know different types of coral.

Alejandra Esther Paudón, who is 13 and a green classroom volunteer says that she explained to children how to recycle plastic, which is harmful to the environment and can take decades to thousands of years to degrade. Her unforgettable experience was to hear her teacher Nidia talk to them about coral.

Nicole Figueroa, also 13, and Milania Beatriz Urbina, 14, drew a mural that shows the four countries connected by the Mesoamerican Reef System. Swimming with fish and seeing them up close is the best thing that has happened to them.

The girls in the green classroom hug Nidia. They ask her what she will talk about in the next class. We say goodbye.

We climb on the bus. Can’t be! It won’t start. Not even a sound. My inexistent knowledge of mechanics tells me that it must be the battery. I open the hood. Nothing. I do not understand anything.

Nidia calls the office of the Bay Islands Conservation Association (BICA). She is told that yes, the battery is dead. I am still swimming in sweat. We ask a teacher for help. He comes with a dozen of boisterous adolescents. They all get on the vehicle and laugh and jump and try to start it to no avail. They push it: back and forth, back and forth: It starts!!

Back on the road, Nidia says: “We cannot protect what we do not know. Many people who are born in the island do not know how to swim, much less coral. It is a good thing that thanks to the green classroom, children already know how to care for their habitat”.

We reach the BICA office without a hitch. We say goodbye and I walk away in the island afternoon. I see Nidia from afar. I sense that she weaves a huge net of riches. I see her weaving a map that coordinates harmony among birds, palm trees, men, horizons, coral and fish. She weaves the awareness of children, parents and teachers, in an elastic weaving that is long-lasting and permanent and extends throughout the island to preserve the ecosystem.

YOUTHS OF THE MANGROVE

On Sunday, when most people rest, a group of young persons gather by the sea to care for the mangroves. With an eight o’clock smile, they greet one another. They pick up dirt, sweep the leaves and water the plants.

Some wear headphones and sing in a soft voice. They talk, they joke among them. They gather hoes, shovels and picks, and plow the nursery until the clock marks two p.m. They are at least fifty

students from different schools. They are volunteers. Supported by the Bay Islands Conservation Association (BICA) they conserve the environment and give environmental education talks to elementary school children.

The sea barely sounds by contrast with the strong voice of Abigail Aguilar, a 20-year-old student who says to one of her colleagues: “Put more water on that little plant and treat it with love so it grows tall”. Abigail, who is in the last year of hotel management, explains: “We sometimes clean the beach. Today we picked up mangrove seeds and replaced dead plants with living plants. Planting mangrove is very important for the reef not to get dirty. It has been a wonderful experience for me to constantly give life to the ground”.

Dennis Jeffries, who is 17, and studies Accounting, is the leader of several students of the José Santos Guardiola Institute, the largest public school in Roatan. He says that to graduate, they need to provide community service for 140 hours. His school gives them two options: to help at an environmental organization or to participate in a specialized health institution. Most choose BICA.

“I chose BICA. They have taught me to manage and recycle waste, to know garbage decomposition times, plus what are the best materials for the ground. BICA teachers train us in advance to talk to elementary school children”.

Ingrid Munguía, who will also be an Accountant like her friend Dennis, belongs to the group of 150 kids of the Institute that chose conservation. She tells us: “When we go to elementary schools, six of us go to each classroom. Each day, we visit two or three classrooms. With us come two BICA coordinators: Nidia and Nikita. I have learned a lot with this experience”.

The mangrove nursery was built thanks to the Mesoamerica Reef Fund (MAR Fund), Nidia Ramos, coordinator of environmental education at BICA says. Additionally, they took up the cost of snacks for the

youngsters, covered fuel needs, the materials needed to clean the beach, and the digital equipment for environmental talks for children. “They really helped us with everything”.

It is mid-afternoon and a light blanket of clouds sets on the island. Trees sway slowly, thankful for the warm breeze from the sea. Youths in Roatan continue to keep guard under the clouds and the sun rays to preserve mangrove. Their main goal is to prevent Roatan from deteriorating, which, in decades, would cause their heritage to be nothing more than pictures and small fragments of paradise. They extend the life of the island every time their hands work the soil. Thanks to them, the green in the island is improving, like the certainty of a prosperous future.

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ISLAND ANGELS

At the very moment when I learn of the work of the Bay Islands Conservation Association (BICA), I instinctively think of staying in Roatan. Their work seems extraordinary. But I am only a messenger, an independent journalist, an anonymous visitor.

BICA was established in 1990 as a private organization concerned about the deterioration of the environment in Roatan and the other bay islands: Utila y Guanaja.

Antonio Pastrana



Irma Brady, who manages BICA, recounts: “In the nineties, a group of 45 persons got together to create a conservation organization in view of the evident deterioration of the island. Some owners burned their land because that was the cheapest way to clean it and get rid of ticks. We were appalled. Because of the fire, the soil looked like if it had moon craters. Our concern was water pollution. Our priority was to educate people on aquifer conservation. Water took us to the sea and the sea took us to care for the reef and its rich biodiversity”.

Brady explains that at that time, the National Association for the Promotion of Ecological Agriculture (Anafae), a conservation organization based in Tegucigalpa, trained them and organized workshops, lectures and meetings. The members of BICA realized the huge task that caring for the environment meant.

“We saw that people were not ready to learn or to change. In addition, we were disappointed with the people who are in power. Some are stubborn, ignorant people or people who simply do not care for their environment. The biggest problem has been the lack of governance”, she says in a calm yet not resigned voice. She lists the battles that she is faced with each day: illegal fisheries, slash and burn, habitat destruction, the hunting of wildlife, the lack of environmental law enforcement, and impunity in general.

Even government authorities are depleting the natural heritage and harming Honduran ecosystems and the invaluable environmental services that they provide for the country’s economy, particularly for responsible tourism. We read in recent paper articles that the Law for the Promotion of Tourism – promoted by some lawmakers and the Ministry of Tourism – basically repeals all environmental laws and promotes development without consideration of its negative impacts on nature.

Unfortunately, this story repeats itself in the rest of the ecological reserves of the Mesoamerican Reef System: the power of the State weakens the legal framework in exchange for a few dollars of tourism infrastructure investment. To get a few coins they turn a blind eye on ecological harm or changes in soil use.

“We do not ask that the people who destroyed the habitat go to jail. We want them to restore the mangroves, the seagrasses and the reefs affected by their development”, Irma states. Her eyeglasses protect an intelligent and affectionate look.

Claims filed by BICA are responded to with very strong threats. In addition, they must deal with the internal problems of their organization, like limited personnel, lack of consistent salary availability for their experts and lack of financing to continue with projects.

Despite the dangers, it is 27 years of commitment with conservation, during which they have pledged to protect the islands and preserve the reef. “The reef is the resource that provides financial sustenance to the entire population”, says Irma, who additionally stood out for her work protecting marine environments and was recognized with the prestigious Seacology award in 2016.

“Unfortunately, not everyone sees the benefits of a healthy reef. We have many problems with education in the country, and that makes our work harder”, Giselle Brady, programs director of BICA, explains.



John Colby

For people to acquire greater knowledge of the paradise in which they live, BICA and its partners, with the financial support of the Mesoamerican Reef Fund (MAR Fund), launched environmental protection campaigns in schools; set up the green classroom and built the collection center; organized field visits and cleaned beaches; took the young people to dive in the reef to explain how it works; planted mangrove; celebrated special festivities like Earth Day, and took rides with students in a glass bottom boat to teach them how to care for the sea.

Giselle, a marine biologist, says that MAR Fund gave extraordinary support to BICA when it donated financial resources for the organization to have its own office that also operates as a green center, where solar panels are used, waste water is treated and rain water is harvested.

“MAR Fund also installed a lab to monitor water quality, which has been very helpful in the islands. With the equipment, we can make monthly checks. With the results that we obtain from water monitoring, we manage funds to place treatment systems in different communities in Roatan where we know that there is huge pollution”, Giselle, who has won scholarships for her ability as a volleyball player, says. “By measuring water quality, we were able to collect one hundred thousand dollars for a waste water treatment plant in West End. Now, the homes that are located in that neighborhood are connected to the sanitation system. This has been of huge benefit for the community”, the 33-year-old woman states.

Giselle, who has a Master’s Degree in Marine Biology with emphasis on fisheries, states that she felt huge pride when BICA convinced the Roatan community to pay for water sanitation. “The Water Board needed to charge additionally for sanitation, but the municipality did not approve it. Then, we showed

water quality data to consumers and the people themselves decided to pay for its treatment”.

Giselle continues to say: “Also thanks to MAR Fund we were able to train the Group of Craftswomen

of Roatan (GCR). They received counselling on administration. They received training on techniques to make jewelry out of coconut shells. They were taught to make costume jewelry with reusable materials such as cans, plastic, seeds, and metal. In addition, materials and equipment were bought for them to make their products”.

Currently, the GCR is a leader among groups of craftsmen and their determination and quality has taken them to work in other communities. When I remember how the GCR group started and how it has grown, I feel very happy with the work we did with them”.

“There are so many beautiful stories with MAR Fund. I feel very good to have this office, and for people to see us as a consolidated organization. That warms you up. We would not have been able to accomplish that without MAR Fund”, says Giselle, who was born and grew next to the Roatan sea.

Thanks to the women of BICA, the land of Honduras is more beautiful. That beauty has been sculpted with the consistent work of Irma Brady, Giselle Brady, Nidia Ramos, Nikita Johnson and Cindy Flores, who have insisted to the islanders that they live in an interconnected ecosystem and that the harm that they cause to it will sooner or later be felt elsewhere. Their greatness is in the objectives they pursue, in bringing light to affected regions that have been darkened by destruction and abandonment, and in transforming them into spaces of light that preserve life.





WRITTEN WITH BLUE INK

STORIES ABOUT THE CONSERVATION
OF THE MESOAMERICAN
REEF SYSTEM



KFW

