



A Living Icon Insured

Sustain-web of life creating it-livelihoods woven in it

Fiji's Great Sea Reef

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Co-authored by Stella and Juergen Freund

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Cover Picture: Ariel shot of Nalaselevu Reef in Macuata Province.
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Foreword

Fiji's Great Sea Reef (GSR), locally known as 'Cakaulevu' or 'Bai Kei Viti', remain one of the most productive and biologically diverse reef systems in the Southern Hemisphere. But despite its uniqueness and diversity it remains the most used with its social, cultural, economic and environmental value largely ignored.

Stretching for over 200km from the north eastern tip of Udu point in Vanua Levu to Bua at the north-west edge of Vanua Levu, across the Vatu-i-ra passage, veering off along the way, to hug the coastline of Ra and Ba provinces and fusing into the Yasawa Islands, the Great Sea Reef snakes its way across the western sections of Fiji's ocean.

Also referred to as Fiji's Seafood Basket, the reef feeds up to 80 percent of Fiji's population. There are estimates that the reef system contributes between FJD 12-16 million annually to Fiji's economy through the inshore fisheries sector, a conservative value.

The stories in this book encapsulates the rich tapestry of interdependence between individuals and communities with the GSR, against the rising tide of challenges brought on by climate change through ocean warming and acidification, coral bleaching, sea level rise, and man-made challenges of pollution, overfishing and loss of habitat in the face of economic development.

But all is not lost as communities and individuals are strengthened through sheer determination to apply their traditional knowledge, further strengthened by science and research to safeguard and protect the natural resource that is home and livelihood.

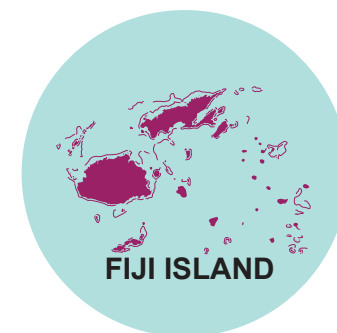
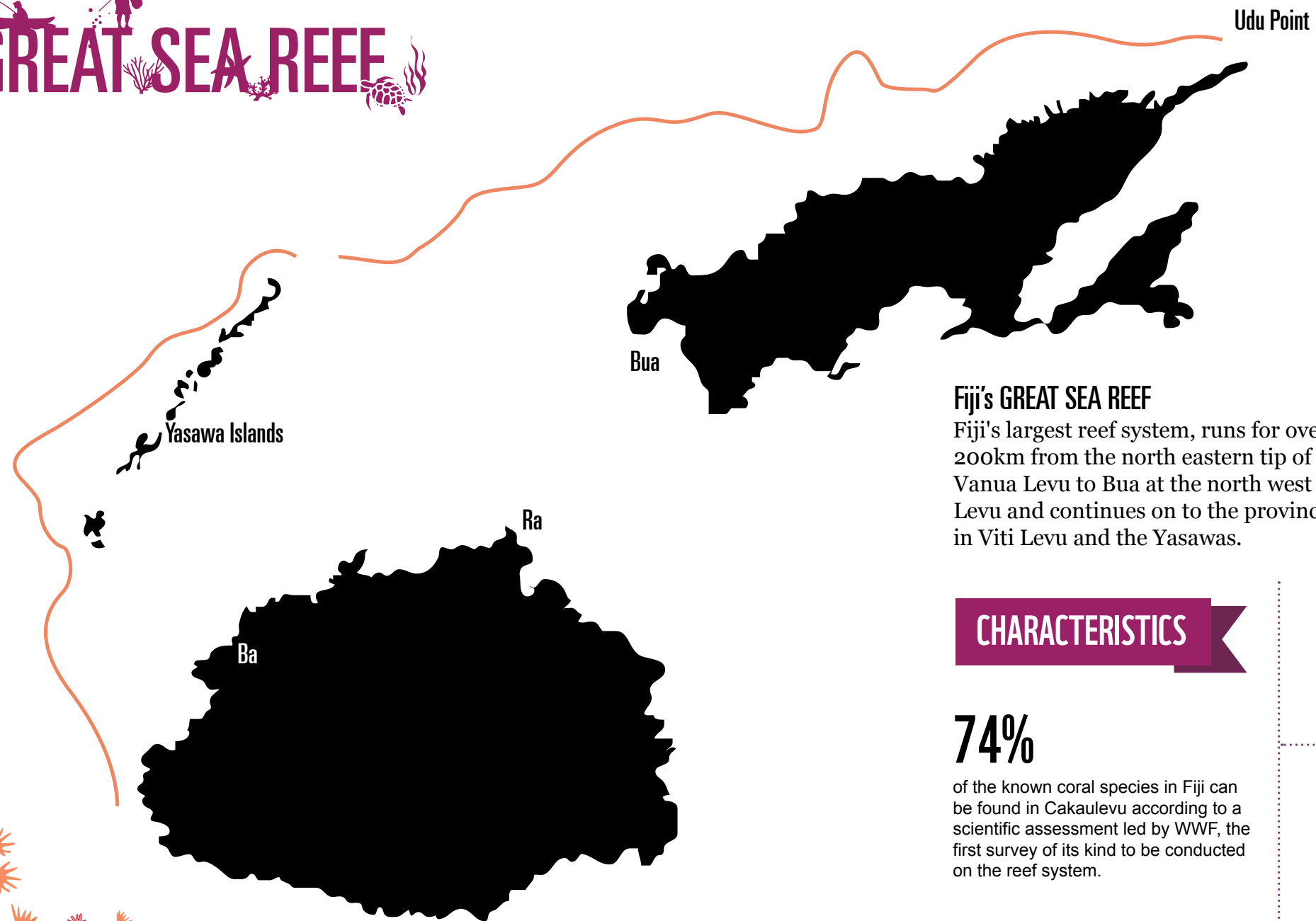
The book showcases breathtaking images, from renowned photographers Stella and Jurgen Freund, of the people of the reef, their blog pieces and highlights from their photographic expedition along this majestic reef system. It serves as an educational and awareness raising series on the importance of the Great Sea Reef.

With WWF-Pacific adding its voice to the advocacy for long-term sustainability and protection of Fiji's iconic living wonders, its biological and ecological living treasures, this book reminds us that the fight for the health and integrity of the GSR as a living icon and we the people of the reef with it, is too big to fail.

Please join us on this quest to ensure the protection and sustainability of Fiji's Great Sea Reef for future generations of people of the reef.

Kesaia Tabunakawai
WWF-Pacific Representative

Fiji's GREAT SEA REEF



— Fiji's GREAT SEA REEF

Fiji's GREAT SEA REEF

Fiji's largest reef system, runs for over 200km from the north eastern tip of Udu point in Vanua Levu to Bua at the north west edge of Vanua Levu and continues on to the provinces of Ba and Ra in Viti Levu and the Yasawas.

CHARACTERISTICS

74%

of the known coral species in Fiji can be found in Cakaulevu according to a scientific assessment led by WWF, the first survey of its kind to be conducted on the reef system.

\$16 million

The inshore fisheries sector of Cakaulevu contributes up to FJD16 million to the Fijian economy annually.

25%

The billion dollar tourism industry accounts for around 25 per cent of Fiji's GDP, a figure in part thanks to Cakaulevu.

10%

of Fiji's population is directly dependent on Cakaulevu for food and livelihoods, according to research conducted by WWF in 2014.



Kavewa Island

Mangrove Reforestation and the Reefs

by Stella Chiu-Freund

A charming activity took the children of Kavewa by storm one overcast Saturday morning. All the school children from Kavewa Village had just come back home for the weekend from their boarding school in Druadrua (another nearby island) when they were assigned to go pick as much propagules in the mangrove forest as they could for some mangrove replanting session. Like wound up toys, they disappeared like a lightning flash and came out of the mangroves an hour later with red mangrove propagules in their arms. They were so excited!

Mangroves are plants that serve as natural buffers between the ocean and the land. They protect the islands during storms and cyclones. Mangroves grow and proliferate and can become forests if left alone. Unlike man-made seawalls, mangroves do not easily break or fall apart with time. Through years of growth, mangroves become bigger and stronger and their root system hold the coastal sand and ground together to prevent erosion. On the south side of Kavewa Island, the limestone cliff walls of the island show a natural concave structure that has eroded through the years and shows how it has been eaten up by constant wave and wind action.

On the northern side of Kavewa are two nearby limestone rock islands small enough to snorkel around in a few minutes. The farthest one is called Vatu-i-wai with different sea birds calling it home and the one closer to Kavewa is Vatu-Cicila where there is a small colony of fruit bats roosting during the day.

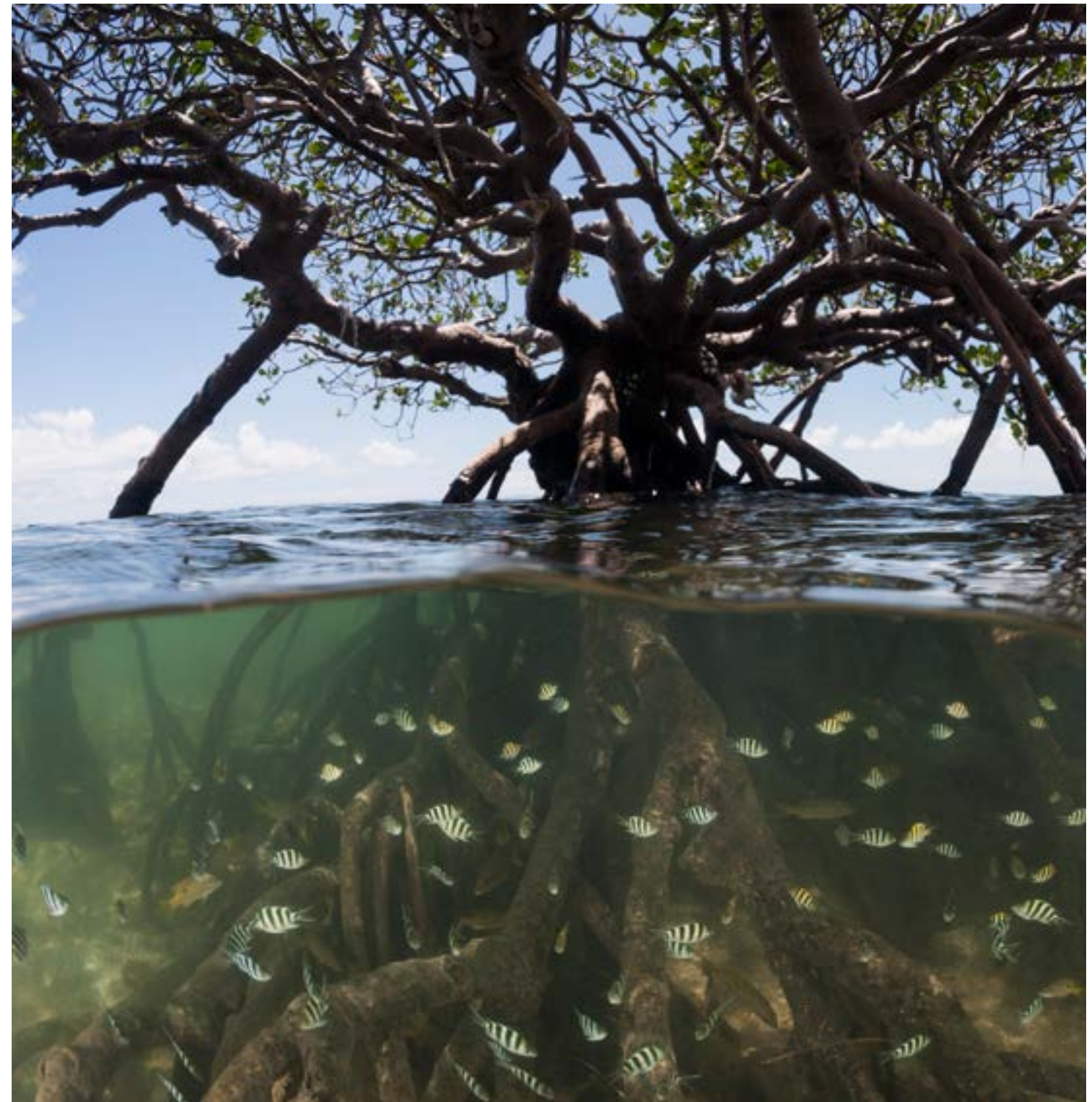
When we got to the farther little island by boat, I couldn't believe my eyes seeing such beautiful corals in the shallows right beside the limestock rock outcrop, with brown boobies and 3 species of terns flying all around us. I couldn't wait to jump in to see the beautiful plate corals which shimmered like jewels from the surface.



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(Top) Children of Kavewa Island start a mangrove planting activity with freshly picked mangrove propagules.

(Right) Mangroves are home to thousands of marine creatures.



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Kavewa Island - Turtle Monitor

by Stella Chiu-Freund

Emosi Time, son of Kavewa Village chief is known as a Dau ni Vonu (DnV) or Turtle Monitor. Emosi used to be a turtle hunter, catching turtles for turtle meat offered in traditional Fijian celebrations. Since 2011, Emosi has turned from the dark side and is now a guardian of turtles. Lifting text from the WWF South Pacific website: “The Dau ni Vonu, or Turtle Monitors, are members of 10 local community field sites where turtles are under threat, often in remote islands. It was not so long ago in Fiji that eating turtle meat was common place; many people grew up on turtle meat. Today WWF’s efforts and the Turtle Moratorium banning the harvesting of turtles is beginning to change this. And an important way of changing behaviour, especially on remote islands, is through the Dau- ni-Vonu. Often former turtle-hunters themselves, the Dau-ni-Vonu are the best there are at finding feeding adults, nesters and eggs.”

Emosi brought us to Katawaqa Island right across his island Kavewa where everybody says there are absolutely no mosquitos! While we were still getting our camera gear in order and getting out of the boat, Emosi was off finding fresh turtle tracks. He found a fresh nest below the high tide water mark and carefully dug it out to relocate the eggs to higher ground to prevent them from drowning. His son Kaitu and nephew Tuwa were there to listen to him explain the value of caring for turtles from when the mothers lay their eggs, to the hatchlings swimming back to sea – the whole cycle of a turtle’s life.

On another day, with the help of his cousin Lemani Tomu,

we went out to sea to look for turtles in Katawaqa Island. This was one of the Turtle Monitor’s most important functions, that of monitoring turtles that nest or forage within their traditional fishing grounds by catching, tagging and releasing the turtle and getting valuable information in the process. Our designated jumper was Lemani and off we went to Katawaqa Island once more. In less than half an hour, Lemani saw a critically endangered hawksbill sea turtle and gave directions to boat driver Emosi where the turtle was heading. With adrenalin pumping, the chase was on and Emosi accelerated the boat in full speed.

When we returned to the beach of Kavewa Island Emosi brought out the whole turtle tagging paraphernalia – stainless steel tags with corresponding numbers and information. These are flipper tags clipped onto the turtle’s flippers. They are clearly visible and contains a unique serial number and the name and address of the organization applying the tags.

Sea turtles are tagged for many reasons. Flipper tags are used to identify individual turtles which help researchers learn things like nesting site fidelity, the number of nests laid during a nesting season, the number of years between nesting seasons, and growth rates. In addition, these tags can be used to identify where a recaptured or stranded turtle was originally tagged, which can be used to establish possible migration pathways.

(Left) Turtle monitor Emosi Time carries the massive hawksbill turtle back to shore for tagging and information gathering.

Kia - Paradise Island of the Great Sea Reef

by Stella Chiu-Freund

It was a long 4 hour boat ride from Nukusa Village to Labasa Town where we stayed overnight before heading to Kia Island. We armed ourselves for the next stretch of island village living, quickly shopping for a million little things like Milo, laundry detergent, more mosquito repellent, mosquito coils, junk food and most important – getting new pairs of glasses made, all in one rainy morning before heading to the island nearest the GSR!

With super service, we were picked up by Akuila Tutora, the Turaga-ni-koro or village leader of Ligau Village of Kia Island. The morning downpour stopped by noon and all our gear were carried to the open fiberglass boat as we headed to beautiful Kia Island – the nearest inhabited island to the Great Sea Reef. It took us around an hour from Labasa to Kia Island. We were right smack in the middle of the South Pacific Ocean and it was a beautiful sight. There are three villages on Kia – Yaro village with the sunrise views and Ligau and Daku with the sunset views.

Kia Island is a small island with a monolithic rocky mountain cradled by a barrier reef! And on top of the mountain is an old cannon. To this day, the locals don't know who owned the cannon. It is a steep climb up with rocks to get there with tall grass hiding the pathways. No, we didn't even attempt to do a climb.

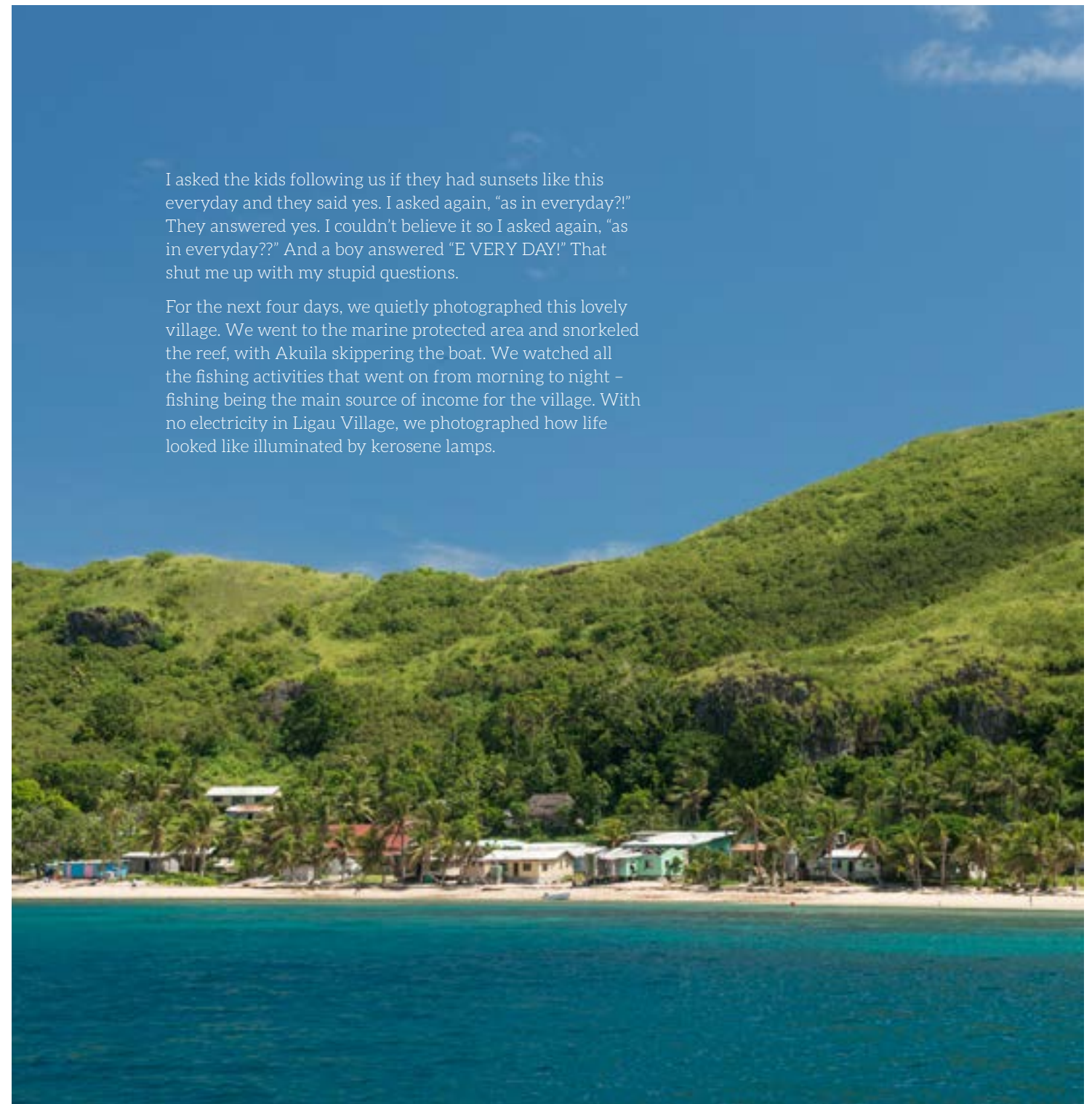
Soon after we arrived and settled into the home of Akuila and his lovely wife Diana, the menfolk played rugby illuminated by the warm afternoon sun, quite a contrast to that morning's pouring rain in Labasa! After the rugby game, we were treated to a spectacular sunset – our very first in Fiji!



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(Top) Preparing early evening supper for the family of Diana and Akuila Tutora in Kia Island in their homey outdoor kitchen.

(Right) Kia Island coastline with Yaro village.



© Juergen FREUND / WWF-Pacific



© Juergen FREUND / WWF-Pacific

A Funeral to Remember - Goodbye Paramount Chief Ratu Aisea Katonivere

by Stella Chiu-Freund

We started our journey to Macuata Province first and foremost with a traditional sevusevu in Naduri with the Macuata Province Paramount Chief Tui Macuata Ratu Aisea Katonivere on the 28th of March, 2013. It was our very first traditional sevusevu, the first of many to come. After hearing what our noble intentions were, the big man of the province gave us his blessings to photograph his land and islands. For the whole month of April, we had an incredible journey in Macuata Province from one island to another and another, going from village to village, experiencing genuine Fijian culture, life, hospitality and generosity of spirit with every person and community we met. We felt totally privileged to be allowed into their lives that we aimed to capture the essence of what life was like in this remote Fijian land in the north.

We left Macuata Province on April 18 and headed for Yadua Island in the Bua Province. By the afternoon of April 19, we heard the alarming news from our WWF travel companion Koli Musudroka that Ratu Aisea tragically died in a fishing accident in the Great Sea Reef. The day after we left his province, the beloved Tui Macuata passed away. He was a great conservation partner of WWF-Pacific and this partnership brought about the establishment of Marine Protected Areas in the Great Sea Reef since 2004.

There were about 20-30 men (with day shifts and night shifts – 24 hours continues throughout the 4 day wake) sitting near the mourning house, each blowing a conch shell when a procession of people came for their “reguregu” presentation and to pay their respects to the family of the

late Tui. Their sound was bone penetrating and heard from miles away. The “davui” (the conch shell trumpet) became the sound of the “vanua” – the land and the people. The “davui” was doing all the crying so there was no longer the need for human sound. All other parts of the village were silenced as well. All crying had been symbolically carried out by the blowing of the conch shells.

The men warriors of the “Bati” clan from Raviravi Village are the warrior clan particular to Tui Macuata’s household “Bolatagane” and not Naduri – a relationship that goes back historically for many years. Here, the “Bati” clan warriors’ sole purpose in the funeral is to guard the grounds – that nobody was allowed into the funeral compound without being properly presented. They protected the house of “Bolatagane” for 24 hours all throughout the wake until the burial. They monitored the whole area and not even the immediate family of the late Tui could go around without their approval.

We recognise the privilege granted to us to be able to photograph all aspects of the 3 night and day long wake and burial – to witness Fijian living tradition unfold, to experience Fijian culture at its deepest, of seeing thousands of people pay tribute to a man who meant so much to them, to Macuata Province and to Fiji.

(Left) Warriors mark the end of their watch with a traditional chant challenging anyone to take them on. This signifies the end of their duty by symbolically laying down their weapons.

Mali Island

Diving, Spearfishing and Sea Snakes

by Stella Chiu-Freund

We had a grand opportunity of checking out the Great Sea Reef underwater while in Mali Island. Our Ligaulevu Village host Leone Vokai operates a brand new dive shop called the Great Sea Reef Divers and he invited us to go diving with him. We departed Ligaulevu Village early in the morning after breakfast to have the incoming tide bring in clear water. But with the past 6 weeks of constant downpour, the water was what I called “crystal green” with a deep layer of fresh water on the surface. Nonetheless, it was our first look at the GSR and first time to dive the waters in Fiji.

The next day, Leone and the men from the village brought us spearfishing in their traditional hunting grounds. Upon reaching the area, a huge pod of spinner dolphins greeted us and were bow riding as the men prepared to go fishing. I didn't get into the water and for two hours, I saw these very dolphins go back and forth not 10 meters away from me. Earlier on, we were told about a solitary mangrove in the middle of a shallow sandy area far away from any island that at low tide attracts hundreds of sea snakes. Well, guess where we badgered Leone to go once the men finished spear fishing and the tide was lowering at the height of noon when they were all tired and hungry? It was bizarre and awesome! A solitary mangrove tree indeed far away from the islands.

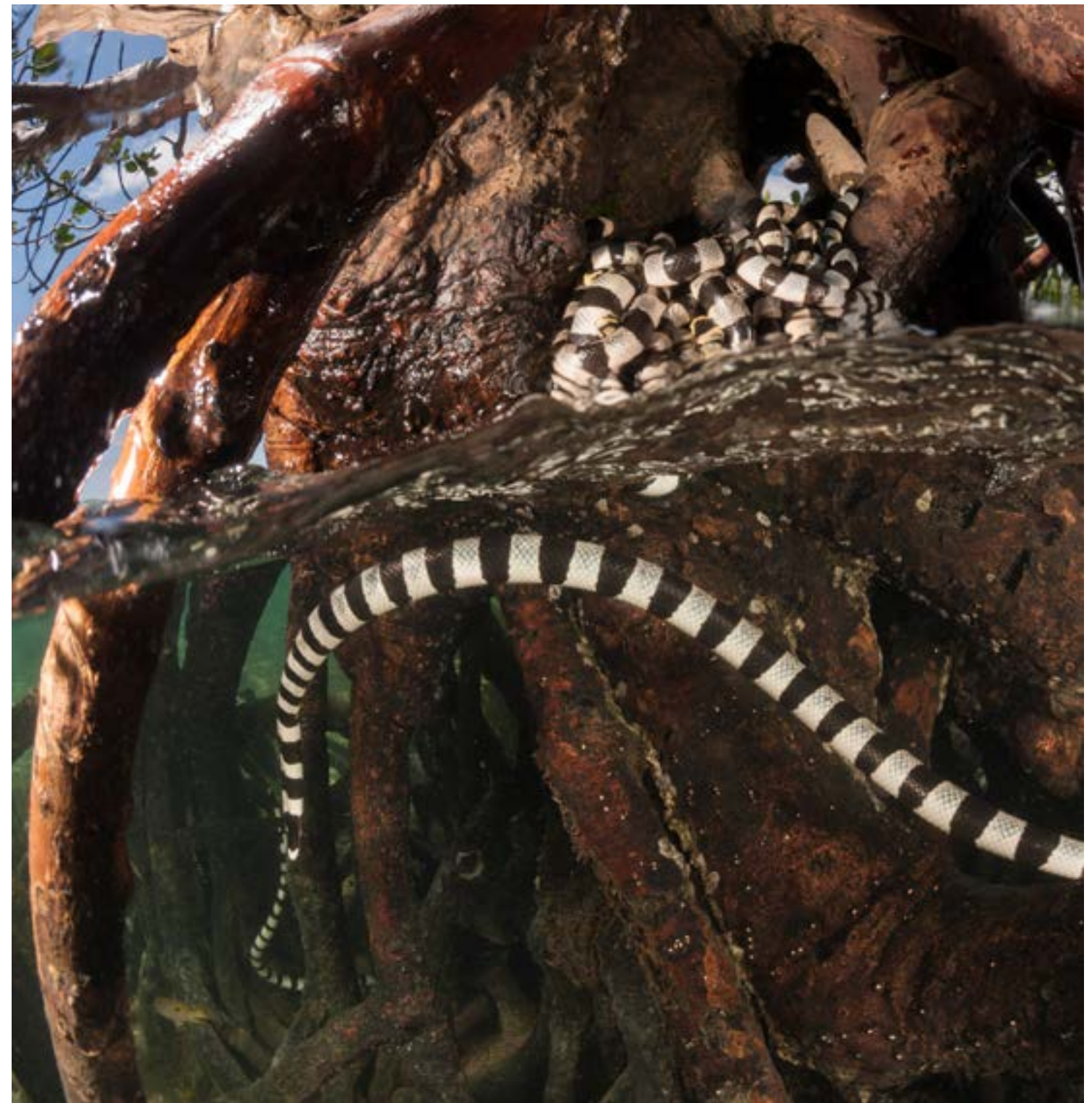
Yogi was in banded sea krait heaven. We have never encountered a mangrove tree like this in any of our travels and made this experience quite special. As we excitedly got off the boat, all our strong free diving spear fishermen stayed behind. Not one of them liked the idea of us getting near the snakes. They would exclaim loudly as Yogi photographed the mangrove tree very close to the snakes who were all over him swimming from all sides trying to slither up the tree for their siesta. It was simply fantastic. Leone could not believe how Yogi was unafraid saying the sea snake was their totem, and they left it as far away alone as possible.



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(Top) Spear fisherman hunting reef fish in none marine protected areas of the Great Sea Reefs.

(Right) Lone mangrove in the shallows in the middle of the sea in the Great Sea Reefs filling with banded sea kraits (*Laticauda colubrina*) at low tide.



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Mali Island

Mangroves and Crabs

by Stella Chiu-Freund

I simply adore eating mud crabs. To go to a village or villages harvesting mud crabs from their mangroves, I might as well be in heaven. On Mali Island, thick mangrove forests cover substantial parts of the island's coastlines. This got me really excited seeing pure mud crab habitat in the thick mangrove forests! I was not shy in telling our hosts in each village that I could eat mud crabs every day! And guess what, I ate mud crabs EVERYDAY!

Oh, but I digress. I must talk about the importance of mangroves as an ecosystem. Mangroves are often perceived as muddy and stinky marine environments full of mosquitos. Superficially, it is all that but its treasure lies beyond the face value (which actually is quite beautiful). Mangrove environments protect coastal areas from erosion, storm surges especially during cyclones, and tsunamis.

For providing villagers sustenance, mangrove areas are fish nurseries and sanctuaries where many fish species raise their young. Countless living organisms inhabit mangroves from microscopic life forms, to fish and invertebrates to sea birds and bats. Oh, and did I mention mud crabs?!

In Nakawaqa Village, we saw a handful of boys climbing in and out of the mangroves quite excited. It was not yet full low tide so our boat managed to get very close to them.

They showed us a newly caught mud crab that recently molted off its old shell. The boy was holding it with his open palms and I exclaimed "Isn't he afraid of getting pinched by the claws?!" They laughed and said the claws were too soft and the animal too weak to do anything. They all agreed this crab was for me to eat so I can try even the shell which is also edible at this soft state. I was

flabbergasted. Our host prepared the soft shelled crab in coconut milk for dinner and I was urged to eat even the claws! My oh my, was I insanely happy. And this was just the beginning.

When we got to Ligaulevu, the real deal was to unfold. Sally Baily Conservation Director from WWF-Pacific in Suva was on her Easter break and she went home to Mali Island to be with her husband Leone Vokai and his family. Sally quickly told us what life in the village was like and what we could do and photograph while in Mali. We were in very good hands and the days ahead filled up with activities. Leone's sister Dee right away found out my love of crabs and that we wanted to photograph the best mud crab harvester from their village. Sooner than a flash, we met dear Mita. Mita is the best crabber in the village and the moon and tides were perfect for Mita to catch our crabs.

Guess what we had for lunch everyday for 3 days? Dee & her mum made us crab in coconut milk the Fijians call lolo. Dee first boiled the crab for 12 minutes and they painstakingly took out all the meat from the shell! Dee grated 2 coconuts to extract milk from it. From their outdoor kitchen with wood-fired cooking, Dee steamed the crab meat with garlic, onions, coconut milk and a little salt. They made us our crab meals we will never ever forget. The effort they went through to prepare this dish again and again left us feeling so special and cared for, as we knew what it meant to spend time getting meat off a crab!

(Left) Mita from Ligau Levu Village expertly handles a freshly caught live aggressive mudcrab from the mangroves.

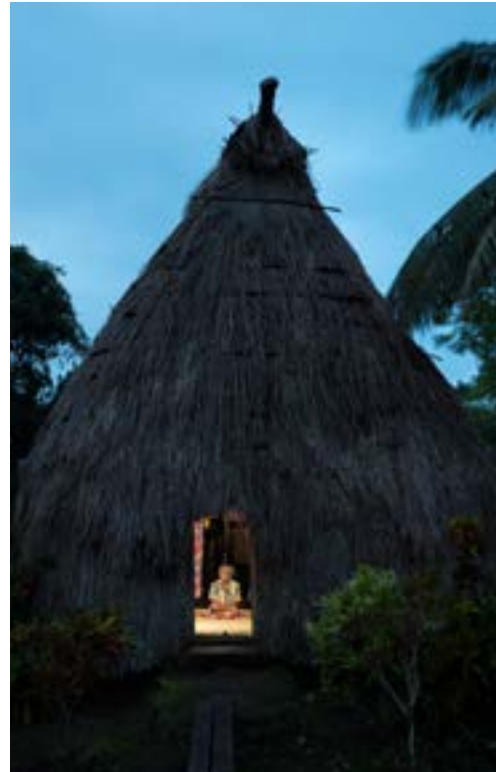
Mali Island - Days with the chiefs

by Stella Chiu-Freund

Our first stop was Nakawaqa Village (pronounced Nakawangka) where Macuata Province's only surviving authentic bure (Fijian bungalow) is still in use by Village Head Ratu Jovilisi Nagatalevu. It was Easter Sunday and Ratu Jovilisi was reading his Bible inside his beautiful Fijian bure hut, traditionally made with tall forest wood posts with straw roof and walls. These type houses are strong and weatherproof, bringing cool winds and light through three doorways. Bures are known to be cool in hot summer days and warm in cold winter nights.

Mali Island is right smack in the Great Sea Reef, the world's third largest barrier reef system. There are a few open channels that lead out to open Pacific Ocean and we heard a most amazing story while in Nakawaqa about a sperm whale that washed ashore on Mali Island. Whale tooth is a prized possession amongst the Fijians called a tabua and sperm whale tooth is offered in very important Fijian ceremonies. Wondering where they got their symbolic Fijian tabuas from, as sperm whale is in the endangered list – one light bulb lit when we were told that starting Boxing Day 26th of Dec 2007 a sperm whale was circling for a long time until it died on Mali Island by late January the next year. 40 sperm whale teeth were extracted from the dead sperm whale's mouth and the animal was burned, as the smell was so bad drifting towards Nakawaqa Village.

We met the charming Tui Mali (the Chief) Ratu Apenisa Bogiso in his island Vorovoro and there we saw the remnants of the sperm whale with the Tui holding up two massive rib bones. After our sevusevu with him, the Tui Mali showed us around his island and told us a story of an archaeologist looking for lapita pottery and found it in his backyard!



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(Top) Village Chief, Ratu Jovilisi Nagatalevu, as he reads his Bible inside his beautiful Fijian bure hut traditionally made with forest wood and straw roof and walls.

(Right) Tui Mali Ratu Apenisa Bogiso shows Lapita pottery found and dug out from his backyard. Lapita pottery dating back 1100BC has been discovered here by archeologists from Simon Fraser University Canada.



© Juergen FREUND / WWF-Pacific

The Lapita pottery found in Vorovoro Island carbon dated back 3000+ years to 1100 BC, suggesting Vorovoro could be one of the oldest settlement sites in all of the Fijian Islands!

It was Mali Day as we reached the second village Ligaulevu and there was a big annual community gathering from all 4 villages of Mali where soli was given, offering each village's monetary contribution to the Methodist Church. The village leader or Tu'raga of Ligaulevu Uraia Masivou set up an impromptu meke for us and the lovely ladies from Ligaulevu danced to chanting, clapping and drum beats.

After all the morning activities and festivities, we had a lovely lunch prepared by the men and women of Ligaulevu.

The men went spear fishing for the fish and the ladies cooked and served our meals. Fijian cuisine is fantastic and they are not shy in the taste department!



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Navakasobu Village, Vanua Levu, Fiji



© Juergen FREUND / WWF-Pacific

by Stella Chiu-Freund

Our wonderful guide and companion Koli Musudroka, WWF Field Officer for Labasa invited us to his village on Black Saturday. He had been telling us about the women in his village weaving a special kind of mat and traditional Fijian wedding costumes made of a reed locally called kuta. So we made a trip to Navakasobu and did a traditional sevusevu with the village elders.

Upon our arrival, we were treated to a community hall with women weaving beautifully fine mats that were all around us. Our intentions were made clear by Koli to his village chief who was his uncle and to the other elders, and we offered our kava and of course, some pictures of our photo cards. We were given blessings and free reign to start photography.

We found out early on our trip that kuta mats are the most valuable mats in Fiji and kuta wedding outfits are more expensive than the masi (tapa cloth) type wedding dresses as kuta weaves are more difficult to make. We had our first look at kuta from the market and our vendor friend Lupe made her daughter model a dress for us.

Then our offering of kava was immediately prepared by Koli and his strong village relatives, each taking his turn pounding the dried kava roots with a very heavy steel pole until it turned into powder, ready to be used in the sevusevu.

Koli brought us to a nearby pond where he heard some of the villagers were fishing for fresh water fish similar to tilapia. We walked through tall grass in the rain and waded through knee deep waters to get into the pond. Men & women were busy catching fish with a bamboo pole and line.

All too soon, it was time for us to say our goodbyes after a wonderful lunch of traditional split peas soup prepared by Koli's wife Koti. Upon driving off, Koli called back our driver saying we forgot something! We returned and were given a beautiful circular mat one of the ladies freshly finished. We have been treated to Fijian hospitality and generosity at its highest form.

(Top) Kuta mats with kuta grown from fresh water reeds are the most valuable mats in Fiji. Navakasobu Village is known to weave this valuable mats. Kuta wedding outfits are more expensive than the masi (tapa cloth) type wedding dresses as kuta weaves are more difficult to make than masi.

(Left) Kuta pond where villagers fishing for fresh water fish similar to tilapia. Men & women busy catching fish with a bamboo pole and line.

Organic farming and The Great Sea Reef

by Amelia Makutu

Business advisor turned organic farmer is how Jodi Smith describes herself. Jodi was brought to Fiji to ‘turn Ranadi Plantations around’. In doing so, Jodi realized going organic was the only way the farm- located 30 minutes out of Suva would thrive.

“When I became a farmer that I realized the serious state the planet is in,” said Jodi and it motivated her to establish her company- The Earth Care Agency. The company is currently working with the people of Batiki island in Lomaiviti to get the island organically certified.

It was through this line of work that Jodi was introduced to WWF, “They were interested in how on-land operations can affect the oceans. With farming we are dependent on drainage systems and what we use on land goes into the sea and that affects marine life.”

Jodi said that WWF’s work with stakeholders on The Great Sea Reef is the catalyst for people to return to understanding the relationship between land, sea and sky and the role they play in caring for the planet, “If damage to habitats such as the GSR can be reversed and improved year upon year it will help us remember that these habitats are not here for us, but that we are there to serve and protect them.”

There are many correlations between managing land and marine resources, one of which is the revival of traditional practices which have been taught and handed down through the generations.

This is an approach that Jodi and her team are keen to contribute to as they plan to work with farming

communities in the GSR region- communities who also rely on marine resources. Change will be slow and will have its share of challenges and Jodi and her team are aware of that.

“The biggest challenge will be for farmers to give up chemicals, but a combination of responsible legislation, and government and private sector support for small holder market access for organic products will be key to tackling this challenge. We all need to feed our families and put roofs over our heads, and I believe strongly that there must be an economic incentive for people doing the right thing - and that the two aren’t mutually exclusive,” Jodi said.

Her bid to make one farm financially viable led Jodi to organic farming and could very well see reintroduction of traditional and safe farming practices that could potentially impact The Great Sea Reef in many ways.

Farms in Ba. Jodi believes that WWF’s work with stakeholders on the Great Sea Reef is the catalyst for people to return to understanding the relationship between land, sea and sky and the role they play in caring for the planet.





Picture supplied

Tui Macuata - Ratu Wiliame Katonivere

by Amelia Makutu

When Ratu Wiliame Katonivere took on the mantle of Tui Macuata in 2013, he had big shoes to fill as he was also taking on the legacy of his late elder brother Ratu Aisea Katonivere who was known globally as a Conservation champion and the custodian of The Great Sea Reef.

It is not Ratu Wiliame’s first foray into marine conservation. Coincidentally, he was introduced to it 20 years earlier while working for the then Fijian Affairs Board. Ratu Wiliame was assigned along with Ministry of Fisheries staff and a WWF staff member to establish two marine protected areas in Verata, Tailevu on Viti Levu, “They had adopted the traditional approach of setting up the MPA, working with the Turaga Ratu (paramount chief of Verata), and Tui Naloto (chief of Naloto), I was very interested in the model and I remember telling my late father that we should do something similar in Macuata.”

As Tui Macuata, Ratu Wiliame is continuing the legacy; he works closely with resource owners in the Macuata Province, “I decided that I would go with the bottom up approach, talking to the resource owners, getting their views and buy-in,” and his message is clear. “I tell the resource owners be proud that you live near The Great Sea Reef and access the rich resources and look after these God given resources.”

Ratu Wiliame met with chiefs of Macuata to discuss the high demand for marine resources, how to address them and more importantly get a consensus on the approach he would take, “I have reduced the number of fishing permits

for commercial fishermen who fish in the vicinity of The Great Sea Reef. There are special conditions for those who get them. They must not use SCUBA, commercial nets, pollute the ocean and are not to fish within 200 metres of the marine protected areas.”

He also encourages consumers to buy from the resource owners, “The fisher people in the village live by the maxim of give us this day our daily bread, when they fish it will be enough for their need, because any more would be wastage. That is how they have been living for years and how we have managed our resources till now. ”

Ratu Wiliame believes everyone has a collective responsibility to be custodians of The Great Sea Reef, “We owe it to our future generations to manage our use of resources from the Great Sea Reef, they too should have access to the resources, to enjoy them and not just hear stories of how great it was.”

(Left) The Paramount chief of Macuata, Ratu Wiliame Katonivere.

Ba Provincial Council

by Amelia Makutu

Residents of the four major provinces on Fiji’s two main islands depending on the Great Sea Reef for their livelihood and food security. The reef is also the source of 75% of inshore fisheries catch supplied to urban markets across Fiji according to Rusiate Valenitabua, Conservation Officer with the Ba Provincial Council.

Ba and Ra are two large provinces on Viti Levu, whose inhabitants rely on The Great Sea Reef. The sugar, mining and tourism industries are major sources of income for the provinces.

Rusi said the rate of development in the Ba Province alone could post a threat to the survival of the Great Sea Reef, “We should re-think our approach to development and practice sustainable development. If we don’t, those who rely on the GSR and surrounding ecosystems will pay the price. The Ba province currently has a high poverty rate and if sources of livelihoods for these communities are compromised, the rate will increase.”

Rusi started work for the Ba Provincial Council a few months ago and is relishing the challenges and the opportunity to represent the Council to the WWF-Great Sea Reef Programme Green Climate Fund Steering Committee.

When asked how people outside the four provinces could help in maintaining the health of the GSR , Rusi said people who rely on marine resources from the reef system need to be more mindful, “We respect their rights as consumers but Fiji does not have many natural resources and we cannot rely on other nations.”

“We are all interconnected, a fisherman from Yasawa can travel to the Suva market to sell his catch, and my message to everyone is to think how they- we are all linked to the overall health of the Great Sea Reef ecosystem.”

Rusi said this was especially so for people who continue to eat certain fish during its breeding season despite being told that fish stocks are in danger.

“It is like they do not expect something to happen in the future as a result of their actions. It will be a sad day for us all when we have to explain what a fish looked like because it has become extinct”, said Rusi.

Passionate about conservation and protecting Fiji’s natural resources, Rusi previously worked in the provinces of Serua and Lomaiviti and is a graduate of the University of the South Pacific.

(Right) The Rarawai Sugar Mill beside the Ba River which flows into the Great Sea Reef.





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Innovative Measures for Vulnerable Community

by Ravai Vafo’ou

Located along the western end of Fiji’s Great Sea Reef, the Yasawa group of islands is facing the harsh realities of climate change. Community members are seeing first-hand the effects of rising sea levels and salt-water intrusion.

“Our church, health centre and houses closest to the coastline are slowly being invaded by the rising sea water,” highlights Nacula villager, Eruweri Naivalu.

To help the communities cope with the ravages of climate change, an innovative cost effective adaptation measure has been introduced in the district of Nacula. Coir logs have been embedded along affected coastlines to act as temporary buffer zones. Coir logs are tube shaped structures , that block soil movement, woven from coconut sennits (magimagi) that are filled with coconut husks and are then embedded to eroding coastlines or riverbanks.

Following the embedding of the coir logs, native coastal tree species and vetiver grass are planted behind the logs to help stabilize the vulnerable areas. With the life expectancy of four years, its anticipated that by the time the logs degrade, the vetiver grass and native tress have firmly established their roots along the degraded coastline, thus preventing further erosion.

“Coir logs work by buffering wave force on the shore, reducing its impact on the seedlings planted behind the logs to firmly establish their roots systems. At the same time as the water flows in and out of the log, soil behind it gets trapped in the log thus helping in soil build up.

“Implementing seawalls and gabions are very expensive, we have readily available coconut sennits and this is a good way in implementing something that is not expensive and readily available to villages and communities that can help their eroding coastlines recover,” explains WWF-Pacific climate change officer, Dr. Rusila Savou.

Having a life expectancy of four years, it is expected that by this time, once the coir logs degrade into the soil, the climate resilient trees and mangroves planted behind it would be firmly established.

“Nacula village and surrounding villages of Nacula district in the Yasawa Islands are not immune to the impacts of climate change. It is happening right here right in front of our door steps. The coir-logs, along with the native trees and mangrove seedlings planted in due time hopefully will provide the community relief and buy us time. We are thankful to WWF and the people of the United States,” said Nacula district representative, Saimoni Naivalu.

Should there be a need to replace the coir logs, this can be easily done by the communities who have been trained on its weaving and assembly. Magimagi coconut trees have also been planted in Nacula. A relationship has been established with community member trainers from Lau.

(Left) 230 metres of the Nacula village coastline has been identified for coir-log embedding.

Sawa-i-Lau caves – a gem for its people

by Ravai Vafo'ou

One can only claim to have visited the Yasawa Group of Islands, if they have visited its Sawa-i-Lau caves. These ancient limestone formed caves, are situated on Sawa-i-Lau, one of the 20 volcanic islands in the Fiji archipelago and the second northern most island that make up the Yasawa Group.

The Yasawa chain of islands rest along the western end of Fiji's Great Sea Reef. The caves filled with deep caverns of tranquil turquoise waters and its folklore legends make this hidden gem of the Yasawas a 'must do' activity for tourists.

Quite so popular with tourists, the cave system was awarded the 2015 Certificate of Excellence Award by world renowned guests' reviewing platform Trip Advisor.

According to a Fiji Times article, to venture into the tourism market, traditional landowners of the cave system from the villages of Tamusua and Nabukeru, which are nestled across from where the caves are, formed a locally owned company, Mataqali Natukani Rakirakinato Ltd, to manage site seeing in Sawa-i-Lau caves.

At a glimpse, there are more than 20 resorts and backpackers in the Yasawa Group. The Sawa-i-Lau tour operation initiative is a great example of how indigenous communities in Fiji are able to generate revenue through sustainably using their natural and historical landmarks. Given the sustainable environmental safeguards, it is no easy task for such businesses to thrive however; there seem to be a lot of sustainable planning and marketing into this venture.

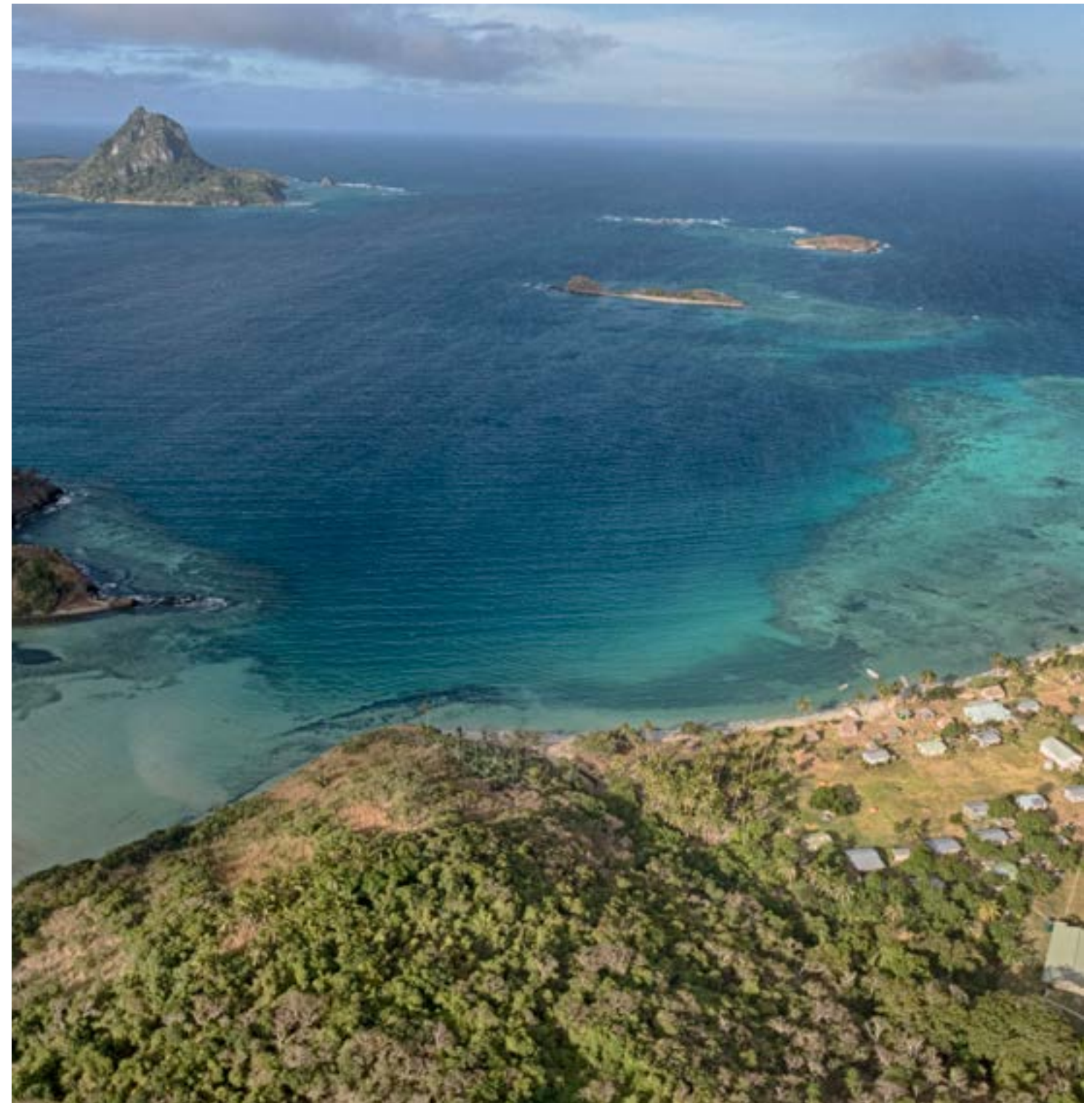
The Sawa-i-Lau caves are indeed a great example of what lies behind a great innovative initiative, resourcefulness, commitment and perseverance of the traditional owners of the cave.



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Tourists inside the main Sawa -i-Lau cave.

Next page: Sawa-i-Lau islands on the Great Sea Reef.



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Food security for the future

by Ravai Vafo'ou

Despite the richness and abundance of marine resources in and around the Great Sea Reef, the islands that are situated around it are often plagued by the volatility of the open sea and the winds that come with it. This is even more so the Yasawa Islands, on the western side of Fiji.

They are often battered by cyclonic winds during the cyclone season and are prone to extremely long periods of drought. As a result, food security is often an issue in Yasawa as they lack the skills and capability to preserve available and excess produce they have, to prepare for natural disasters.

But for the community of Navotua village, in the district of Nacula, this will be a thing of the past following a series of training on food preservation techniques and better storage methods.

The women were taught traditional food preservation techniques like storing vegetables and staple crops such as breadfruit and bananas in dug holes in the ground and covered with banana leaves and soil.

“Adopting these food storage methods before times of natural disasters will enable us to store our root crops for a longer period of time and we wouldn't have to rely and wait on assistance from Government and stakeholders after a natural disaster hits,” said Navotua villager Laite Natasiwai.

The women were also taught the use of an assimilation chiller which uses a metal pot filled with sand and water

and dampened potato sacks to ensure that root crops and vegetables can be kept for at least a week.

The women of Navotua, as main providers for food for their families, have embraced these techniques, as these ensure their well-being in times of need. Other components of the training were the setting up of farm models and vegetable gardens and the introduction of climate resilient crops such as the sweet potato.

“Navotua, like all communities in Yasawa, is prone to drought. Every three months in a year, the village water sources would dry up. Cassava and tivoli (wild yams) are the only cash crops that can grown.

“So we brought in nine varieties of drought tolerant sweet potato. This is the first time such varieties are introduced to this village,” said agriculture farm model consultant, Mereseini Seniloli.

With natural disasters intensified by climate change, impact are more and severe, taking longer for families to restore their lives. These women are now better equipped to ensure that their families are better prepared to sustain themselves before and after a natural disaster.

(Left) Women of Navotua village, Yasawas part taking in a traditonal food storage method. This storage method enables remote communities to store and preserve root crops during times of natural disasters.

Safer and disability friendly shelters

by Ravai Vafo'ou

Previously, 86 years old, visually impaired, Ilisapeci Vuibau of Natutu village had to walk 10 metres with a single metal line as her only guide and support in order for her to use her washroom or toilet.

Ilisapeci along with Kaliova Usa and Eroni Kacia, recently had their homes retro-fitted with disability friendly amenities.

They are residents of Natutu village, in the district of Nailaga, Ba that falls under WWF-Pacific's 'Building the Resilience of the Pacific through Disaster Preparedness' project, targeted at communities that live along the Great Sea Reef building resilience to disasters and minimizing impact, vulnerabilities, and dependencies allowing communities to build back quicker and stronger with each disaster.

The project was born out of WWF-Pacific's first experience in relief assistance to the communities affected by the wrath of Tropical Cyclone Winston in this case.

For Ilisapeci, Kaliova and Eroni, the amenity upgrades have also benefitted not only them but their families as well.

"When it is heavily raining and it's flooded, we have no choice but to assist our grandmother in undertaking her business within her room. With her retro-fitted amenity we just have to assist her on the deck and into the washroom. The burden of care giving by the family is lightened," revealed Ilisapeci Vuibau's granddaughter, Romera Nai.

The village hall and washrooms were also retro-fitted to international disability accessibility standard by Habitat for Humanity Fiji through its partnership with WWF-Pacific Fiji.



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(Top) Mr Eroni Kacia of Natutu village, Ba with his retrofitted amenity.

(Right) An aerial view shot of Natutu village. A community project site for WWF-Pacific's Disaster Risk Reduction Project.



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Fiji Locally Managed Marine Area Network (FLMMA)

by Amelia Makutu

Protecting sustainable sources of seafood and The Great Sea Reef (GSR) region is everyone’s responsibility- communities, civil society, private sector and government all have a role to play according to Alifereti Tawake, Council Chair of the Locally Managed Marine Area Network International (LMMA)

Alifereti ‘s association with the LMMA began in Fiji where he has been a member of the Fiji chapter commonly known as FLMMA (Fiji LMMA). It is not surprising that one of FLMMA’s first projects with WWF was in the GSR more than 15 years ago.

“Back then we were working in Votua in Ba and we later worked in Macuata on the Nakalou Management Plan and this explains my personal interest in the GSR” Alifereti said. He added that with WWF now taking lead role in the GSR work, it is important for all stakeholders to consistently work together and he highlighted one of FLMMA’s contribution as “providers of a space where we can all dialogue and build trust over time to address the issue before us.”

For someone involved in many aspects of the conservation of biodiversity from advocacy, research, policy to establishing Marine Protected Areas, Alifereti has seen many a project come and go and for various reasons some are effective and others not and he is adamant that work on the GSR must succeed.

Alifereti said there is urgency to protect the GSR, “There are many opportunities and we hope that everything will

come together so we can address the problems we are having and ensure that the biodiversity of the GSR and Fiji for that matter are protected.

“When you are looking at the GSR region, you can see the size and spectrum of communities that still care about the environment and another that cares but only by name but not in essence. One region can be called the seafood basket of Fiji and the other region of the GSR is the biggest beneficiaries and consumers of that basket,” Alifereti explained.

“Any work on the GSR region should be seen as an investment rather than an expenditure, when we are proactively looking after the environment we are among other things helping communities out of poverty, improving livelihoods, ensuring first and foremost that they have decent meals daily.”

“We have done a lot of good work in the past and now, tourism and the fishing industry are growing in one region of the GSR and getting the balance between development and conservation is the key, and people in the region need to change their attitude and think about the long term. We the people of Fiji are the custodians of the future and if we don’t do anything we are doomed,” said Alifereti.

(Left) Fishermen with freshly caught and cleaned fish weigh and sell their fish to the Ligau Village fish trader Penny.

Women ‘kai’ fishers of Ba

by Ravai Vafo'ou

For the women fishers of the Ba River, in the province of Ba, unsustainable agricultural practices and improper waste disposal coupled with the impacts of climate change are major contributors to the decline in freshwater mussels (*Batissa violacea*) or locally known as 'kai'.

To the local fisherwomen, kai is considered the black gold of the Ba river - it is a good source of protein and income to the local communities along the river bank.

The 83 kilometer Ba River drains out into Fiji's Great Sea Reef, locally known as Bai-kei-Viti.

“Companies and communities need to stop polluting the Ba River. Run-offs into the Ba River pollutes the river and eventually our reefs and fish are affected,” said kai fisher, Asena Tagi of Soweri settlement.

“I have been fishing for kai since the 1970s. Women nowadays are mostly catching small sizes. It is very hard to find the larger size kai. We use to collect and fill 50kg bags with arge sized kai back in the 70's and 80's. Nowadays, the kai fishers likely fill a 25kg bag with small sized kai.

“ Now, we have to spend longer time in the cold river to be able to collect enough,” revealed Torika Senileba of Nailaga village.

WWF-Pacific through its ‘Strengthening Governance and Resource Management for Climate Resilient Communities in Fiji’ project has been raising awareness on the protection and conservation of the Ba river delicacy over the last year.

“The women are quite aware of the issues that are happening in the Ba River. It is also obvious the kai is moving upstream, so there is a need for plans to be in place to assist them.

“One of the recommendations is to have a temporary fishing ban on selected kai fishing grounds as well as waste management processes to reduce the amount of waste going into the river in addition to a replanting programme along the riverbank to reduce soil erosion and strengthen the buffer strips,” said WWF-Pacific's Conservation Director, Francis Areki.

(Right) A Woman Kai fisher in front of a digger along the Ba River.





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