



Beqa Lagoon Initiative

PROJECT OVERVIEW

Beqa Lagoon Initiative – Sustaining Reef Communities

The Beqa Lagoon Initiative (BLI) is at the centre of Pacific Blue Foundation's work in the South Pacific Region and has been operational since 2017. BLI is a local community-driven, ecosystem-based management program that focuses on bringing together 10 local Fijian communities, tourism operators, and government agencies to build ecosystem resilience through sustainable and integrated co-management of the marine, coastal and terrestrial environments of Beqa Lagoon.

Pacific Blue Foundation

Pacific Blue Foundation (PBF) is a public-benefit Charitable Trust registered in Fiji since 2006, and a Non-Profit 501(c)3 registered in CA, USA since 2004. PBF provides research, education, encouragement and dissemination of sustainable practices in coastal regions in Fiji with the ultimate goal of preserving and promoting the biological and cultural diversity.



View from the top of Beqa Island, reaching over 430 meters above sea-level, looking to the south over the lush rainforest and the barrier reef.

Beqa Lagoon

What makes Beqa Lagoon so special?

Beqa Lagoon is the largest enclosed lagoon in Fiji and consists of over 440 square kilometres of clear waters surrounded by the protection of over 70 kilometres of barrier reef. Within this ecosystem are exceptional coral reefs, productive mangrove forests, diverse fish, charismatic megafauna (such as sharks, marine turtles and whales) and culturally rich indigenous communities.

The healthy, productive ecosystem of Beqa Lagoon contains six islands, inhabited by ~1,500 community members across 10 villages nestled within tropical rainforest on the coastlines of Beqa and Yanuca islands. The Beqa Lagoon people have traditions embedded in the surrounding lands and waters, where fisheries and farming provide the main sources of food and income security for them.

The four resorts in Beqa Lagoon, which employ about 10% of Beqa's population, draw thousands of tourists annually to the lagoon's natural and cultural attractions such as the legendary firewalkers and the shark god, Dakuwaqa.

Beqa Lagoon was recognised as one of the Fiji Islands Marine Eco-regions and was considered as a national Priority Conservation Area in 2003. More recently, in 2018, Beqa Lagoon was afforded the highest level of recognition as 'biophysically special and unique marine areas in Fiji'. In formal recognition of the significance of the lagoon area, the Beqa Lagoon and Passage are been endorsed as a Particularly Sensitive Sea Area (PSSA) through the Maritime Safety Authority of Fiji.

Beqa Lagoon is under threat

Changing attitudes towards food consumption and the use of natural resources have been apparent in the recent past, brought about by the growing efficiency of fishing techniques combined with a developmental shift away from subsistence living to an income-based society. The by-product of this socio-ecological shift created a plethora of threats to the socio-ecological system (SES), and these include wide-spread destructive and overfishing, a significant increase in solid and organic waste pollution in coastal areas, overabundance of the coral eating Crown-of-Thorns Starfish (CoTS) and reduction of its natural predators, mangrove harvesting and coastal erosion. The combination of these threats destabilizes the functionality of the SES.

These issues are exacerbated by the impacts of climate change. There is a real threat that coral reef communities will degrade and that coastal stability will continue to decline from climate change induced effects such as increased sea temperatures, higher sea levels and adverse weather phenomena. The consequences of these threats may include the need for families to relocate to urban areas due to scarcity in natural resources, destabilized coastal zones and the need for alternative incomes. This would be a massive loss of community identity, a disconnection from traditional ways of life and a huge drain on the local economy and cultural heritage of the Beqa Lagoon as a whole.

With unsustainable consumption of natural resources, growing tourism the overuse of ecosystem services and the uncertain threats of climate change, the drive to achieve a long-term, self-sustaining and financially stable SES has never been higher.



A healthy reef on one of the marine protected areas PBF help facilitate.



Crown of Thorn Starfish predating on a coral in Beqa Lagoon.

What we are doing to help

In recognition of Beqa Lagoon's uniqueness, Pacific Blue Foundation has partnered with local communities of Beqa Lagoon, the Provincial Council of Rewa and Fiji Locally Managed Marine Area (FLMMA) Network, to initiate the Beqa Lagoon Initiative (BLI). The initiative utilises its social-cultural proficiency and marine ecological expertise to design and implement projects to achieve a Blue Green Economy for Beqa Lagoon.

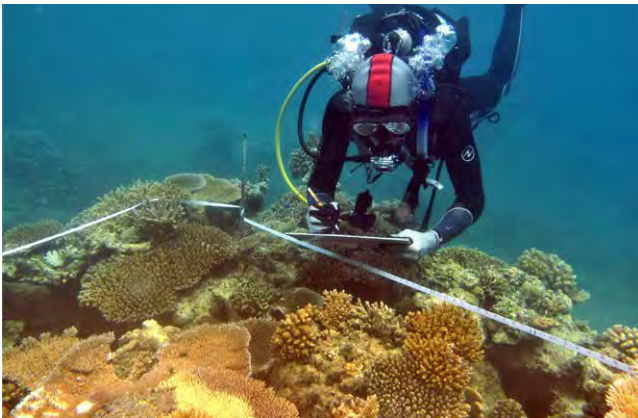
Blue Green Economy

The Blue Green Economy is consistent with the UN Sustainable Development Goals and is centred on eradicating poverty through sustainable development. Building on this, the Blue Green Economy conceptualises oceans and lands as 'Development Spaces' where spatial planning integrates concepts of conservation, sustainable use, sustainable energy production and marine transport.

BLI delivers a Blue Green Economy to Beqa Lagoon by safeguarding marine and island ecosystem services that support the health and well-being of local clans and tribes, while addressing existing and emerging threats to, and conserving the health of, Beqa Lagoon's natural values.

Through a number of projects that have been mutually devised by Beqa Lagoon's local communities, PBF and partners, designed solution-based schemes that are underpinned by spatial plans focuses on four themes:

1. Preserving cultural integrity
2. Conserving marine and coastal ecosystems
3. Enhancing education
4. Sustainable community development



Clockwise, top left to bottom right: PBF marine scientist conducting reef health surveys; Trained community member harvesting CoTS on an infected reef; Community youth constructing a mangrove nursery; Community elders designing a natural resource management plan.



Theme 1: Preserving cultural integrity

Goal: Local clans and tribes are empowered to preserve and revitalize their cultural way of life so that traditional connections and uses of the coastal and marine resources can be conserved for future generations.

We will achieve this goal through two main programs:

1. Uniting clans (mataqali) and tribes (yavusa)

Program objectives:

Inspiring a shared vision

Unity of Beqa Lagoon's clans and tribes to conserve local Fijian traditions and agree on the management of culturally important natural resources while achieving peace, prosperity and national identity.

Empowering traditional protocols and structures

Traditional protocols and local governance is clear, transparent, understood and respected by the local community and users of the Beqa Lagoon area during project development and implementation processes.

2. Conserving traditional knowledge

Program objectives:

Reinvigorating traditional knowledge

Revitalize tribal and clan belief systems, customary practices and traditional ways of life through identification, celebration and recognition in formal planning processes.

Heritage site conservation

Preserve cultural heritage sites on islands and coastal areas of Beqa Lagoon with specific management measures in place and compliance is driven by local communities.



Theme 2: Conserving marine and coastal ecosystems

Goal: Community driven long-term marine, coastal and terrestrial management plans implemented to remedy ecosystem degradation while proactively preserving and enhancing the resilience of the Beqa Lagoon's ecosystem.

We will achieve this goal through three main programs:

1. Developing spatial and management plans for Beqa Lagoon

Program objectives:

Establish co-managed locally managed areas

Develop formally recognised multi-use Locally Managed Areas (LMAs) that provide for the preservation of ecosystem function biodiversity values, culturally and commercially valued fishery stocks while supporting traditional use and tourism activities.

Fisheries management and compliance

Develop and implement an integrated fish resource management framework to ensure that fisheries activities are managed such that productivity continues while ecosystem integrity of Beqa Lagoon is maintained.

2. Mitigate threats to benthic habitats

Program objectives:

Vessel management

Mitigate and monitor maritime vessels' threats to the natural resources and ecosystems of Beqa Lagoon so that priority impacts can be managed by the local community and reduced to acceptable levels in the long-term.

Crown of Thorns Starfish (CoTS) control

Enhance resilience of coral reefs to other threats such as climate change, eutrophication and unsustainable human uses by removing the added pressure of CoTS outbreaks to enhance ecosystem functions and services.

3. Restore habitats of high ecological significance

Program objectives:

Mangrove restoration

Maintain the diversity of mangrove communities and enhance the health and productivity of mangrove habitats through targeted restoration and proactive management.

Reef restoration

Restore and enhance the structural diversity of coral reef communities in priority areas of Beqa Lagoon.

Native vegetation restoration

Restore and enhance priority native vegetation communities of Beqa and Yanuca Islands.



Theme 3: Enhancing education

Goal: Environmentalism knowledge to residents and visitors to Bega Lagoon introduced and enhanced to build capacity of future leaders and custodians.

We will achieve this goal through three main programs:

1. Sustainable schools

Program objectives:

Developing environmental curriculums

Develop knowledge, skills, values and local views that are necessary for the community and future generations to act in ways that contribute to ecologically sustainable living patterns and practices.

Water, sanitation and hygiene program (WaSH)

Improved levels of hygiene, sanitation and potable water quality achieved through education, awareness and improved practices.

Green power

Develop and install facilities supporting schools to become self-sustainable, carbon neutral and healthy environments.

2. Instilling new skills and knowledge

Program objectives:

Local community leaders in nature based visitor experiences

Develop partnership-based programs with tourism operators to maintain stable tourism employment opportunities for communities, provide staff training and foster visitor awareness of Pacific Island conservation management issues.

Technical training and sustainable agriculture

Facilitate and conduct on-going training schemes targeting local communities to develop their technical trade and agricultural skills to become self-sufficient, reduce waste and enhance job opportunities and local produce.

3. Tertiary and vocational programs

Program objectives:

Sireli Kago Education Fund (SKEF)

A scholarship designed to encourage and enable community members to continuously pursue higher education and vocational training through financial assistance to support their lifestyles, livelihoods, and the wellbeing of their families, communities and environment.

Partnerships with universities

Develop and utilise partnerships with universities to provide technical advice, project design and support for key science, engineering, health and education aspects of the BLI.



Theme 4: Sustainable communities

Goal: Community wellbeing, equality and resilience achieved through improved living standards, diversified alternative livelihood and shared responsibility.

We will achieve this goal through four main programs:

1. Green energy, clean water and managed waste

Program objectives:

Renewable energy

Promote the use of renewable energy and facilitate renewable energy equipment purchase and long-term maintenance.

Clean and accessible water

Increase community resilience by providing access to fresh water for domestic and farming use, expanding rainwater capture and storage infrastructure and achieving best practice hygiene and sanitation practices.

Improved waste management

Improve the management of solid and liquid waste and reduce the negative impacts of unmanaged waste on community health, the environment, tourism, and food security of Beqa Lagoon.

2. Organic farming

Program objectives:

Organic farming and crop diversification

Train and support the farming sector of Beqa and Yanuca Islands apply sustainable farming practices that entail organic farming methods, horticultural diversification and achieve increased community nutritional and economic benefit.

3. Sustainable livelihoods

Program objectives:

Eco-tourism

Develop community based sustainable tourism enterprises as long-term alternative livelihoods that generate local income while fostering visitor appreciation for the cultural and ecological environment.

Local species aquaculture

Develop and investigate feasible and ecologically sustainable aquaculture commodities to inform and facilitate the development of alternative livelihoods for Beqa and Yanuca Island communities.

4. Women and youth empowerment

Program objectives:

Women in business

Empower women to be a pillar in Beqa Lagoon communities by providing knowledge, training and economic opportunities to contribute to generating financial markets and professions.

Youth leadership and responsibility

Improve the wellbeing of young people in Beqa Lagoon by facilitating programs that promote responsibility, community service and leadership.

Partners and collaborators

- Communities of Beqa and Yanuca Islands
- Fiji Locally Managed Marine Area (FLMMA)
- Rewa Provincial Council
- Serua Provincial Council
- Fiji Environmental Law Association
- Ministry of iTaukei Affairs
- Ministry of Environment
- Ministry of Fisheries
- Ministry of Health
- Maritime Safety Authority of Fiji
- University of the South Pacific
- Scripps Institution of Oceanography
- Beqa Lagoon Resort
- Lawaki Beachhouse
- Blue Whale Adventures
- Oceanwise Australia
- Society for the Prevention of Cruelty to Animals – Fiji Islands



Current supporters

- UNDP/GEF through the Small Grants Programme (SGP)
- Australian Aid through the Direct Aid Program (DAP)
- Conservation, Food and Health Foundation
- Beqa Lagoon Resort
- Blue Whale Adventures



At a glance – BLI achievements

Establishment of district-level Yaubula (natural resources) Management Support Teams (YMSTs)

PBF, partners and local leaders have achieved unprecedented success in the gathering traditional leaders from all nine villages in two districts on Beqa Island to collaborate to form a district-level and island-level YMSTs. The division of responsibilities in developing a natural resource management plan for marine and coastal resource management, including the facilitation of community and stakeholder support, was decided through meetings and workshops.

Establishment of village-level YMSTs

The YMST structure became active with the formation of village level YMSTs in all nine villages on Beqa Island. YMSTs have been successful in setting goals, identifying targets, priorities, and responsibilities and are chaired by local leader representatives of the traditional leadership structure.

A key outcome of YMSTs includes workshops that empower village members to identify key local threats to their environment and livelihoods and create local threat management plans.

Progress toward establishing Beqa Lagoon Locally Managed Marine Area (LMMA)

Over the past decade, PBF has played an important role in facilitating the designation of Marine Protected Areas (MPAs) in Fiji, strengthening the LMMA network. Some of the largest locally managed MPAs in Fiji, Kavuti MPA in Qoliqoli #5 (customary fishing ground) and Navata-i-lulu, MPA in Qoliqoli #4, span an area of 8.5 km² and 6.5 km², respectively. Further work with communities in Beqa Island has resulted in several small MPAs, with a total area of about 1 km² in Qoliqoli #6. Recently, the newest protected area in Beqa Lagoon (February 2019) was established in Qoliqoli #1, spanning an area of 0.15 km².

Establishment of baseline monitoring sites

An integral part of BLI is to understand the baseline state of the environment in order to determine realistic performance outcomes and measure success over time. Sites have been selected encompassing areas designated as closed and open to fishing; the selection of these sites was designed to include parts of continuous reef representing the typical topographical conditions in Beqa Lagoon's fringing reefs. The monitoring methods are robust, standard ecological survey techniques carried out by trained marine ecologists and include the assessment of mixed species of fish and invertebrate stocks and coral health, assemblage and diversity. The data collected from these surveys are presented back to the communities through the YMSTs and used in tandem with traditional and local knowledge to develop best-practice coastal management strategies.



Map of Beqa Lagoon demarcating the traditional fishing grounds (iQoliqoli) in yellow, and the marine protected areas facilitated with PBF assistance, in red.

Mangrove restoration outcomes

Three mangrove nurseries have been established in two different villages, and seedlings have been planted along the coastline in two different sites. Mangrove rehabilitation utilising locally propagated seedlings has proved to be an easy-to-implement conservation activity, carried out by local communities and showing promise as a long-term community led conservation project.

Coral restoration

A coral planting initiative in partnership with Beqa Lagoon Resort has been initiated. Broken fragments, found on the in-shore 'house reef' of the resort are collected and attached to either cement 'cookies' or pieces of string. The cookies are then attached to one of two coral tables in the sheltered bay and the suspended corals are attached to 'coral trees' hanging in the water column, which allows the growing colonies more access to nutrients that pass by in tidal currents. Once the corals have reached a good size and optimal health state, they are transplanted back to the near-by reef in order to contribute to the other coral coverage and thus biodiversity of the Beqa Lagoon.

Composting program initiated

Participatory educational activities and applied workshops led to the initiation of a composting program to produce organic fertilizer supporting the initiative to move towards organic farming. The program's impact is two-fold; both as a means mitigating farming-related pollution from inorganic fertilizers, and as a monetary gain by removing the need to purchase expensive fertilizers. The facility includes two composters, each able to hold over 1 cubic ton, and a holding box for storing dry green litter to be used in the composters.

CoTS threat abatement program initiated

PBF has trained local community members to conduct CoTS clean-ups on a periodic basis combined with workshop training for local community members. The purpose of this training and threat abatement program is to keep CoTS population in check so as to avoid an ecological phase shift with the potential to cascade through the food-chain and affect local economies. In addition, initial discussions have been undertaken with local farmers to utilise CoTS biomass from clean-ups as a rich form of compost.

Partnerships with tertiary education providers

PBF has successfully developed a scholarship program for tertiary and vocational studies called the Sireli Kago Education Fund (SKEF). The program was named after the late Sireli Kago, a pioneering leader of community development and conservation from Yanuca Island. There has been five successful recipients of this support, with three that recently graduated.

PBF continues to collaborate with the University of the South Pacific (USP) for projects in Beqa Lagoon, and a MoU is in progress. Furthermore, a platform for graduate students had been initiated, and currently an MSc student from USP is undertaking her research work in Beqa Lagoon and is co-supervised by PBF.

Active discussions are underway to form a partnership with the prestigious Australian university – the Royal Melbourne Institute of Technology (RMIT), to collaboratively work on a 'Student Mobility Program' to begin in late 2019.

Partnership with businesses

Formalised partnership with Beqa Lagoon Resort (BLR). The resort is a key project partner in many respects, first and foremost from a financial standpoint; the resort provides services and financial aid to the local villages in many different ways: by simply employing a huge proportion of the local community, giving aid and donations and supporting the YMST through Pacific Blue Foundation. BLR is paving the way towards making this happen by forging such a close relationship with PBF and allowing us to use their facilities which provide a huge logistical help in making much of our project work happen. BLR guests are provided with optional ecological and conservation activities which are both directly contributing to the goals and objectives of the BLI, creating a public outreach opportunity for the plight of tropical coastal ecosystems around the world whilst making people more aware of human impact and sustainable living, and also to facilitate a revenue stream for the project.



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