



2021 TOP 100 GOOD PRACTICE STORY

Title of the Story: Low Isles the Seaside Paradise

Destination Name: Low Isles, Douglas Shire

Country: Australia

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Position: Sustainability Officer

Nomination Category: *(Please check the boxes that indicate the focus of your story)*

Please find detailed information for the categories below in the Top 100 training module 'Good Practice Story'.

- Localizing the destination supply chain
- Decarbonizing the destination supply chain
- Culture & Communities
- Environment & Climate
- Nature & Ecotourism
- Tourism Reset & Recovery

Find detailed instructions for submitting good practices in the Top 100 training module "Good Practice Story".

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DESCRIBE YOUR GOOD PRACTICE STORY

Address each aspect of your good practice story in the different sections being specific including relevant quantitative and qualitative information.

Issues faced

Low Isles consist of two islands located within the world-renowned Great Barrier Reef, 13 kilometres northeast from Port Douglas, Queensland. One of the islands is known as Low Island and the other as Woody Island. Low Island consists of a small sandy cay with vegetation and a Commonwealth Heritage listed lighthouse. Woody Island is an uninhabited island with coral and mangroves which offers an important nesting site for number of bird species. It is a protected wildlife sanctuary, with estimates that over 25,000 pied imperial pigeons (*Ducula bicolor*) fly down from Papua New Guinea to nest at this site every year.

These unique tropical islands are part of the Great Barrier Reef World Heritage Area and are surrounded by coral reefs with over 150 different coral species. Living amongst the coral is an enormous variety of fish and other marine fauna, such as turtles and dugongs. Also, dolphins, sharks and whales are commonly seen near the islands.

Low Isles and the surrounding Great Barrier Reef have been described as one of the most spectacular, complex, but fragile ecosystems in the world. Being located close to the mainland of Port Douglas, makes Low Island an easily accessible site. This has resulted in high visitor demand to experience the Great Barrier Reef. Daily cruises to Low Isles have been occurring since 1979, and the number of business operators have grown through the years resulting in an increase in tourist numbers and human activity.

Anthropogenic impacts have resulted in a decline in reef health and water quality in the area. Managing the environmental, cultural, economic, and social values of such a biodiverse and complex ecosystem can be quite complicated and most notably the management of visitors and climate change are two of the biggest challenges faced. The controlling and overseeing of visitor numbers is imperative and additionally, sea level rise, increased air and water temperatures and frequency of extreme weather events have all become recent concerns to the island in the face of climate change. Evidence of this, is the devastating coral bleaching event that occurred during 2016/2017 affecting the health of the fringing reef around Low Isles.

Australian aboriginal people have been the Traditional Owners who have cared for the waters surrounding Low Isles for thousands of years. Low Isles is an important Indigenous cultural site for the KuKu Yalanji and Yirrganydji aboriginal tribes. In Indigenous history Low Isles is considered to have formed as part of a united landmass that was separated during the Dreamtime. Traditional and spiritual wisdoms continue to be practiced in this important Sea Country area. Traditional hunting of the green turtles using traditional hunting methods is considered a sustainable practice but in recent times, illegal hunting of this vulnerable species is impacting the population.



Methods, steps and tools applied

Demonstrated commitment to the ecological wellbeing of the area, has given the opportunity to trial innovative environmental measures to minimise impacts on the reef, ocean, species biodiversity and climate change. The protection of this biodiverse habitat is organised by different groups and industries and relies on stakeholder collaboration and the implementation of sustainable practices to business operations, to enable the sustainable use of the area for tourism, recreation, research and cultural practices.

Low Isles Preservation Society (LIPS) was formed in 1993 when the last lighthouse keeper left Low Isles. LIPS is a conservation group dedicated to the protection and preservation of Low Isles. They are committed to protecting the unique character of Low Isles and is regularly promoting education and research. Low Isles Caretakers engage the assistance of Low Isles preservation society for annual Pied Imperial Pigeon counting that occurs once a month from September to March annually. LIPS volunteers are also invited to the island from time to time to assist in maintenance activities.

The Great Barrier Reef Marine Park Authority employs Caretakers, who live on Low Island and report directly to the Great Barrier Reef Marine Park Authority (GBRMPA) and Queensland Parks & Wildlife Services (QPWS), who work together in a joint field management program. The key role of the Caretaker is to maintain, service and manage all of the key assets, infrastructure, natural and heritage values on Low Isles which comprises of:

- 1) A Rainwater Harvesting system, including numerous interconnected holding tanks, transfer pumps, filtration and purification systems and associated fire hydrant connections.*
- 2) A Remote Area Power Station, being a 100% off grid solar panel system, with the capacity to make and store 120volts per day, managed via an inverter connected to a bank of 60 individual batteries. Its capacity is adequate to sustain the 3 houses, along with the other power needs of the island, being the wastewater system.*
- 3) Waste Water Treatment Plant (WWTP), the island harvests, uses and subsequently cleans all of its own water which is then used to irrigate areas of vegetation around the island with the recycled water.*
- 4) Public Compost Toilet System, the system provides a maximum toileting facilities for up to 400 persons/ uses per day and is 100% self-contained and discharges nothing onto the island. The end product being usable compost.*
- 5) Weeding, Low Isles enjoys a tropical style climate here in FNQ, where plants and weeds grow at an incredible rate. The Caretaker role is to identify the weeds that are not native to the island and have been inadvertently introduced by whatever means and eradicate them to prevent infestation and impact on the island's sensitive natural environment.*
- 6) Marine Debris Collection, as is happening around the world the issue of marine debris is impacting on Low Isles and the GBR. In the Caretakers role, they undertake daily beach inspection of Low Island and monthly inspections of Woody Island. On inspections they are looking for marine debris and other waste washed up onto the shoreline. This is collected and working in conjunction with Tangaroa Blue, they classify, identify and record the items found in an attempt to trace the original source of the debris and help prevent reoccurrences. Caretakers also assist Tangaroa Blue in their efforts to clean up the reef by helping to organise trips to Low Isles to undertake beach cleans. They help by managing the logistics of the travel and the movement and removal of the waste collected.*



A permitting system for tourism operators and businesses was developed to control the visitor numbers to the island. Additional benefits are given to tourism operators and businesses who are eco certified. Awareness and knowledge have been increased through the business operators educating visitors about the species biodiversity, reef health, and climate change including the real impacts it is having on the reef system globally.

Increased monitoring of the fringing reef has occurred and since the devastating coral bleaching event in 2016/2017, Great Barrier Reef Legacy has been conducting research surveys every quarter to monitor reef health and the health of the destination.

Various Citizen science projects on the Great Barrier Reef assist in managing and monitoring reef health, some examples of these are:

- Virtual reef diver encourages citizens to take photos of the reef while snorkelling and submit the photos to a central database which will be used by reef scientist to monitor and predict reef health.

- The Great Barrier Reef Marine Park Authority Eye on the Reef app is a monitoring and assessment program that enables anyone who visits the GBR to contribute to its long term protection by collecting information about reef health, marine animals and incidents. The information gathered is used to understand the bigger picture and reef management.

Various not-for-profit organisations are dedicated to addressing major threats to oceans and reefs. An example is Tangaroa Blue, who are dedicated to the removal and prevention of marine debris with the data entered into the Australian Marine Debris Initiative database to trace and stop it back at the source.

Kuku Yalanji people rely on customary and traditional laws as well as developing and operating their own hunter identification system to assist with the management of their sea country, particularly the green turtles.

A current initiative in development, is the Living Coral Biobank Project. The Great Barrier Reef Legacy project is a shared vision of an exceptional group of individuals and organisations. The aim of the project is to collect and keep alive all hard coral species from around the world in a state of the art holding facility in Port Douglas in a type of "Coral ark" to maintain the living (genetic) biodiversity of corals and their algal and bacterial symbionts.

Key success factors

Successful implementation of operations in this sensitive environment has come together through partnering and information sharing by different organisations.

To acknowledge the Traditional Owners of the Low Isles sea country and to protect the cultural and traditional heritage of the site, Low Isles is registered on the Commonwealth Heritage List in recognition of its cultural and Indigenous heritage.

While the first lighthouse on the island was built in 1878, the site has been an important asset for navigation for mariners and fishermen. The property is managed by the Great Barrier Reef Marine Park Authority, a Commonwealth Government agency, while the lighthouse is owned by Australian Maritime Safety Authority. Caretakers of the site live on Low Island and make sure the Marine National Park rules are obeyed all year round by educating the visitors. The caretakers maintain all infrastructure, including a sewage treatment plant and remote area power system on site.

Additionally, an important part to the mix are non-governmental organisations including Low Isles Preservation Society, Great Barrier Reef Legacy, Douglas Shire Sustainability Group, business operators and the tourism industry, who are dedicated to the protection and preservation of the reef, waters, biodiversity, lighthouse and the surrounding environment. Ongoing monitoring by local businesses (e.g. Windswell monitor species on Low Woody throughout their paddle boarding tours) and scientific research monitor the change and recovery of the reef.

Reef snapshot provides a concise, easy to understand summary of how the reef has fared over the previous year, including coral health and what actions are being taken to help coral health (LIPS).

The annual Wet Tropics Waterway Health Report Card assesses the conditions of our freshwater basins, estuaries, inshore and offshore marine environments by measuring various indicators such as, water quality, habitat and hydrology, fish, coral, and seagrass to the effects of all land uses. The Report card allows for the monitoring and tracking of trends in the catchment conditions and health of rivers, estuaries, wetlands and near shore coastal and marine environments.

The virtual reef diver citizen science project has enabled 241.6K images, 3.6M points and 1.3K uploads to be submitted to a central database to help better manage the Great Barrier Reef through modelling and prediction.

Tangaroa Blue Australian Marine Debris Initiative removed 1,483 tonnes of marine debris with a total of 18,399,253 items removed.



Lessons learned

When it comes to the protection of this magnificent environment and biodiversity, Low Isles and the surrounding area have proved how important stewardships with community, researchers and governmental organisations can be. To establish innovative approaches, different stakeholders have been working together for decades.

Initially, traditional knowledge has been used to share stories and knowledge. More recently, research findings have been able to demonstrate how special the environment is and what type of species richness the area holds. Tourism operators contribute to reef monitoring, coral restoration, adhere to responsible reef practices and deliver interpretive information to thousands of tourists.

Additionally, several locals have joined citizen science programs, such as bird counting days and beach cleanups. Tangible partnerships with the local indigenous groups have increased cultural awareness of indigenous use of Low Isles. Information sharing has created ways of protecting and saving this seaside paradise with tangible achievements and stories.

Results, achievements and recognitions

In 1928 the world's first comprehensive year-long coral reef study was carried out at Low Isles. The data from this study has been used as a baseline for any information that is gathered now and will be gathered in the future. Notably, Low Isles is one of the few coral reefs in the world for which a long series of data exists and presents a valuable opportunity for continuing long-term studies. This data provides the researchers unique information to analyse the changes in the reef, marine fauna and the surrounding habitat.

Low Isles is an important data collection site for the Bureau of Meteorology. First weather observations were recorded at Low Isles in 1887 and nowadays the locals are able to receive real-time data from the islands, including weather statistics, which helps with weather predictions.

One special historical moment in 1996 was when a local youth sea scout member of Low Isles Preservation Society Alicia Stevens introduced the importance of the area and President Clinton to the world in Port Douglas. During his speech, President Clinton called together nations to legally agree to binding commitments to fight climate change.

To reduce impacts to climate change, energy management strategies have been applied at Low Isles to improve energy efficiency. Using solar power and biodiesel, Low Isles are almost completely powered by renewable energy. Additionally, the site has made changes to its electricity usage, including changes to its sewerage system, resulting in halving its energy usage in wastewater treatment. After these changes, emissions of the island have been calculated as low as 0.374 tonnes CO₂e equivalent. Utilising innovative sustainable energy and by reducing its energy consumption, Low Isles energy strategy has been showcased as a best practice island management.

Low Isles and the surrounding area have been recognised with a high conservation value Marine National Park (Green) Zone. This prohibits fishing in the area and only allows tourism for permit holders.



The number of tourism permits on site is limited to five daily permits (365 days/year) and two limited permits (50 days/year). Limitation of permits is important for improving long-term resilience and best sustainable practices.

*To assist the local protected bird species, eastern ospreys (*Pandion cristatus*), custom-made platform was built within the lighthouse to provide a nesting site for the birds without impacting the navigational aid of the lighthouse. Eastern Ospreys have recently nested on the platform, which provided a safe nest for the young meanwhile keeping the lighthouse dome clear and clean.*

To support healthy coral communities, Low Isles site has been granted with permits to trial coral planting. In the future this type of transplanting can create new coral colonies in damaged parts of the reef.

There are several non-governmental organisations including Low Isles Preservation Society, Great Barrier Reef Legacy, Douglas Shire Sustainability Group and the tourism industry, who are dedicated to the protection and preservation of the reef, waters, biodiversity, lighthouse and the surrounding environment.

With the collaboration and dedication of different industries and groups, we have been able to find innovative sustainable ways to help protect the spectacular, fragile ecosystems of Low Isles for future generations to enjoy.



Additional references

[Australian Maritime Safety Authority, 2018, AMSA Heritage strategy 2018-2021, Australian Government.](#)

[Douglas Local Marine Advisory Committee and Low Isles Preservation Society, Your recreational guide to visiting Low Isles.](#)

[Low Isles Preservation Society - Home | Facebook](#)

[Great Barrier Reef Marine Park Authority, 2016, Great Barrier Reef Marine Parks Zoning MAP 5 – Cairns, Queensland Government.](#)

[Great Barrier Reef Marine Park Authority, 2017, Low Islet Lightstation and Low Island Heritage Register, Australian Government.](#)

[Great Barrier Reef Marine Park Authority, 2010, Showcasing sustainable island management on the Great Barrier Reef, Australian Government.](#)

[Great Barrier Reef Marine Park Authority, 2019, Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park, Australian Government.](#)

[The White House, 1996, Remarks by the President at International Coral Reef Initiative Event, Office of Press Secretary.](#)

[GBRMPA - Eye on the Reef](#)

[Virtual Reef Diver](#)

[Dawul Wuru Aboriginal Corporation :: Resources](#)