



**GRANTEE**

Placencia Producers Cooperative Society Limited



**WATERBODY**

Caribbean Sea Large Marine Ecosystem



**PROJECT DURATION**

Sep. 2010 – Mar. 2012 and  
Sep. 2013 – Oct. 2014



**AMOUNT**

US\$95,000

**COFINANCING**

US\$186,906

**CASE 1**

# Sustainable Seaweed Production, Belize<sup>1</sup>

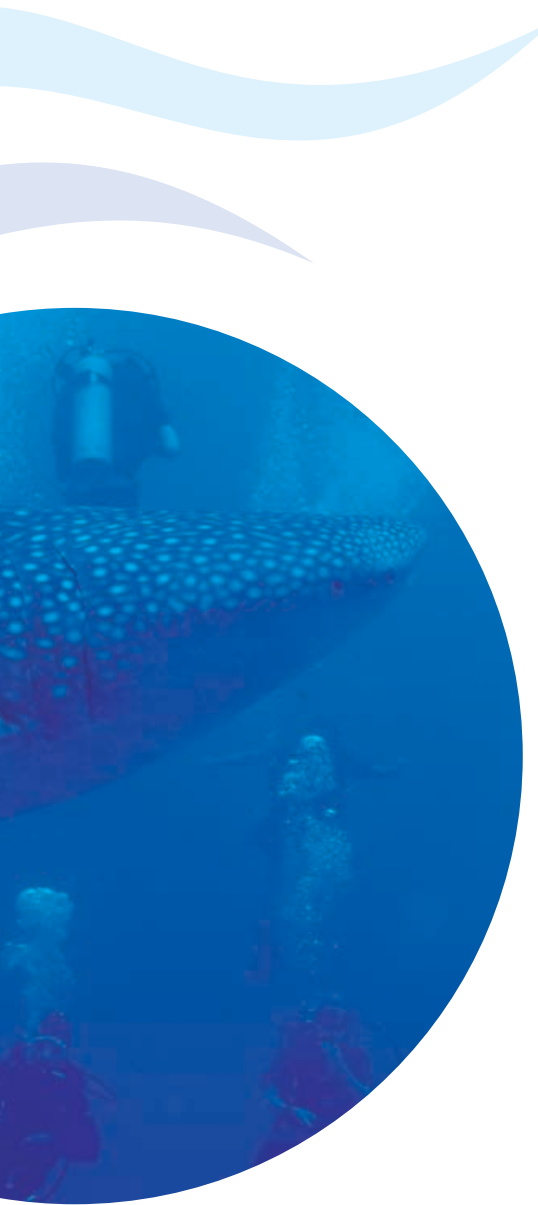
**PROJECT CONTEXT**

Belize’s marine biodiversity is characterized as being globally significant. Belize’s marine protected areas (MPAs) are home to seven United Nations Educational, Scientific, and Cultural Organization (UNESCO) designated protected areas that make up the Belize Barrier Reef Reserve System, which is also a World Heritage Site (UNESCO, 2015).<sup>2</sup> The world heritage site totals 96,300 hectares (ha) and is home to over 500 species of fish, 65 scleraetinian corals, 45 hydroids, and 350 mollusks plus a great diversity of sponges, marine worms, and crustaceans. The area has one of the largest populations (300-700 individuals) of West Indian manatee (*Trichechus manatus*) in the world and its coastal zone is home to two species of threatened crocodiles (*Crocodylus acutus* and *C. moreletii*) (UNESCO, 2015).

Belize’s biodiversity is exposed to various direct anthropogenic and natural threats system. Over the last three decades the forest cover in Belize has decreased steadily due to the expansion of economic activities, such as large-scale agriculture and aquaculture. Rapid and uncontrolled coastal development has resulted in increased habitat loss in the coastal zone. It is estimated that about 75-80% of all coastal land in Belize has been purchased for the development of tourism and residential areas, posing a serious threat to mangroves, coastal wetlands, and other coastal ecosystems (Young, 2008). Overfishing and illegal fishing continue to put stress on the ecosystems.

<sup>1</sup> The case was first published in a journal article of the lead author entitled “Polycentric coastal and ocean management in the Caribbean Sea: Harnessing community-based actions to implement regional frameworks” in the journal of *Environmental Development* (2016).

<sup>2</sup> The Belize Barrier Reef Reserve System includes seven protected areas: Bacalar Chico National Park and Marine Reserve, Blue Hole Natural Monument, Half Moon Caye Natural Monument, South Water Caye Marine Reserve, Glover’s Reef Marine Reserve, Laughing Bird Caye National Park and Sapodilla Cayes Marine Reserve.



## PROJECT IMPLEMENTATION

To reduce fishing pressures in and around the Belize Barrier Reef Reserve System, the UNDP implemented GEF Small Grants Programme (SGP) provided technical and financial support to the Placencia Producers Cooperative Society Limited (PPCSL), under a special initiative called the Community Management of Protected Areas Conservation (COMPACT) co-financed by the United Nations Foundation. The project introduced local fishers and tour guides to sustainable seaweed production, provided technical assistance, procured necessary materials, and established seaweed farms. The first project focused on the area in Placencia and the second project was implemented to expand the initiative in Gladden Spit and Silk Cayes Marine Reserve.

The local community provided support in ensuring that all activities such as preparation of ropes, buoys, anchors, and the transportation of materials to sites were carried out properly. Community members also participated in focus group meetings and were actively involved in the planting and monitoring of the seaweed farms as well as in seaweed harvesting. As a result of the community involvement, 43 seaweed farms were established, doubling the original 20 seaweed farms envisioned in the two project proposals.

## RESULTS AND SCALING UP

The projects created and continue to support the first and only sustainable seaweed farming in the country and have helped reduced the fishing pressure by 6% (measured by the number of fishers) in and around the Belize Barrier Reef Reserve System. The project provides 50 fishermen and eight tour guides with additional income to sustain their families without engaging in more fishing activities.

Dried seaweed is packaged and sold locally at the PPCSL office in different weight sizes: from one ounce which sells for three Belize dollars (BZ\$) (BZ\$1 is approximately equivalent to US\$1.50) to 16 ounce which sells for BZ\$30. To date over BZ\$15,000 worth has been sold and current



production stands at over 500 pounds of dried seaweed. Project funds have been used for continued monitoring and harvesting of seaweed farms, and to provide fuel and boat transportation to and from the seaweed farms. Funds were also used to provide a small stipend for the seaweed farmers, providing them with extra income during the monitoring and harvesting period. During the slow tourist season in Placencia, seaweed harvesting and monitoring provides jobs and income for members of the seaweed farming community.

Dried seaweed has also attracted foreign visitors who buy the product and take it back home. Currently, the cooperative exports seaweed to a buyer in Los Angeles and a local company developed a seaweed soap that has been sold in the cooperative's office. A US-based company has shown interest in developing other brands of soaps and oils from the seaweed.



In addition, the project's activities have benefited the entire community which no longer relies solely on the extraction of naturally occurring seaweed and has been able to use the end product (dried seaweed) as a food supplement for local consumption.

A Memorandum of Understanding was signed by the Ministry of Forest, Fisheries and Sustainable Development, the Southern Environmental Association, PPCSL, and the

Fisheries Department for a Special Development Area to be designated within the marine protected area. The main objective was to establish a commercial seaweed farming initiative within the reserve to Provide further income diversification alternatives for fishers while reducing fishing pressures on the Belize Barrier Reef Reserve System World Heritage Site. A seaweed revolving fund has also been established as a long term strategy for financing community enterprises. The PPCSL will sign an MOU with Projects Abroad to attract volunteers to cultivate seaweed as a means to ensuring long term sustainability of the investment in the project.

Other stakeholders have shown interest in learning about the project and the PPCSL is actively training fishers from other coastal communities. A Seaweed Documentary and Manual was developed as part of the project which is being used by other communities to scale up this innovative practice. A grant of US\$35,000 from The Nature Conservancy was recently awarded to the PPCSL to co-finance the ongoing SGP/COMPACT project to support the development of a seaweed training curriculum. The project has also been visited by high level officials who want to learn about it including the Fisheries Department, the Oak Foundation, the Mesoamerican Reef Leadership Program, the Cooperatives Department, the Minister of Forestry, Fisheries and Sustainable Development, and UNDP officials. The Fisheries Department is also providing technical assistance for the replication of the seaweed initiative in other marine protected areas including the South Water Caye Marine Reserve and Turneffe Atoll Marine Reserve. In addition, the Protected Areas Conservation Trust recently approved funding for a seaweed cultivation project in partnership with the Sarteneja Fishermen Association. All these processes have led the Fisheries Department to promote Seaweed cultivation for the country and the PPCSL is fully engaged in this process.

## EXPERIENCES AND LESSONS LEARNT

Capacity development was key to the success of project design and implementation. Community participants and members of the project were trained on the execution of the project and awareness raising activities were promoted to enhance public understanding. During the initial stages of the project a planning grant enabled the community to establish clear and common goals and objectives; as well as a better understanding of the activities needed to be carried out during the implementation of the project. It provided them with a map of best practices and helped them identify setbacks at an early stage and ways to overcome them.

During project implementation, the community cooperative faced a number of challenges. In particular, the project was not able to acquire a long-term lease for the seaweed bed site where the seaweed farms were established. Instead, it got a one year research permit from the Fisheries Department for use of the sea bed area. On the logistics side, there was not enough funding to acquire a boat dedicated to transporting participants to the area for the monitoring and harvesting of the farms. However, the project was eventually able to secure the assistance of the Southern Environmental Association to facilitate logistical arrangements for transportation to and from the project site.

## LEARNING ACROSS BORDERS

This project has served as a learning and demonstration site for fishers beyond Belize. In 2015, SGP Belize collaborated with Colombia in a South-South cooperation effort aimed at improving seaweed cultivation, harvesting and processing techniques. The peer-to-peer exchange, funded by the Colombian Government, took place in January 2015 and allowed 6 fishers (2 women and 4 men) from the Old Providence and Santa Catalina Fishing and Farming Cooperative in Providencia Island, in Colombia to visit an SGP project in the Gladden Spit and Silk Cayes Marine Reserve in Belize. The Colombian fishers received training and certification from PPCSL on sustainable seaweed farming, processing and marketing.

This cooperation continued in July 2015 when a delegation from PPCSL visited Colombia to train the Colombian cooperative on other innovative sustainable fishing approaches, such as use of lobster shades as anchors for the seaweed farms; and new cultivation techniques using sewn nets from the banned shrimp trawler boats in Belize. As a result 10 fishers benefited from the exchange and learned about seaweed farming as well as soap making and production of seaweed punch.

