



# REEF LIFE FOUNDATION

## Building Homes for the Ocean's Homeless

### About Us

At [Reef Life Foundation](#) (501(c)(3) EIN: 81-3695216), our mission is to revitalize threatened ecosystems through holistic, scientific solutions, racing against climate change to restore and protect the valuable reef ecosystems we have left. We fund the research, design, and construction of [IntelliReefs](#): nanotechnology marine restoration structures that mimic the complex, mineral composition of natural ecosystems. [IntelliReefs](#) are made from unique mineral mixtures that allow artificial reefs to be fine-tuned and customized down to the nanoscale to support site, species, and function specific conservation goals. Together, we are ["Building Homes for the Ocean's Homeless"](#).



As a member of [Global Islands Partnership \(GLISPA\)](#) and global conservation panels and entities, we take a holistic approach to coral reef conservation by aiming to revitalize, restore, and protect reef ecosystems through advanced materials engineering and biological research, applied restoration, international and local collaborations, and educational outreach. In November 2018, Reef Life deployed revolutionary nanotechnology artificial reefs, called [IntelliReefs](#), onto reefs severely affected by Hurricane Irma (2017) in Philipsburg, Sint Maarten. The deployment goals for these flagship IntelliReefs were to provide food and shelter for fish communities, complex 3-D structures to enhance biodiversity, additional healthy coral reef habitat to attract wild coral spawn, to adhere to strict budgetary requirements, and to build support among local ocean stakeholders.

Reef Life Foundation has been vetted for corporate and individual donations. They earned the [Guidestar Silver Seal of Transparency](#) in January 2020, and we are well on our way to a Gold Star Rating! Now our community members as well as 10+ million GuideStar users can find in-depth financial information about our organization. We have also earned global foundation certifications on [GlobalGiving](#), [Benevity](#), [Amazon SMILE!](#), the [Basic Registry of Identified Global Entities](#) (BRIDGE), and the National Taxonomy of Exempt Entities (NTEE). The North American Industry Classification System (NAICS) code for this organization was derived from its primary National Taxonomy of Exempt Entities (NTEE) code: 813312 Environment, Conservation and Wildlife Organizations.



*Reef Life Foundation has been vetted by the world's leading fundraising entities.*

## Introduction to Sint Maarten Reefs

Sint Maarten's marine ecosystems have been degraded by overfishing, hurricanes, runoff, and a suite of other compounding natural and anthropogenic stressors over the past five decades. Like many ecosystems in the Caribbean, coral reef communities in Sint Maarten have been severely affected by hurricane activity. Hurricane Irma (September 2017) caused widespread damage to the island and was one of the strongest hurricanes to have hit in the Atlantic Ocean to date, with winds exceeding 185 MPH. Large surge caused severe damage on reefs and intense rainfall increased freshwater and nutrient input. Sint Maarten coral communities also suffer from continued deterioration due to eutrophication and physical damage from boating traffic.



*Red Hind Grouper watching IntelliReefs being constructed.*

## The Man of War Shoal Marine Park Restoration

**Initiative** aims to rebuild coral reef communities following the destruction of Hurricane Irma in 2017 and raise awareness for endangered Hawksbill turtle populations in Sint Maarten. Working with the Nature Foundation, the overarching long-term goal is to build support amongst public and ocean stakeholders for MPAs by creating awareness of their value for the provision of ecosystem services, ocean risk mitigation, food security, ecotourism, moderation of climate change, and improving resilience to impacts of other global stressors. Underwriting the Man of War Shoal Marine Park Restoration Initiative is a social media advocacy and awareness campaign called "Ocean Impact", which hopes to help advance protection of the oceans around Sint Maarten through MPAs – 10% by 2020 and 30% strongly protected by 2030.



*A scientist monitoring Caribbean reefs.*



## Project Summary

The Nature Foundation St Maarten partnered with Reef Life Foundation in an effort to find solutions for their vulnerable coral reef ecosystems. In November 2018, we deployed three IntelliReefs structures underwater near Philipsburg, Sint Maarten as part of our flagship restoration project. The structures were deployed on three sites: a coral reef in a marine protected area (MPA), a busy coral reef/seagrass bed through-way, and a highly disturbed and degraded seagrass bed in Cole Bay. Sint Maarten's marine ecosystems have been degraded by overfishing, hurricanes, runoff, and a suite of other compounding natural and anthropogenic stressors over the past five decades.



*Squirrelfish living inside the IntelliReefs for shelter and access to food.*

We deployed IntelliReefs, monitored their progress over a 14-month period, analyzed the preliminary results, and are currently preparing a paper for scientific publication in the fall. Our ongoing collaboration with the Nature Foundation St Maarten involves the deployment of 20 large Oceanite coral reef restoration sculptures in the Man of War Shoal Marine Park. IntelliReefs has already been granted a permit for additional reef habitat deployments by the Nature Foundation. Funding will provide ongoing monitoring and evaluation of the IntelliReefs and an assessment of their biological spillover contribution to the surrounding MPA. IntelliReefs and the Nature Foundation will also conduct an experiment measuring coral recruitment and growth on the structures, and compare these with the surrounding natural reefs.

## Proposed Work

The proposed project addresses the need to provide immediate financial support to our local partner, the Nature Foundation St Maarten, as well as the crucial monitoring of IntelliReefs structures after 2 years of deployment. IntelliReefs will provide a monitoring manual, on the ground training, and a hardware kit for ongoing, standardized monitoring of IntelliReefs. We will engage in regional site assessments and data collection for informing future deployments with local businesses (i.e. dive shops, eco-tourism businesses) and conservation groups. We will also facilitate a reef restoration conference and strategic roundtable with the conservation and governmental authorities on the Dutch and French side of the Island. This effort will represent an international collaboration, where 2 separate countries work together on the same reef to outline common goals and begin implementing a cohesive, connected conservation strategy. We will participate in the conference with a presentation focused on IntelliReefs restoration applications using a regional assessment of our results to date and site assessments for future deployment. We will be documenting the whole process with a professional film crew for the creation of a 15-minute documentary that we will submit into international film festivals (e.g. Jackson Wild).

It has been nearly a full year since the structures have been monitored, and COVID-19 pressures on the Nature Foundation have prevented them from resuming their work as usual. The creation of the artificial reef monitoring manual will provide the Nature Foundation with a streamlined protocol and the necessary hardware to evaluate the benefits of IntelliReefs for Sint Maarten's coral reefs. The Reef Life Foundation and IntelliReefs teams will travel to Sint Maarten to conduct fieldwork and monitoring of the IntelliReefs artificial reefs and provide training for following the new monitoring manual and standardized use of the underwater camera monitoring system.

## Our Goals

- To create a manual with global, standardized protocol for monitoring IntelliReefs artificial reef structures that adheres to global coral reef monitoring standards.
- To provide the local Nature Foundation with hardware for ongoing monitoring of IntelliReefs (underwater camera and housing, SD cards, hard drives & cloud storage, etc.).
- To conduct a regional assessment of sites for future IntelliReefs deployments, focusing on a solutions-based approach to restoration.
- To document the scientific process, local restoration collaboration, and conference with professional film crew and create a 15-minute mini documentary for submission into film festivals (e.g. Jackson Wild).
- To provide on-the-ground training and support from the Reef Life Foundation and IntelliReefs team to set up a monitoring program and hardware system.
- To acquire funding for ongoing monitoring of the IntelliReefs and field work (boat rental, dive equipment costs, etc.).
- To receive consultation from a local MPA specialist for developing a strategic business plan for integration of IntelliReefs into the Man of War Shoal Marine Park and generating ongoing ROI for local businesses.
- To provide funding for scientific analysis of monitoring photos and videos for species ID, community composition on IntelliReefs.
- To acquire hardware and software for the Reef Life team to disseminate their results and generate media and storytelling assets that will be used for further donation campaigns with the Nature Foundation.



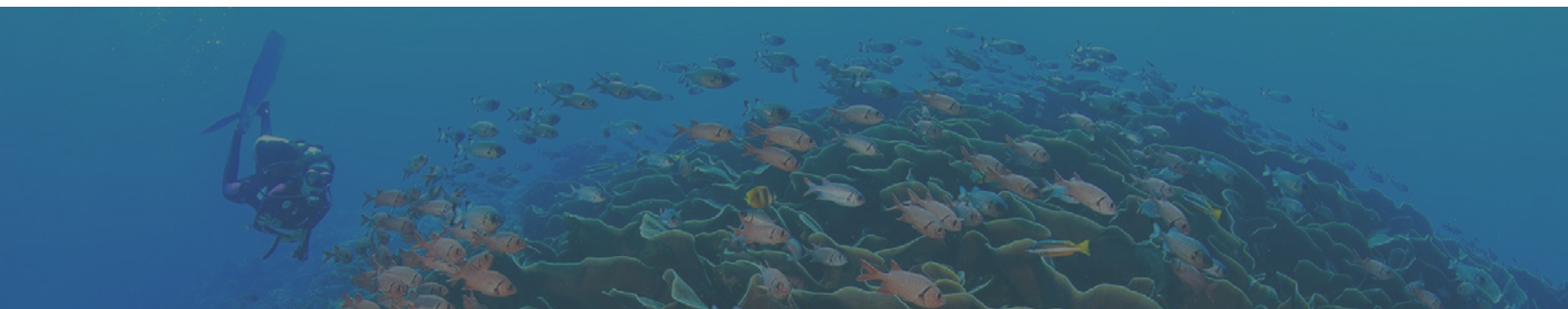
*Coral recruit on IntelliReefs after 14 months underwater.*

## Local Partners

We work closely with the [Nature Foundation St Maarten](#) locally. They are a non-governmental and non-profit organization, working to promote conservation of St. Maarten's environment. Our primary concern is to preserve and enhance nature while in the process of strengthening the economical and educational value and potential of our natural resources. The mission statement of Nature Foundation is thus as follows: "To preserve and enhance the natural environment of St. Maarten through proper management, education, public awareness, law enforcement, scientific research and monitoring relating to all aspects of the terrestrial, wetland and marine surroundings."

For our next round of fieldwork and environmental impact assessments prior to further deployment, we will be working with [iSENSYS](#) and [Absolute Vorticity, LLC](#) to gather oceanographic and environmental data at our IntelliReefs locations and sites for future deployment. We look forward to using the best tools science has to offer to increase our scientific efficiency and restoration capacity.

**Budget:** \$425,000 USD





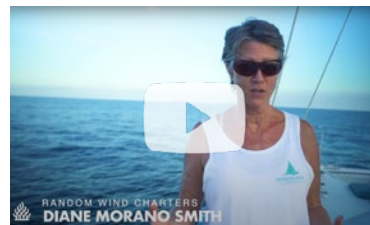
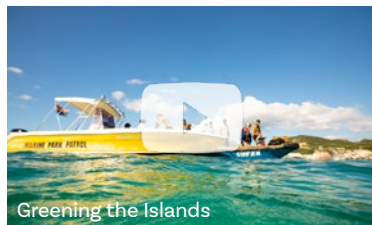
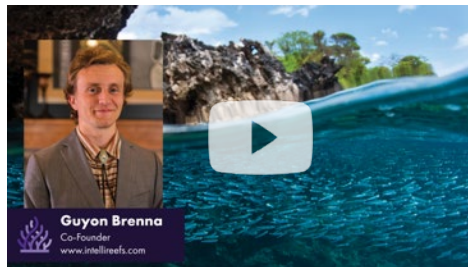
## Outcomes

- **A regional restoration conference and strategic roundtable** to review the state of the reefs and connectivity between sites on the French and Dutch sides of the Island, establish regional conservation goals, and propose regional solutions.
- **Regional assessment and summary of proposed sites for the next IntelliReefs deployments** on the Island.
- Creation of **15-minute mini documentary** about IntelliReefs deployment in Sint Maarten, their success to date, and their interdisciplinary approach to conservation with local environmental, government, and business partners.
- Creation of a standardized artificial reef **monitoring manual and hardware kit** for IntelliReefs around the world that adheres to global coral reef assessment protocols and provides standardized methods to compare IntelliReefs artificial structures to natural reefs.
- **Acquisition of scientific assets** (photo and video data) for analysis and additional underwater media assets for marketing and R&D and ongoing ROI strategic development.
- **3 short (2 minute) storytelling videos for social media and marketing** that communicate the current results of the IntelliReefs artificial reefs and the marine conservation program in Sint Maarten.

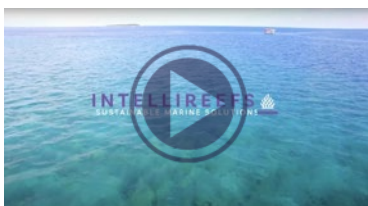
## Our Team

The IntelliReefs' team consists of advanced nanomaterial scientists, artificial reef designers, coral restoration specialists, and business experts. We work with local partners to conduct scientific monitoring of IntelliReefs structures to determine the efficacy and impact of our structures for commercially and biologically important species in each region.

## Videos & Testimonials



## Contact Us



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🌐 [www.reeflifefoundation.org](http://www.reeflifefoundation.org)

📖 Read about [IntelliReefs' Benefits](#)