

Manual Algae Removal to Promote Coral Reef Health and Diversity

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Project Creator: Caribbean Reef Buddy, Carriacou, Grenada

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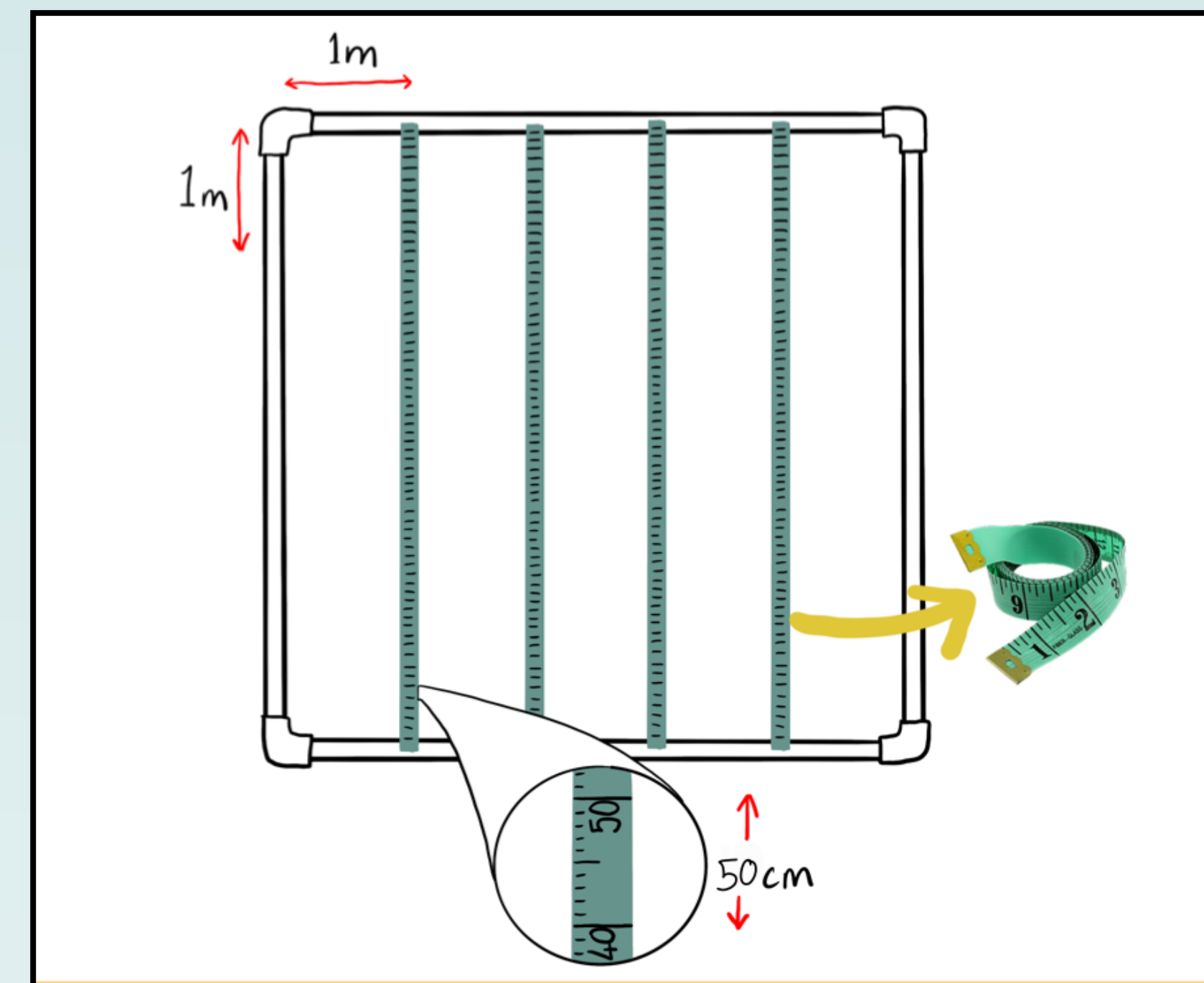
Introduction

Canadore College strives to create new opportunities for students. One of these opportunities has provided a partnership between Canadore and Caribbean Reef Buddy (CRB). CRB is a marine conservation organization founded in 2014. Since the beginning, this organization has strived to do their part in protecting the coral reefs located in Carriacou, Grenada. In 2018, the Environmental Technician and Technology students had the chance to take the Marine Conservation Course. Though interrupted by the pandemic, this course is offered annually. During the last course ran in May of 2023, CRB introduced a new research study with Canadore students in mind. Not only did the course offer students an amazing educational experience abroad Scuba diving, but it also paved the way for a brand-new placement opportunity for a third-year technology student, myself.

Project

Question: Does the maintenance of a degraded coral reef (through the removal of algae) result in the return of herbivorous fish and increase biodiversity over time?

CRB posed this question with a three-year research project. It is located on Bogles Ridge, a reef on the south end of Jack-A-Dan Island. This project involved four designated plots of equal size on the reef being observed and their data recorded. Two control plots are not touched after initial data records were taken. The other two plots would have algae manually removed from the reef by staff, students and eventually volunteers throughout the season. This is being done to see if manually removing algae from coral reefs will help the corals thrive and grow. Excess amounts of algae can block sunlight from reaching the corals causing them to stress and bleach. This is possibly fatal. This in turn could result in the return of herbivorous fish and increase biodiversity.



Methodology and Results

Site selection:

The site selection was done by CRB staff prior to the student's arrival. Bogles Ridge at Jack-A-Dan was chosen. This site was chosen because it is in a shallow section and has a gently sloping reef. It is also better protected from surge and current on this side of the island. It has had noticeable degradation over the past decade and has not been previously managed. The reef was also impacted by Stony Coral Tissue Loss Disease, which heavily affected its coral population.

Plots:

There are four plots on the reef. They are five by five meters in size and have a grid system within, separated at specific increments. This helps us identify where we need to work and keep our baseline data in order. Two plots are cleaned and the other two are control.

Baseline Data:

Baseline data is data collected before any site altering procedures are initiated. This included identifying substrates, fish and other reef associated organisms in the area. We collect this data to refer to and compare with new data and findings.

Algae Removal:

This process is completed using toothbrushes, gloves and a mesh bag. With a gloved hand, carefully remove algae from the coral and place it in a mesh bag. There is also fine algae that cannot be picked up off the corals. This is when a toothbrush can be used to gently brush it off.

This project is still ongoing, therefore, there are not any results to be given at this time. High ocean temperatures have been slowing the process.

Project Challenges

Like any other project, there were challenges faced throughout the process.

For a project like this, you need people who are comfortable working underwater. This involves recruiting scuba divers and/or training new ones. This takes time and dedication to create a successful outcome.

Another big challenge is working with the changes in global temperatures. The ocean temperatures have been higher than usual causing the corals to bleach. This makes continuing to work difficult because the reef is struggling. Ocean water temperature is unfortunately a factor we can't control.



Student Role & Skills Learned

Students in the Environmental Technician and Technology programs gain experience in fieldwork and data collection. This combined with Scuba training makes them a great asset for this study. They get to experience using their skills in a completely new environment with the addition of new skills being learned.

Also, a new opportunity for a student placement was created. Semester five of the Environmental Technology program includes a semester-long work placement. In September 2023, I moved to the island and worked with CRB. During this time, I completed advanced Scuba training and received my dive master certification. I also continued to help CRB move forward with the project. This experience has been beneficial in many ways.

Any student who joins in on this project will gain experience with many skills. Teamwork and communication skills are enhanced due to being underwater where verbal communication is not an option. Adaptation skills are also used. This is because the climate, culture, wildlife and ecosystems in Carriacouan are very different from Canada. New places bring on new knowledge.

Being a part of any project is something everyone should be proud of. These opportunities are a privilege that many people never receive.

Questions/Feedback:

