

CCMI

**CENTRAL CARIBBEAN
MARINE INSTITUTE**

EDUCATION REPORT 2017

WWW.REEFRESEARCH.ORG

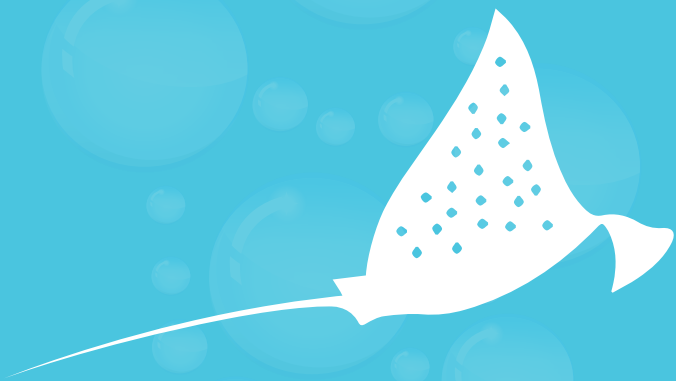
TABLE OF CONTENTS

	PAGE
MARINE ECOLOGY	3
EDUCATING YOUNG SCIENTISTS	4
REEF EDUCATION	6

OUR SPONSORS

We would like to thank the following organisations and individuals for making our education programmes possible:

ALEXANDRIA BANCORP LTD
THE BANK OF BUTTERFIELD, CAYMAN ISLANDS
CAYMAN NATIONAL BANK
DEREK HAINES
EARTHWATCH
THE EDMUND F. AND VIRGINIA B. BALL FOUNDATION
FOSTER'S FOOD FAIR IGA
GO PRO DIVING CAYMAN
MICHAEL MAES
ROTARY CENTRAL CAYMAN ISLANDS
ROTARY GRAND CAYMAN



Marine Ecology

MARINE ECOLOGY COURSE

CCMI continues to work closely with local Caymanian schools to deliver its 3-day marine ecology course to students from 9 to 18 years old. This course is well-established and is vital to CCMI's Ocean Literacy Mandate, with the goal of having every child in the Cayman Islands become ocean literate by the age of 12. By imparting to these students a passion for the ocean and an understanding of its importance to our lives and culture, CCMI aims to empower the next generation of environmentalists. Through the course, students experience a shift in attitudes about the need to protect threatened and endangered species, and therefore, sustaining healthy ocean and vibrant reefs. In 2017, CCMI established a new monitoring and evaluation system to more clearly understand the attitudes and beliefs of students before and after the programme. Ten groups were hosted in 2017 with a total of 168 students. The majority of schools return year after year, which speaks to the positive relationship that has been established. Mr Williams, Grace Christian Academy was impressed with the course. "I was impressed by the course and the staff at CCMI. I will be recommending this as a part of our marine biology course moving forward (which is held every other year)".

Due to an anonymous donor and the funds raised from the Festival of Seas in 2016, CCMI also hosted 3 government schools, 100% free of charge. Edna Moyne, Sir John A Cumber and West End Primary were the selected winners of the ocean literacy competition, resulting in the 3-day residential course with CCMI. Providing scholarships has been an integral part of the MEC strategy since its inception.

In 2017, all participating elementary and high school students were evaluated for their changes in attitudes towards the ocean rather than their increase in knowledge. The evaluation gave some very positive results such as there was a 48.5% positive increase in how likely students were to collect trash from the beach. The overall positive increase found by the evaluation under development was as low as

13.5% because of already very positive attitudes towards the ocean of many students, resulting in a ceiling effect. The evaluation tool is being further refined for its full implementation in 2018, with approval from the Cayman Islands Department of Educational Services.

EDMUND F. AND VIRGINIA B. BALL CARIBBEAN MARINE ECOLOGY CAMP

CCMI hosted two Caribbean Marine Ecology Camps with a total of 27 students participating in 2017. The camp is CCMI's longest running programme and continues to allow local and international students to discover marine conservation and sustainability in an exciting, active, social setting. A record 19 of these students were given some form of scholarship either as a Caymanian or Caymanian resident. For one of the students it was his sixth field course with CCMI. 100% of students said they would come back to CCMI in the future; as one student said, the camp was "one of the best experiences of my whole life, learning amazing new things and meeting awesome people!"



Educating Young Scientists

UNIVERSITY GROUPS

CCMI hosts a handful of university groups at the Little Cayman Research Centre throughout the year, many of which return year after year.

Ten students from Wellesley College completed the laboratory portion of an undergraduate tropical ecology course at CCMI in the spring of 2017, continuing a relationship that has been in place for over 10 years.

Dartmouth College has partnered with CCMI for over 15 years; a nine-week tropical field ecology study abroad course offered by the university concludes with a three-week stint on Little Cayman. This year's group consisted of 14 undergraduates, 2 graduate students and one faculty member.

Cedar Crest College partnered with CCMI for the first time in 2017. CCMI has established new relationships with four universities from the United States that will begin conducting portions of their coursework here in 2018.

RUTGERS UNIVERSITY CORAL REEF INTERNSHIP

CCMI and Rutgers University (RU) have partnered together for nearly a decade to provide undergraduate students the opportunity to earn college credits while gaining first-hand internship experience in lab and field research. In 2017, CCMI hosted 15 students from eight different universities across the United States of America, eligible to earn four transferrable credits in Tropical Marine Ecology and Independent Research from RU. Students monitored three nearby beaches for sea turtle nesting activities, reporting any findings to CCMI and the Cayman Islands Department of Environment. They also participated in the removal of and data collection on invasive lionfish inhabiting Little Cayman coral reefs. They assisted in the collection, entry, analysis, and data-logging from the Department of Environment's Baited Remote Underwater Video Surveys (BRUVs). Students also contributed to coral restoration projects,

including maintenance and cleaning of both the deep and shallow nurseries, nursery frame building, outplanting, monitoring and assessment of colonies in the nursery and on the reef. Students contributed to the 2017 Darwin herbivorous fish research project database by conducting roving diver urchin density/populations surveys, herbivory surveys, and benthic habitat photo analysis using CORALnet technology. As part of the course requirements, students also completed a journal article review, a daily blog, a dive log, a fish behaviour video, a group research paper and a group poster presentation. Through the course, young scientists' skills in underwater field research methods were advanced while they contributed to a knowledge base regarding the overall health of coral reefs around the Cayman Islands.



EDUCATING YOUNG SCIENTISTS cont

YOUNG ENVIRONMENTALIST LEADERSHIP COURSE (YELC)

Nine young Caymanian students, including three females, were selected via a thorough interview process to participate in the 2017 Young Environmentalist Leadership Course. Through this course, students develop their STEM learning through the principles of ocean literacy and gain insight into employment opportunities in the local marine industry. All students successfully completed their PADI Rescue and Emergency First Responder Certification with Go Pro Diving. One student has already put their emergency response first aid skills to the test as he was the first to arrive at a non-life-threatening car accident.

Students then spent 1 week on Grand Cayman networking within different marine industries including the Department of Environment, Blue Iguana Recovery Programme, Dive Tech, Pro Yacht, Spinion Ltd, Eco Divers, Cayman Kayaks, Sunset House and Go Pro Diving (Kittiwake).

The students completed their course with a week's residential training with CCMI in Little Cayman where they were taught coral nursery maintenance skills, scientific underwater survey methods, shark baited remote underwater video survey deployment and much more. The week culminated with students having 1:1 resume and career guidance along with a mock interview for an internship at CCMI to prepare them for the workplace.

The YELC participants are now enrolled in further education programmes through Cayman Islands Further Education Center, University College Cayman Islands and Cayman Prep High School and four of the students are already enrolled in internships with companies (Red Sail Sports, Port Authority, DiveTech, Spinion Ltd) as a direct result of their YELC training.



Reef Education

REEF RESEARCH EXPERIENCE

This year, CCMI conducted a pilot programme of the Reef Research Experience. This programme brought in 13 undergraduate students or recent graduates, all from different universities in the United States, for a two-week internship on Little Cayman. The goal of the internship was for participants to gain as much experience in field and underwater research methods while assisting CCMI researchers with ongoing research.

Interns gained experience in Caribbean coral identification, reef fish identification, algal community identification, benthic habitat assessments and fish population assessments using the Rapid Visual Census (RVC) method to contribute to Atlantic and Gulf Reef Rapid Assessment (AGRRRA) survey data. They also conducted coral bleaching surveys using CoralWatch's Bleachwatch methods and participated in coral outplanting, nursery management, BRUV deployment and analysis and lionfish culling. Interns restored over 100 colonies of coral from the nursery to the wild reef on Martha's Finyard dive site, a site selected based upon benthic and fish survey assessments taken by the students.

CITIZEN SCIENCE

CCMI hosted two Earthwatch citizen scientist groups in 2017, including a group of STEM teachers from New York City. Earthwatch volunteers conducted transect surveys and roving snorkel surveys on sea urchins (key herbivores) and natural populations of the endangered staghorn and elkhorn corals around the island. This data will be used to augment research in association with our Darwin project. Earthwatch volunteers who visited in October also contributed to coral bleaching surveys.

A group of citizen science divers from the organisation Diving With Heroes also returned to CCMI in 2017. This organisation aims to unlock the underwater world for US veterans and armed forces service members. They actively focus on diving to make a difference and did so again in their 2017 visit to CCMI by assisting in the maintenance of our coral nursery and the construction of a new nursery experimental layout.



REEF EDUCATION cont

REEFS GO LIVE

Reefs Go Live is CCMI's latest education programme that will use a series of innovative underwater live broadcasts to connect students and the public to real-time coral reef research. Scientists will use high tech face masks, underwater cameras and the latest streaming computer equipment to give students a "real-life" experience that is scalable across all of the Cayman Islands and beyond.

CCMI will be launching Reefs Go Live in January 2018 but has begun extensive testing of equipment and development of curriculum. All equipment for the project has now been acquired through a series of custom build projects. CCMI will host a teacher professional development workshop in January and will feature as part of CCMI's International Year of the Reef launch event at the National Gallery.

Through Reefs Go Live, CCMI is discovering a new way to teach ocean science and reach a greater and more diverse audience. To complement the Reefs Go Live broadcasts, CCMI will develop a short interactive video series that will be made publically available on their website. These videos will allow the viewer to interact with the environment and discover more information about subjects they find interesting. Throughout 2018, CCMI will develop a series of six underwater lessons and deliver underwater lessons to eight local Caymanian primary schools (grades 4,5,6) to a target of 1,000 students across all three islands.



CCMI
REEFS GO LIVE

