South Water Caye Marine Reserve Community Stewardship, Mangrove Awareness and Nursery Pilot Project

Lisa Mulcahy, Director & Education Specialist

Thank you!

MAR FUND

WEBINAR SERIES

South Water Caye Marine Reserve (SWCMR) Community Stewardship, Mangrove Awareness and Nursery Pilot Project

Photo: Lisa Mulcahy

Objective: Increasing knowledge of, appreciation for, and willingness to care for mangrove ecosystems for stakeholders of the SWCMR and enhancing capacity for mangrove restoration and monitoring for youth.

Photo: Stacee Strickland

Photo: Lisa Mulcahy

Lisa Mulcahy


Teach Belizean kids about the ocean
Use STEM and experiential field trips
Empower students to care for Belize Barrier Reef
Education
Technology
Stewardship
Promote awareness & conservation of the Mesoamerican Barrier Reef and coastal habitats.
ReefKeeper
BELIZE

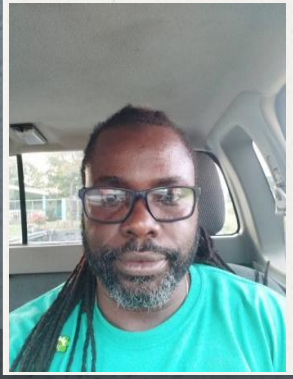
ReefKeeper's Staff & Chairman

Youth Ambassadors

Lisa Mulcahy
Director

Admin Assistant
Timothy Ramos

Clint
McCulloch
Accountant

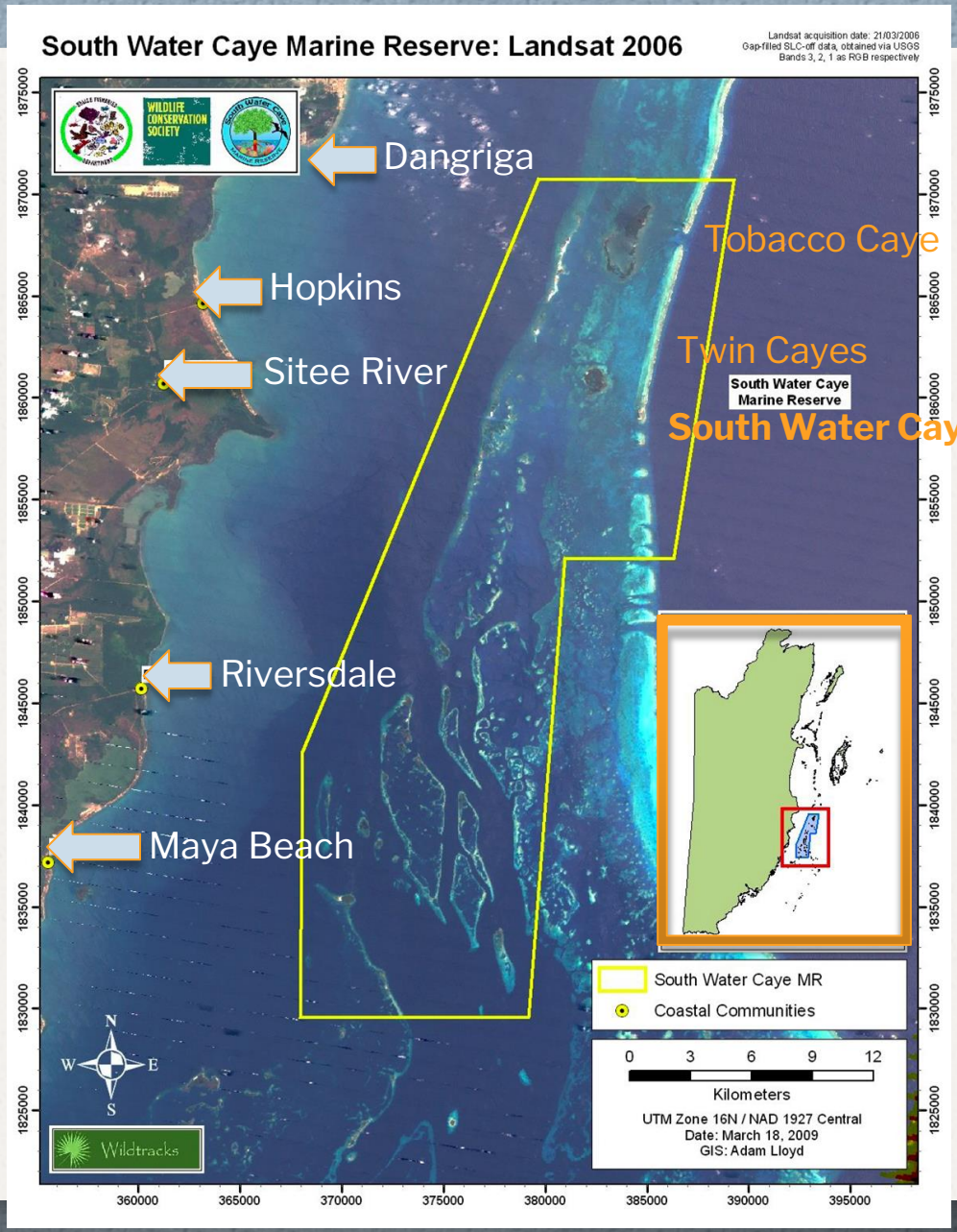


William Usher,
Chairman

Lea Moncousin,
Intern

Project Location

South Water Caye Marine Reserve (SWCMR)



Project Summary

- **Educate students of the importance and role of mangrove ecosystems.**
- **Promote conservation and train youth in community restoration & monitoring.**

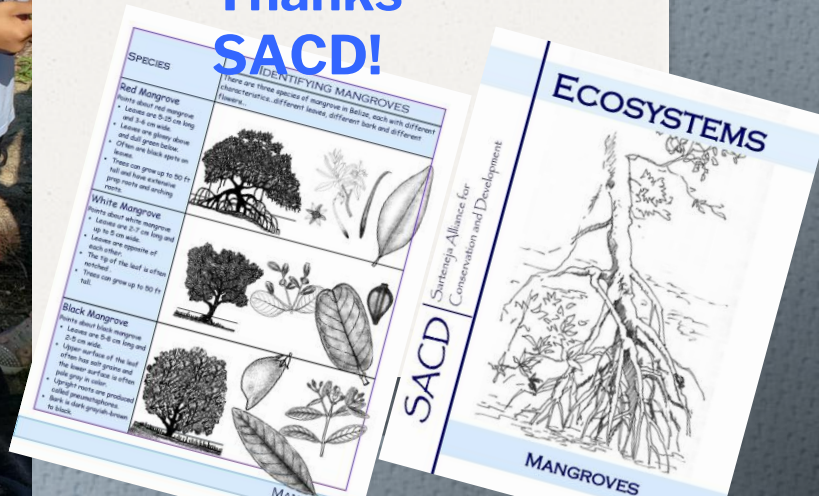
- **Activities include:**
  - **Field trip to GraGra Lagoon National Park**
  - **Field Trip to the South Water Caye Marine Reserve**
  - **400+ restoration plantings on Twin Caye to reduce erosion**
  - **2 pilot mangrove nurseries**
  - **Community restoration events and cleanups**
- **Train Mangrove Ambassadors in Restoration & Monitoring**

Class & Field Education

- Agreement on educational goals for mangrove education amongst conservation partners
  - (*in progress*)
- 7 primary schools & 3 high school/6th Form learned mangrove ID & coastal habitats at Gra Gra Lagoon.

@ Gra Gra Lagoon

Thanks SACD!



Educational Field Trip to SWCMR

- 7 Primary schools studied marine ecosystems.
  - Bird Island, Twin Cayes, Reef, Tobacco Caye

Epworth Methodist

Eseini Palacio

Educational Restoration @ SWCMR

- 3 High schools/6th Form studied marine ecosystems.
- Bird Island, Twin Cayes, Reef, Tobacco Caye

Delille Academy

Riley Encasement Method for Planting Mangroves – Agricultural and Natural Resources Institute

Knowledge, Attitudes & Practice Survey

Mangrove KAP Survey

Mangrove KAP Survey for Mar Fund Project 2023

General information

First name and surname:
Age:
Class:

Read the statements below and check the box of how much you agree or disagree

Statement	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
Mangroves protect us from hurricanes and tsunamis. Mangroves provide homes for fish and other creatures. Mangroves are important for humans and animals. I believe mangroves should be protected.					
I am willing to plant mangrove seeds when I can.					
I will not chop down mangroves.					

If you have any question, feel free to write it below:

_____

_____

Thank you for your time!

Education Results

- *Numbers served as of our interim report:*
  - Classroom: 338
  - Field Trips: 312
- KAP Survey: Approximately 50% increased across all measures.
- All students should know the 3 types of mangroves & their importance/ecosystem services.

Mangrove Nursery

building team

4 month seedlings in January, 2023

MOA signed

seed sorting

preparing the soil

nursery

Mangrove Nursery Results

- Two nurseries created that can house up to 400 seedlings
- 200 red mangrove propagules, *Rhizopora mangle* planted for use in restoration on Twin Caye.
- Mangrove Nursery Manual and Monitoring Manual (in process)
- Mangrove nursery interpretive signage (Nov.)
- Second planting of 150 seeds in October 2023

Community Restoration

In front of Anglican Primary, Dangriga

Video: Raza Davis, Peace Corps Volunteer

Restoration Results

- Riley Encasement Method (REM) estimate:
  - 50% survival
- Community restoration: seedlings washed away.
  - Will do more with community in SWCM
- Planting propagules on Twin Caye: Mos
  washed away.

Monitoring on Twin Cayes

West

East

Photos from Lindolfo Chicas, Marine Reserve Manager

Video from Bertram Ferguson of Fisheries

Lessons Learned

- Students enjoy the hands on activities of planting and learn better in a hands-on environment.
- Unprotected propagules and seedlings will not work in a high energy environment.
- Plantings probably require fencing or gabions.
- Determining how deep to plant propagules in the PVC tube is tricky.

Restoration Challenges

- *Available* restoration expertise in country is lacking.
- Restoration protection solutions require significant expense.
- Protections may trigger an ESMS and EIS, above the capacity of small, grassroots NGOs.
- Seed sourcing is lacking.
- REM is more costly than anticipated.
- Monitoring plantings on a Caye requires additional expense.

ReefKeeper Ambassadors

Eseini Palacio

Emmanuel Lopez

Analia Zuniga

Zevawn Martinez, Captain

Trevaughn Baltazar

Dorita Thomas

Results

- Ambassadors participated in 5 cleanups.
- All participated in assisting at least one field trip.
- All learned:
  - The importance/ecosystem services of mangroves,
  - Mangrove ID,
  - Restoration techniques,
  - Monitoring principles, and
  - Seed selection/harvesting.

Cleanups


JOIN THE MOVEMENT NOW!
THE 2023
CLEANING UP
Calling out residences of Dangriga Town!
SATURDAY 13 MAY, 2023
STARTING AT 7:30 AM
Meeting point:
Princess Royal Park
BELIZE TOURISM INDUSTRY ASSOCIATION
Dangriga Chapter
BTIA
Where to find us
facebook: BTIA Dangriga
Contact us
614-4807
Clean up Dangriga for Residence and Tourists to enjoy


Beach Cleanup!
Join us to clean the beach and save the environment!
Saturday, 18th February 2023
Dangriga Town Pier to Barmouth
Start at 07:30 am
Contact Person:
Russel Murray (614-4807)


keep the reef clean
Join the cleanup this Sat Aug 12
By Dangriga, Social Security office, 7:30


ReefKeeper BELIZE
&
Mangrove Planting and Beach Cleanup
EARTH DAY
APRIL 22, 2023
Start at 07:30 am
Social Security Dangriga
SCAN ME
For more Information, contact
Ms. Lisa Mulcahy | 673 - 0572
https://zez.am/reefkeeperbelize

Results

- 54 extra large garbage bags of plastic collected.
- Hundreds of participants.
- Community educated on the harms of plastic pollution and the impact on its reef and mangroves.

Photos courtesy of ReefKeeper Belize: Tim Ramos, Lisa Mulcahy, Lea Moncousin unless otherwise marked.

Thank you partners!

BELIZE FOREST DEPARTMENT

BELIZE FISHERIES DEPARTMENT
Sustainable Fisheries For Our Future

MINISTRY OF EDUCATION CULTURE SCIENCE TECHNOLOGY

Teachers, Districts, Principals

PATHLIGHT INTERNATIONAL

Thank you to our funder!