



Introducing Little Cayman's Coral Reefs

THE HIDDEN GEM OF THE CARIBBEAN

*"The ocean can recover faster than we had
ever imagined, it can bounce back to life...
If we save the sea, we save our world."*

DAVID ATTENBOROUGH - MAY 2025

www.reefresearch.org



CCMI TEAM

message

Dear Reader,

CCMI is a marine research and education organisation located in Little Cayman on one of the most biodiverse ecosystems in the region. We are working to understand how we can protect coral reef ecosystems for the future.

In this brochure, we outline why Little Cayman's reefs are so special – and why coral reefs matter to all of us. Sir David Attenborough summarised beautifully that:

“The ocean can recover faster than we had ever imagined, it can bounce back to life... if we save the sea, we save our world.”

You can make a difference, and you can help CCMI make a difference. We encourage you to:

LEARN

ADVOCATE

ACT

SUPPORT
CCMI

We can all work for a better tomorrow for ocean health.

We hope you enjoy this brochure,
The Team at CCMI

We are at a
point in time where
coral reefs urgently
need our help.
Your help.

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There is only
one global ocean,
which we are linked
to via every breath
we take.



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INTRODUCING *coral reefs*

Coral reefs are often compared to rainforests for their importance to global biodiversity and maintaining a healthy marine biomass. Coral reefs are the most diverse ecosystems on the planet and have taken hundreds or even thousands of years to grow.



These incredibly important ecosystems cover only 1% of the ocean floor – yet they provide homes for 25% of marine species. They provide a nursery, habitat, feeding grounds, and spawning sites for more than 1 million fish and other marine creatures. In 2020, an MIT study summarised that coral reefs provide ecosystem services worth USD \$11 trillion by protecting coasts, sustaining fisheries and generating jobs and tourism.* Half of all the fisheries in the U.S. depend on coral reefs, and globally, coral reefs support more than 6 million fishers in 100 countries.**

We all need coral reefs – beyond the important role they play in tourism, coastline protection, and as a food source. Coral reefs are also a significant contributor to the amount of oxygen we breathe. The ocean provides 50%-70% of the air in our atmosphere and healthy coral reefs are an integral component of ocean health.***

A change in reef structure at scale has the potential to impact ocean currents and temperature gradients, which in turn can alter both coral and fish larval patterns, as well as migration patterns – and the repercussions of these changes ricochet across the ocean.

*<https://sciencepolicyreview.org/2020/08/coral-reefs-are-critical-for-our-food-supply-tourism-and-ocean-health-we-can-protect-them-from-climate-change/>

** <https://www.fisheries.noaa.gov/feature-story/how-are-fisheries-and-coral-reefs-connected>

*** <https://oceanservice.noaa.gov/facts/ocean-oxygen.html>

INTRODUCING

Bloody Bay Wall and Little Cayman

The coral reefs in the Cayman Islands formed along a tectonic ridge, poised on the Cayman trench, which is as deep as K2 is high, and runs for more than 1,000 miles in length. The reefs around all three of the Cayman Islands include the 'drop off' made famous in *Finding Nemo*, which provides nutrient rich water, warmed and cooled by ocean currents, and has for thousands of years been the home to a diverse coral reef ecosystem due to these environmentally agreeable conditions.



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The Bloody Bay Wall in Little Cayman is one of the most sought-after dive destinations in the world due to the incredible reef health, the sheer wall, and the stunning clear waters. Designated a Mission Blue Hope Spot and shortlisted for UNESCO World Heritage site*, Little Cayman's reefs are a hidden gem in the Caribbean. What makes them so special? In addition to their natural beauty, more than 74% of Little Cayman's coast is protected, including several key species protections enacted by the Cayman Islands Government. Hand in hand with limited development, these conservation methods support a thriving ecosystem.

The reefs of Little Cayman provide a beacon of hope within the region. The ecosystem is relatively 'healthy' and despite global pressure, the reefs are proving to be resilient. We know this because there is extensive research undertaken on these reefs – which you can learn more about on page 10.

LITTLE CAYMAN'S REEFS PROVIDE A RARE INSIGHT INTO HOW CORALS CAN ADAPT AND SURVIVE GLOBAL PRESSURES. THESE REEFS TELL US HOW WE CAN LEARN, ADVOCATE, AND ACT.

* <https://whc.unesco.org/en/tentativelists/6690/>



THE CHALLENGES *reefs are facing*

Oceans are warming and this is impacting ocean health. 'Super marine heatwave' is a new term that has been developed by scientists and published by the US National Oceanic and Atmospheric Administration (NOAA) in response to the records broken by global marine temperatures in 2023.^{***} This heatwave resulted in 84% of the world's reefs being bleached.



Sea temperatures have warmed due to global weather activity, which is linked to a combination of increased greenhouse gas emissions, the transition of La Niña and El Niño events, and a shift in phasing of the multidecadal Pacific-Atlantic-Artic mode.^{**} This is causing the ocean to be warmer for longer, creating havoc for marine species, as they try to adapt to rapidly heating conditions.

The ocean is also a carbon sink, absorbing excess carbon dioxide (CO₂) through both photosynthesis (of plant-like organisms) as well as via absorption. At sea level, the ocean absorbs CO₂ in response to increased CO₂ in the atmosphere. This 'increased atmospheric CO₂' causes a pressure change, and to balance this out, the ocean absorbs the excess CO₂. In turn, this CO₂ absorption is also changing the chemistry of the water with the ocean becoming more acidic. This weakens reef structures, which are important for protecting coastlines and providing habitats. In addition to climate change, the ocean is under threat from over-fishing, pollution (including plastics), and degradation of key habitats from development.

^{**}Reference: <https://www.ncei.noaa.gov/news/super-marine-heatwaves-new-term-growing-concern>

^{***}Reference: <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2024GL108369>

^{****}Reference: <https://www.unep.org/topics/ocean-seas-and-coasts/blue-ecosystems/coral-reefs>

CORAL REEFS, WHICH CREATE HOMES FOR OVER 25% OF MARINE SPECIES, ARE AN INTEGRAL ELEMENT OF OCEAN HEALTH GLOBALLY. THEY ARE THE MOST BIODIVERSE ECOSYSTEM IN THE OCEAN^{****}, YET THEY ARE ALSO ONE OF THE MOST VULNERABLE.



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INTRODUCING *CCMI*

The Central Caribbean Marine Institute (CCMI) was founded in 1998. CCMI, based on the amazing Island of Little Cayman, is an independent not-for-profit organisation dedicated to protecting coral reefs for future generations. We have an 8,000 sq ft research and education facility located on the Bloody Bay Wall, where we can house up to 40 researchers, staff, or students with classrooms and labs to support in-situ learning and exploration.

**CCMI'S THREE-TIER APPROACH
OF RESEARCH, EDUCATION, AND
CONSERVATION TO UNDERSTAND HOW
CORAL REEFS CAN ADAPT AND BECOME
RESILIENT IS WHAT STANDS US APART AS
AN ORGANISATION**



Our mission is to be the Caribbean's leading marine research and education institute, delivering pioneering science, informing conservation strategy, and cultivating excellence in education. Over the past 25 years, CCMI has developed one of the region's most comprehensive coral reef data sets and has implemented over a decade of successful coral restoration.

We are at the forefront of understanding and addressing coral decline—including the effects of heat stress and disease—and have become regional leaders in the study of mesophotic reefs (30–150m deep), an area of science with significant potential for uncovering climate refuges. We pair this research with immersive education and outreach activities, both in Little Cayman and around the world. Every year, we live stream to hundreds of thousands of students and citizen scientists via our Reefs Go Live programme, ensuring our published peer reviewed data lives outside of the bookshelf.

We are a registered 501(c)(3) in the US and a registered charity in both the UK and the Cayman Islands. Our organisation benefits from a unique international position, allowing us to access government, NGO, and private sector support across these jurisdictions.

HOW YOU *can help*

LEARN

We have so much to learn about the ocean and the creatures that depend on it for survival. One of the most impactful things you can do is get into the ocean, enjoy the vibrant life on the coral reefs, and look at the amazing ecosystem around you. Then learn about the ocean and how the ocean is connected to our everyday lives. CCMI's website is a great place to start! www.reefresearch.org.



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ADVOCATE

You have your own superpower, and that is your voice. By sharing your knowledge and creating more support for ocean health, you can make a considerable difference. It could be as simple as sharing a social media post or video with a friend.

ACT

There are so many ways you can contribute to the global effort to keeping coral reefs healthy for the future. You can sign online petitions, check where the fish you are eating comes from (and how it's caught), or you can check what you are putting into the trash or down the drains. If a million people made one small change, it would add up quickly.



SUPPORT CCMI

We are working hard to unlock the secrets to how corals can be healthy for generations to come. You can help us by supporting our efforts, either by donating to us, collaborating with us or sharing what we do.

WE KNOW THE OCEAN CAN HEAL ITSELF. WE JUST NEED TO FIND THE BEST WAYS TO PROTECT AND CONSERVE KEY HABITATS AND SPECIES - AND THEN LET THE OCEAN DO WHAT IT NEEDS TO DO TO ADAPT.

WAYS TO *support CCMI*



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DONATE

There are many ways you can donate to CCMI – scan the QR code on the back cover to take you to our donations site for more information. We appreciate every dollar that comes to us, and every donation makes a huge impact.

VIP PROGRAMME

We have a VIP programme for individuals and corporate supporters, with a range of supporting levels to suit everyone. Our Navigator programme is the highest form of support, which includes multi-year donations and a host of amazing opportunities to engage with CCMI as one of our most valued supporters.

PROGRAMME SUPPORT

We have a robust research and education schedule, and all the programmes can be sponsored. We work with individuals and corporate sponsors to find a package that suits you, whether you are interested in progressing our understanding of how coral reefs can adapt to current stressors or are more interested in creating education opportunities and the sharing of knowledge and skills.

CAPITAL CAMPAIGN

We have run out of space at our current facility and need to raise USD \$2million (USD \$2million already raised!) to complete the first phase of our capital development. By expanding our facilities, we will be able to run more programmes, as well as running research and education simultaneously and in perfect harmony.

CCMI *highlights*

25 Years of Coral Reef Monitoring – Since 1998, CCMI has conducted surveys using Atlantic and Gulf Rapid Reef Assessment (AGRRA) methodology. Results from this work help generate an understanding of the mechanisms that are driving reef resilience in a changing environment.

Investing in Research – CCMI now invests circa US \$1million per year in our research programme. We are supported by international governments (US National Science Foundation, UK Darwin Plus Initiative, and the EU RESEMBID programme), as well as a number of international and local foundations, private trusts, and private donors.

Expanding our Reach – CCMI reaches more than 300,000 people annually on social media platforms. We value this space as an educational podium, a place to share knowledge on important ocean-related topics, and place of interaction.

International Science – CCMI collaborates with specialists from around the world, sharing knowledge and skills to create greater impact. We have hosted more than 200 visiting scientists and our list of collaborators continues to grow. We also host 250+ college students per annum, expanding our future science leaders, as well as our alumni and a growing professional network.

Supporting Young Caymanians – CCMI has provided over 1850 scholarships since our first big grant in 2007. We invest US \$150K per annum in scholarships for local students via residential programmes. Our Young Environmentalist Leadership Course provides dive training, education and job skills to students (ages 16-20) and introduces them to the basics of marine ecology and the importance of coral conservation. Our Marine Ecology Courses support students from ages 10-18 who learn about the marine environment while staying at the Little Cayman Research Centre.

Supporting Early Career Scientists – CCMI supports early-career scientists from all over the world through internships and entry-level research positions. We provide a minimum of 10 paid internships a year and support researchers via post-doctoral positions.

CCMI *impact*



150+

PUBLISHED SCIENTIFIC PAPERS

50+

PHD, MSC STUDENTS & INTERNSHIPS

150+m

CORAL GROWN

70m²

CORAL OUTPLANTED TO THE WILD

200+

VISITING SCIENTISTS

300,000+

REEFS GO LIVE REACH

1850+

LOCAL SCHOLARSHIPS AWARDED

\$1,000,000

INVESTED IN FIELD RESEARCH ANNUALLY

“The most single revelatory three minutes for me was the first time I put scuba gear on and dived on a coral reef.”

SIR DAVID ATTENBOROUGH

Join CCMI
to help create a
brighter future
for our coral
reefs.



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