



# HELPING ENDANGERED CORALS IN THE CAYMAN ISLANDS



# PLANNING CHECKLIST

## PLANNING CHECKLIST

### IMMEDIATELY

- Make sure you understand and agree to Earthwatch's [Terms and Conditions](#) and the [Participant Code of Conduct](#).
- If you plan to purchase additional travel insurance, note that some policies require purchase at the time your expedition is booked.

### 6 MONTHS PRIOR TO EXPEDITION

- Log in at [earthwatch.org](http://earthwatch.org) to complete your participant forms.
- If traveling internationally, make sure your passport is current and, if necessary, obtain a visa for your destination country.
- Bring your level of fitness up to the standards required (see the Project Conditions section).

### 90 DAYS PRIOR TO EXPEDITION

- Pay any outstanding balance for your expedition.
- Book travel arrangements (see the Travel Planning section for details).
- Make sure you have all the necessary vaccinations for your project site.

### 60 DAYS PRIOR TO EXPEDITION

- Review the packing list to make sure you have all the clothing, personal supplies, and equipment needed.

### 30 DAYS PRIOR TO EXPEDITION

- Leave the Earthwatch 24-hour helpline number with a parent, relative, or friend.
- Leave copies of your photo ID and flight reservation number with a parent, relative, or friend.

**READ THIS EXPEDITION BRIEFING THOROUGHLY.** It provides the most accurate information available at the time of your Earthwatch scientist's project planning, and will likely answer any questions you have about the project. However, please also keep in mind that research requires improvisation, and you may need to be flexible. Research plans evolve in response to new findings, as well as to unpredictable factors such as weather, equipment failure, and travel challenges. To enjoy your expedition to the fullest, remember to expect the unexpected, be tolerant of repetitive tasks, and try to find humor in difficult situations. If there are any major changes in the research plan or field logistics, Earthwatch will make every effort to keep you well informed before you go into the field.

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# NOTE FROM THE PI

## DEAR EARTHWATCHER

Welcome to the *Helping Endangered Corals in the Cayman Islands* expedition!

You may have heard that coral reefs around the world are threatened. Between 1999 and 2004, bleaching and disease caused the live coral cover to drop to an average of 14% in Little Cayman. The good news is that unlike many other reefs, those around Little Cayman experienced almost a full recovery within seven years, raising the question: What conditions lead to coral reef recovery and how can we use this information to improve coral reef health? This is a critical question when taking into account that Little Cayman is home to the “Great Eight”; that is, eight Evolutionarily Distinct and Globally Endangered (EDGE) coral species including the once-dominant, but now International Union for the Conservation of Nature (IUCN) Red-Listed critically endangered, staghorn and elkhorn corals.

The question of coral reef resilience is of particular importance each year following the high seawater temperatures that typically occur between July and October. Caribbean corals, including those in Little Cayman, bleach when ocean temperatures exceed 87°F for a prolonged period. Little Cayman coral reefs experience moderate-to-severe bleaching in these conditions, but our hope is that the corals continue to show strong resiliency. You can be part of a critically important time in modern coral history!

We have several ongoing projects related to coral reef resilience and its relationship with reef biodiversity. Volunteers can help on a broad suite of projects depending on seasonality, weather, and urgency.

We monitor the health of corals on the reefs and in the lagoons before, during, and after bleaching events to document resiliency. You can help us document which corals are resistant to bleaching, which are susceptible but are likely to recover, and which will not survive.

We give reef recovery a “boost” by transplanting nursery-reared staghorn and elkhorn corals to the wild. We need to monitor these outplants for at least five years or until they start reproducing on their own. We also need to track which reef creatures are the pioneers on these new homesteads. You can help record coral survival, health, and growth as well as fish and invertebrate behaviors associated with the new coral colonies.

To understand recovery, we also have to understand those processes which impact recruitment of new corals that are needed to replace those which died during the bleaching event. The biggest competitors are algae, which quickly take up space on the reef, leaving limited room for juvenile corals to settle. You can help with quadrat surveys, which measure coral recruitment and algal competition.

Corals have natural allies on the reef including sea urchins, parrotfish, and other herbivorous “grazers” of the competitive algae. You can help scientists by recording sea urchin and fish populations and locations.

But the above projects just scratch the surface. We need to learn everything we can about the Great Eight in order to protect them around Little Cayman, the Cayman Islands, and the Caribbean. You can help us map the distribution of EDGE corals around Little Cayman, which will tell us where they thrive naturally and which corals they prefer as nearest neighbors. Perhaps we will find natural refuges where corals escaped the high temperatures. Together, these projects could lead to the discovery of why Little Cayman corals are capable of positive trajectories, and perhaps even change the future of coral reefs throughout the Caribbean and around the world.

We look forward to having you on our expedition.

Sincerely,  
Dr. Carrie Manfrino



# THE RESEARCH

## HELPING ENDANGERED CORALS IN THE CAYMAN ISLANDS



### THE STORY

Global stressors such as climate change and ocean acidification are impacting coral reefs around the world, prompting debates about whether reefs will survive beyond 2050 (Knowlton and Jackson 2008; Pandolfi et al. 2011). Record-breaking El Niño years, such as 1998, result in warming parts of the ocean and destroying coral reefs around the world, including those in Little Cayman. However, unlike many other regions, the coral colonies surrounding this island have bounced back.

Scientists have yet to understand what made these reefs so resilient. Little Cayman's unexpected coral recovery provides researchers with a unique opportunity to examine why some reefs recover from stressful events while others do not (Manfrino et al 2003; Coelho and Manfrino 2007; Manfrino et al. 2013).

By studying the secrets of this resilient reef, researchers will help to inform managers of best practices to assist in the protection of coral reefs elsewhere in the Caribbean and around the world. These strategies may help to provide habitats for fish and invertebrates and increase reef biodiversity (Lirman et al. 2010; Johnson et al. 2011; Keil et al. 2012).



## RESEARCH AIMS

The research teams will help to assess how corals rebound and survive following a stressful short-term event such as a bleaching event or intense storm, and in response to longer-term stresses such as ocean acidification and climate change. The teams will work to improve our understanding of what makes a reef resilient—knowledge that will help researchers protect reefs elsewhere in the world.

The project will focus primarily on corals, particularly those known as “EDGE” species—or Evolutionarily Distinct and Globally Endangered. Protecting these unique and endangered corals is a high priority for researchers and policy makers. However, corals are not the only inhabitants on the reef and their survival is dependent upon both competitors and teammates. Expedition teams may also work on coral-related projects involving parrotfish, sea urchins, sponges, or even algae.

The research project has the following primary objectives:

- 1. CORAL RECOVERY**—Monitor and survey the Little Cayman coral reefs to fully document the extent of recurring bleaching events.
- 2. CORAL REGENERATION**—Return nursery-reared staghorn and elkhorn corals to the wild to help regenerate the reefs and to assist in the creation of a usable framework for reef inhabitants.
- 3. CASCADING IMPACTS**—Study the species interactions, which influence coral recovery, regeneration, and recruitment including parrotfish, sea urchins, sponges, and algae.
- 4. EDGE RECONNAISSANCE**—Record the distribution and health of EDGE species around Little Cayman shallow reefs and lagoons.

## HOW YOU WILL HELP

As an Earthwatch participant, you will be involved in activities to help achieve CCMI’s scientific objectives. Depending on seasonality, weather, and urgency, you will be involved in a combination of the following (Note: it is highly unlikely that any given team will be involved in all of the following):

- Learn to identify EDGE corals and other common species of coral, fish, invertebrates, and algae.
- Conduct coral health surveys while snorkeling to document bleaching resilience. Volunteers will record coral “vital signs” using color charts and underwater photography.
- Measure total linear extension of nursery-reared staghorn and elkhorn coral branches, a common proxy for growth, using rulers or photo analysis.
- Construct new nursery structures to support the nursery expansion.
- Conduct shallow water quadrat surveys to determine coral recruitment and competitive species cover.
- Conduct roving snorkel fish and sea urchin surveys.
- Conduct snorkel scout surveys to map the locations of EDGE corals and their nearest neighbors.



# DAILY LIFE IN THE FIELD

## PLANS FOR YOUR TEAM

Participants will receive training in basic coral identification, with special emphasis on EDGE species and the “Great Eight”. We’ll practice data collection techniques in shallow water where you can easily ask questions. Once the team is comfortable, we’ll conduct our research above the reefs around Little Cayman as we snorkel side-by-side. Participants will collect data, handle equipment, and take in-water photographs and videos. Participants who are able to bring their own laptops may also help with data entry, image analysis, and video screening.

Teams will learn about the Little Cayman coral nursery and coral gardening techniques. Teams may build new structures for later deployment in the nursery. You can practice fragmenting and simulate outplanting with coral skeletons in our outdoor lab. We will monitor the growth, health, and survival of outplanted and donor colonies in the wild or, if the weather does not cooperate, by comparing time-series digital images.

All teams will get to interact with the scientists, interns, and students in residence at the research center and learn about their exciting projects.

### DAILY ACTIVITIES

Your days will start early, with continental style breakfasts between 7:00–8:00 a.m. We take turns doing dishes after each meal, before beginning our activities. On most mornings, you’ll gather up your gear in preparation for in-water tasks. We depart for the field around 8:30–9:00 a.m. Grape Tree Bay is just steps from our patio. Travel to other sites takes 10–30 minutes. A typical morning includes two to three hours of fieldwork. Remember to drink plenty of water and apply lots of sunscreen. We’ll return to the Little Cayman Research Centre around noon, in time for lunch. Teams reconvene at 1:00–1:30 p.m. for the afternoon sessions, which include a mix of fieldwork, data entry, and preparations for the next day.

Volunteers get a break during “free time” from 4:00–6:00 p.m. You can bike ride, jump back in the ocean (teen team volunteers must do so with lifeguard supervision), share your amazing adventures with friends and family via social media, or just relax.

The dinner bell rings around 6:00 p.m., a time to enjoy good food and watch the sunset. On Thursday evenings, listen to our Weekly Lecture Series given at a local resort. If we are really lucky in June–September, juvenile turtles may hatch and we can watch them make their way across the beach to the ocean. Adult teams will also have options for other evenings including island attractions like the Hungry Iguana, Wednesday night trivia, or Friday night karaoke.

### DAILY SCHEDULE

#### DAY 1

Arrive in Little Cayman  
Safety briefing, station orientation

#### DAY 2

Morning. Research orientation and snorkel check-out  
Afternoon. Practice research session and island tour

#### DAYS 3–5

Fieldwork. Daily activities include:  
Snorkeling surveys of coral reefs  
Environmental data collection  
Coral nursery work  
Data analysis

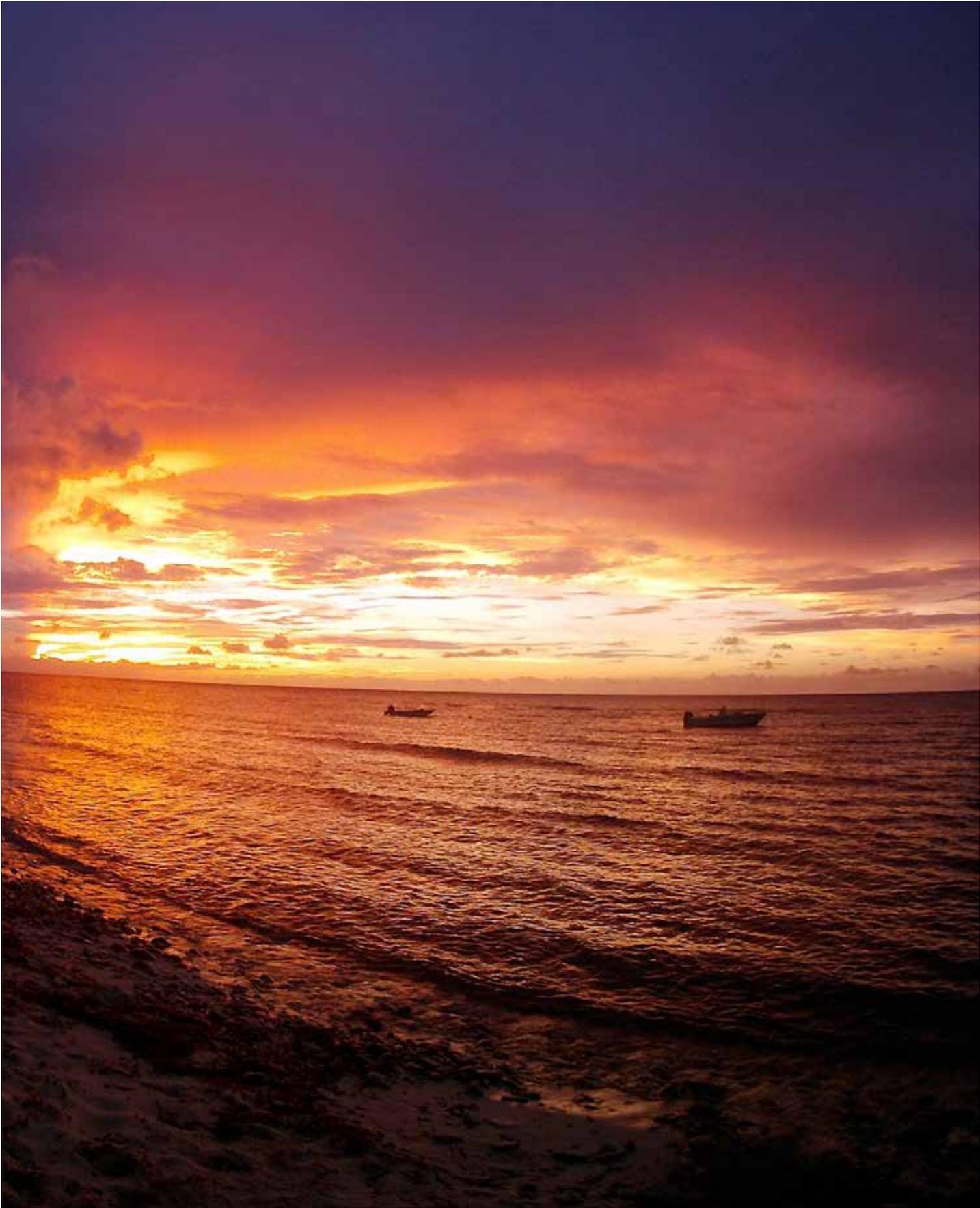
#### DAY 6

Final research  
Beach picnic lunch  
Wrap-up discussion

#### DAY 7

Departure





# ACCOMMODATIONS AND FOOD

## ABOUT YOUR HOME IN THE FIELD



### SLEEPING

Participants will stay at the LCRC dormitory facility, on the upper level overlooking the Caribbean Sea. Dorms are well ventilated with fans and situated to benefit from the local North breeze. Rooms are equipped with air conditioning to run in the warmer months in the evenings, but please be conservative in their use. Rooms will be separated by gender, and shared with one or more participants to a maximum of six in bunk style beds. Individuals will participate in the daily maintenance of their living quarters and clean-out their rooms upon departure..

### BATHROOMS

At the LCRC, the bathhouse is an off-the grid, solar-powered building, with composting toilets, and a grey water garden. The bathhouse is a separate building from the sleeping quarters, requiring volunteers to go up and down three sets of stairs. There are lights leading the way for night visits, but we suggest bringing a flashlight or headlamp for just such occasions.

### ELECTRICITY

You are welcome to bring electrical equipment. All lodging facilities have standard North American electrical outlets, 110–120 Volts..



## PERSONAL COMMUNICATIONS

Wireless Internet access is available in the main building of the Little Cayman Research Centre. You may bring your own laptop or tablet for free-time use or for assistance in data entry..

Regular phone calls to and from the Cayman Islands are expensive. The best way to make a phone call from Little Cayman is to purchase a phone card at the airport in Grand Cayman or purchase international credit on your phone ahead of time. Foreign phone cards do not work in the Caymans. Some cell phone services work in Cayman with partner companies, but this is something that we advise you look up before your arrival. Another great way to make calls home is via Skype or other social media platforms, using our LCRC connection.

Please note that personal communication with outsiders is not always possible while participating in an expedition. Earthwatch encourages volunteers to minimize outgoing calls and immerse themselves fully in the experience; likewise, we encourage family and friends to restrict calls to urgent messages or check-in's only.

## FACILITIES AND AMENITIES

The Little Cayman Research Centre is a field education and research station. It has labs, a classroom, and dormitory-style living accommodations to support researchers and students. Some of these may be in use by other groups while your Earthwatch team is at the center.

There is one small general store on Little Cayman, however food is extremely expensive. If there is something that you like to have every day, we recommend that you bring it with you. Each volunteer will be provided with a small storage container in which to keep personal food items. Refrigerator space can also be made available but only for medical purposes..

## DISTANCE TO THE FIELD SITE

The distance to the field sites varies from right outside the door to a 15–30 minute van ride..

## FOOD AND WATER

A fully equipped commercial kitchen and screened-in dining area can easily accommodate 20 visitors. It is open for three meals per day when groups of four or more are residing. The screened community dining area provides an excellent place for visitors to reflect on the day's events while enjoying dinner. Meals are designed to be healthy and hearty, with a variety of local cuisine. Meals can be taken in the dining area or on the deck with picnic benches, both overlooking the ocean.

The following are examples of the types of food you may enjoy on this project. Availability of certain items is subject to change, so please maintain a flexible attitude.

The following are examples of foods you may find in the field. Variety depends on availability. We appreciate your flexibility.

### TYPICAL MEALS

<b>BREAKFAST</b>	Cereal, toast, bagels, yogurt, and fresh fruit
<b>LUNCH</b>	Fresh vegetables, salad, pasta salad, potato salad, sandwiches, hot dogs or hamburgers, soup, and a cooked option such as chicken fingers or pizza
<b>DINNER</b>	Casseroles, curry, pork chops, burgers, spaghetti bolognese, baked chicken, vegetables, salad, and a potatoes
<b>DESSERT</b>	Brownies, cookies, and cake (dessert only sometimes)
<b>BEVERAGES</b>	Milk, coffee, tea, and water

### SPECIAL DIETARY REQUIREMENTS

Please alert Earthwatch to any special dietary requirements (e.g., diabetes, lactose intolerance, nut or other food allergies, vegetarian or vegan diets) as soon as possible, and note them in the space provided on your volunteer forms.

Please note that due to the limitations of island supply, CCMI may not be able to accommodate kosher, halal, vegan, paleo, or other special diets.

# PROJECT CONDITIONS

## THE FIELD ENVIRONMENT

The peak tourist season in Cayman is during the winter, from mid-November to April. During this time there is little rain, brilliant sunshine, and a constant cool sea breeze; however this breeze can often pick up enough to create non-ideal snorkeling conditions..

May to November is the rainy season, but unless there is a tropical depression sitting over Cayman, the rain is normally only heavy for a few hours and then stops for the rest of the day. It is not uncommon to have heavy rain in one part of town while it remains dry nearby. Snorkeling conditions are ideal at this time of year.

### GENERAL CONDITIONS

**HUMIDITY:** 75%–85%

**TEMPERATURE RANGE:**

**July:** 85–95°F (29–32°C)

**December/January:** 75–85°F (25–29°C)

**RAINFALL:**

**July:** 6.6 in (16.7 cm)

**December:** 3.2 in (8.1 cm)

**January:** 0.7 in (1.8 cm)

**ALTITUDE:** Sea Level

### WATER CONDITIONS

Water conditions should be relatively benign, since we work within our environmental parameters. Surface currents or surges may be encountered occasionally.

**TYPICAL WATER TEMPERATURE DURING PROJECT:** 25°C (78°F) to 29°C (85°F). Note: A 3mm wetsuit is recommended for November–February groups, and only a thin rash guard for the remainder of the year.

**TYPICAL WATER VISIBILITY:** 5m (33 ft.) to unlimited

**SNORKEL SITE TYPE:** Sheltered lagoon or coral reefs

**ANTICIPATED DEPTH OF SNORKELS PER DAY:**

0 m (along shoreline) to 10 m (3 ft.)

**SNORKEL ACTIVITIES WILL BE INITIATED FROM:** shore

**TIMING OF SNORKELING ACTIVITIES:** sunrise–sunset

**EGRESS INTO WATER:** from shore

### ESSENTIAL ELIGIBILITY REQUIREMENTS:

All participants must be able to:

- Follow verbal and/or visual instructions independently or with the assistance of a companion.
- Wear all protective equipment recommended or required by industry standards.
- Learn to make and record observations of coral species and habitats.
- Be comfortable snorkeling in open water (two to three hours a day) where they are unable to stand on the bottom, and be comfortable using full snorkeling gear (mask, fins, snorkel).
- Arrive with previous snorkeling experience, comfort swimming without the aid of a flotation device, and ability to “duck dive” (hold one’s breath and dive below the surface of the water for short periods, to depths of 1–2 meters) in order to do the coral outplanting, measuring, scouting, and photography work on this project.
- Enter and exit the water from shore.
- Work on or near shore for about two to three hours per day with limited break options (e.g., no bathroom except for the ocean).
- Maintain a seated, upright position within van during transit, which can sometimes be bumpy along unpaved roads. This can be uncomfortable for individuals with back problems.
- Hike or walk along rocky shoreline (and potentially mangrove) study sites, which can range from ankle-deep to hip-deep water, on very uneven and unstable surfaces.
- Enjoy being outdoors all day in all types of weather.
- Endure tropical (hot and humid) work conditions.
- Be tolerant of the presence of bugs when outside, you are in the tropics!



# POTENTIAL HAZARDS

## HELPING ENDANGERED CORALS IN THE CAYMAN ISLANDS

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	Traffic accidents and injuries are always a hazard of road transport. Every passenger will have a seat, however seatbelts are not commonly available or legally required in the Cayman Islands. Vans will travel no faster than 25 mph on public roads, most of which are unpaved. Volunteers will not drive; only CCMI/LCRC staff will operate vehicles.
Hiking	Hiking is not a requirement of the research activities, but nature trails are available nearby for recreation. Volunteers should wear proper footwear, have good endurance, and at times have protective clothing in the thick bush to avoid cuts and scrapes. Volunteers must make research center staff aware of route and expected time of return whenever operating recreationally offsite.
Cycling	Bicycles are available for recreational use. Bicycle helmets are not available but you can bring one if you would like. Cycling is on rural roads with very few cars. Volunteers must make research center staff aware of route and expected time of return. A maintenance check on all bikes will be conducted before the arrival of volunteers.
Stinging animals (insects, jellyfish, coral, lionfish)	Mosquitoes and sand flies are present on Little Cayman, and eco-friendly repellent or long-sleeved shirts and pants will help protect from stings and bites. Fire coral, sea urchins, lionfish, or jellyfish may be present in the water. All dangerous creatures will be introduced during the training period. Please note that if you have a severe reaction to bee stings you may also have a similar reaction to jellyfish stings; please consult with your doctor prior to your visit and bring any medications you may need with you.
Sharks and large fish	Attacks by sharks and other large fish are extremely rare. Team members will be instructed to exit the water in a calm manner in the event of an animal acting aggressively.
Climate/ Weather	<p>Hurricane season is June to November, but most hurricane activity occurs in late August and September. Should a hurricane appear to be heading for The Cayman Islands during an expedition, the expedition will end and team members will evacuate to a location determined by Cayman Airways to either Grand Cayman, Cayman Brac, Miami, Tampa, Houston, Jamaica, and Honduras are all possibilities to be considered, based on location and direction of the storm. Project staff will not wait for a hurricane warning to evacuate. Due to the difficulties of getting off island, staff will take the most conservative approach to ensure that volunteers don't experience undue stress or danger.</p> <p>Due to high temperatures and increased sun exposure, dehydration and sunburn are possible. You'll be briefed on proper clothing, reef-safe sunscreen use (you must bring your own sunscreen and bug repellent), and increased fluid intake. Project staff sets an example and will monitor participants for symptoms of exposure or dehydration. Take particular care when working during the hottest periods of the day.</p> <p>Due to high humidity, those who use a hearing aid may find it doesn't work properly and may wish to purchase a hearing aid dehumidifier.</p>
Personal security	Crime on Little Cayman is extremely low. Volunteers are advised to always keep valuables hidden while traveling. LCRC is a dry campus and drinking is not tolerated nor is illegal drug use
Swimming	Swimming is central to the research you'll conduct and is also possible during allotted recreational time; typical inwater related risks will be present. A certified lifeguard will not be available at all times, but there will be an on site staff member and an project assistant who is first-aid, CPR, and AED certified. Volunteers may not swim alone; we require the buddy system for any in-water activity for volunteers of all ages.
Snorkeling	<p>Snorkeling has inherent risks, e.g., the effects of environmental conditions, nitrogen buildup (for those who've recently scuba dived), barotrauma, boat traffic, marine life, and risks specific to one's own physical health or history. When snorkeling, properly control your breathing to reduce the risk of hyperventilation and shallow-water blackout.</p> <p>You must bring and maintain your own mask, snorkel, fins, booties, and exposure protection (rash guard or skin). You may bring your own personal floatation device (PFD) if you would like or one can be provided to you once onsite at LCRC. You must ensure that all gear is in good working order and that you are trained in appropriate responses if a failure occurs while in the water. It is highly recommended that volunteers practice with their gear in a pool, lake, or ocean extensively before they arrive for their expedition.</p> <p>Support staff will be present in the water at all times with you during research activities. Swimming and snorkeling will only happen in calm seas. No one goes in the water, staff or volunteers, when the lead support staff determines that conditions are unsafe.</p>



# HEALTH & SAFETY

## HELPING ENDANGERED CORALS IN THE CAYMAN ISLANDS



### Distance from Medical Care

While Grand Cayman has extensive medical facilities, Little Cayman has only one small clinic with one on-call nurse and a doctor who visits the island on Wednesdays. The local medical clinic is a 15-minute drive from the field station. If someone becomes seriously ill or injured on Little Cayman, they will need to be airlifted to Cayman Brac (approximately one hour for daytime arrival and transport) or Grand Cayman (approximately two to three hours for daytime arrival and transport). Nighttime evacuation may not be possible, as the Little Cayman airstrip does not have a lighted runway.

If you have a chronic condition, which could require immediate medical care (e.g., heart conditions, kidney problems, severe asthma), please discuss your participation in the expedition with your physician prior to your visit to get clearance to travel and participate in the activities. We will require proof of medical check-out prior to your arrival.

### EMERGENCIES IN THE FIELD

Project staff members are not medical professionals.

#### STAFF CERTIFIED IN SAFETY TRAINING:

**FIRST AID AND CPR:** PI FTLs Katie Correia, Maisey Fuller, Sam Hope

**ISLAND EMERGENCY RESPONSE:** Field Station Manager, Sam Hope

For emergency assistance in the field, please contact Earthwatch's 24-hour emergency hotline number on the last page of this briefing. Earthwatch is available to assist you 24 hours a day, 7 days a week; someone is always on call to respond to messages that come into our live answering service.

### IMMUNIZATIONS & TRAVEL VACCINATIONS

Please be sure your routine immunizations are up-to-date (for example: diphtheria, pertussis, tetanus, polio, measles, mumps, rubella and varicella) and you have the appropriate vaccinations for your travel destination. Medical decisions are the responsibility of each volunteer and his or her doctor, and the following are recommendations only. Visit [cdc.gov](https://www.cdc.gov) or [who.int](https://www.who.int) for guidance on immunizations.

If traveling from countries or region where yellow fever is endemic, you must have a certificate of vaccination.



# TRAVEL TIPS

## SUGGESTIONS FOR THE ROAD

### YOUR DESTINATION

**LANGUAGE:** English.

**TIME ZONE:** Eastern Standard Time (EST), UTC/GMT -5 hours. The Cayman Islands do not observe daylight savings time.

**CULTURAL CONSIDERATIONS:** Casual, weather appropriate, modest dress is acceptable nearly everywhere. It is considered culturally unacceptable to walk around the LCRC or Little Cayman in swimwear alone, so please plan to cover up accordingly. Tipping restaurant wait staff, taxi drivers, airport curbside baggage handlers, and hotel bellhops is customary and similar to the United States..

**LOCAL CURRENCY:** The official currency is the Cayman Islands dollar (CI\$), permanently fixed at an exchange rate of CI\$0.80 to US\$1 (CI\$1 equals US\$1.25). Cayman dollars and US dollars are accepted throughout the islands, although you'll usually get change in CI\$ even if you pay with US\$. The local currency comes in CI\$1, 5, 10, 25, 50 and 100 notes. All major currencies can easily be changed at any bank. ATMs are easy to find across Grand Cayman, however only one ATM on Cayman Brac and on Little Cayman. The Cayman National bank on Little Cayman is only open on Mondays and Thursdays for very abbreviated banking hours in the morning

**PERSONAL FUNDS:** \$100–200 should suffice if you'd like to purchase additional food or supplies. Money can be withdrawn from an ATM at the Grand Cayman airport or at the Cayman National Bank ATM on Little Cayman. International volunteers may use credit cards and ATM cards at local banks to obtain currency in Cayman Island dollars if desired.

### COUNTRY AND PROJECT ENTRY REQUIREMENTS

Entry visa requirements differ by country of origin, layover, and destination, and do change unexpectedly. For this reason, please confirm your visa requirements at the time of booking and, again, 90 days prior to travel. Please apply early for your visa (we recommend starting 6 months prior to the start of your expedition). Refunds will not be made for volunteers cancelling due to not obtaining their visa in time to meet the team at the rendezvous. You can find up to date visa requirements via the following site:

[www.travisa.com](http://www.travisa.com)

If a visa is required, participants should apply for a TOURIST visa. Please note that obtaining a visa can take weeks or even months. We strongly recommend using a visa agency, which can both expedite and simplify the process.

Passports must be valid for at least six months from the date of entry and a return ticket is required.

Upon arrival you must keep the immigration card given to you. Visitors are advised to keep it with their travel documents, as you will be required to present it to an Immigration Officer upon your departure.

### CONTACT INFORMATION

You may be required to list the following contact information on your visa application and immigration form, or if your luggage does not make it to baggage claim at your destination:

**Sam Hope**

[Manager@reefresearch.org](mailto:Manager@reefresearch.org)

Little Cayman Research Center

North Coast Rd, PO Box 37

Little Cayman, KY3-2501, Cayman Islands

+1 345-948-1094 (office)

+1 345-321-8732 (cell)



# TRAVEL PLANNING

## RENDEZVOUS AND DEPARTURE INFORMATION



**COMPLETE TRAVEL INFORMATION IS NOT INCLUDED  
IN THIS PUBLIC VERSION OF THE BRIEFING..**

Please find the complete briefing, available only to project participants, in your Earthwatch Portal. The version in your Portal will include all of the travel information for you to book appropriate flights. Please DO NOT book flights without referring to this information.





# EXPEDITION PACKING CHECKLIST

## WHAT TO BRING

### EXPEDITION PACKING CHECKLIST

#### GENERAL

- This expedition briefing
- Your travel plans, rendezvous details, and Earthwatch's emergency contact information
- Photocopies of your passport, flight itinerary, and credit cards in case the originals are lost or stolen; the copies should be packed separately from the original documents
- Passport and/or visa (if necessary)
- Certification of vaccination (if necessary)
- Documentation for travel by minors (if necessary)
- Signed CCMI Waiver

#### CLOTHING/FOOTWEAR FOR FIELDWORK

- Snorkel gear (fins, snorkel, and mask that fit you well; we highly recommend strap-back fins with boots for entry along a rocky shore)
- Mesh bag or backpack to carry snorkel gear
- Hard soled water shoes/booties (ideally can be worn inside fins)
- 1-3 Swimming suit (s)
- Rash guard (or t-shirts you can wear in the water)
- Rain jacket
- Wide brim hat

#### CLOTHING/FOOTWEAR FOR LEISURE

- At least one set of clothing to wear outside in the evenings (we recommend a long sleeve shirt and long pants to prevent bites from mosquitos)
- At least one set of clothing to keep clean for end of expedition
- Pair of light shoes or sandals to wear around the accommodations

#### FIELD SUPPLIES

- Small daypack to keep your personal items together and dry
- Reef safe sunscreen lotion with SPF 45 or higher (brands available include: Sea2Stream, Badger, Raw Elements, or Green People)

- Lip balm with sunscreen
- Field notebook and pencils (cheap mechanical pencils)
- Two reusable one-liter water bottles
- Eco-friendly Insect repellent (available brands: Kinven, Repel (plant-based), Eco-Smart, or Skedattle)
- UV protective Sunglasses

#### BEDDING AND BATHING

**NOTE:** all bedding is provided by the project.

- Beach towel
- Bath towel

#### PERSONAL SUPPLIES

- Personal toiletries (biodegradable soaps and shampoos are encouraged)
- Personal first aid kit (e.g., sea sickness pills, anti-diarrhea pills, antibiotics, antiseptic, itch-relief, pain reliever, bandages, blister covers, etc.) and any necessary medications
- Spending money
- Flashlight or headlamp with rechargeable batteries (don't forget your charger!)

#### OPTIONAL ITEMS

- Laptop computer (can be used for recreational purposes but also to contribute to research activities)
- Flip flops or sandals for the shower
- Camera with film or memory card(s) and extra camera battery or charging cable
- Underwater camera with memory card(s) and extra camera battery or charging cable
- Small dry bag
- Books, games, movies, art supplies, etc. for free time
- Earplugs and eye masks for light sleepers

**NOTE:** Do not bring more luggage than you can carry and handle on your own. If traveling by air and checking your luggage, we advise you to pack an extra set of field clothing and personal essentials in your carry-on bag in case your luggage is lost or delayed.



# PROJECT STAFF

## YOUR RESOURCES IN THE FIELD

**NOTE:** Staff schedules are subject to change.



**DR. CARRIE MANFRINO**, President and Director of Research and Conservation. Carrie founded CCMI in 1998 and has since built CCMI around her dream of sustaining biodiversity through research, education, and conservation. As a professor of oceanography and marine geology, Carrie has dedicated over 20 years to marine research in Little Cayman. She is a well-published researcher who collaborates with scientists from around the world.

**KATIE CORREIA**, Science and Education Manager. Katie joined CCMI in February 2016, bringing with her over seven years of field and research experience throughout the Atlantic and Caribbean. Katie carries with her a B.Sci. in Marine Science and Coastal Geology and is currently working to finish up her M.Sci. in Marine Biology and Coastal Zone Management. She has worked for a variety of organizations including Mote Marine Laboratories - Tropical Research Station, the Florida Fish and Wildlife Conservation Commission - Research Institution, and the CIEE Research Station, Bonaire. Her background until this point has been research oriented, so Katie came to CCMI with the hope of gaining invaluable teaching experience while still conducting research and leading outreach events amongst the local community. She is excited for the opportunity to be such an integral part of a growing research station, and looks forward to all that her future with CCMI has to offer!



**MAISY FULLER**, Education Coordinator. Maisy joined the CCMI team in 2018. She has a B. Sci and M.Sci. in Marine Biology from the University of Southampton and spent her third year abroad at the University of Western Australia. Since leaving university she has worked on marine conservation projects in Panama, Malaysia and the Philippines as both a marine researcher and educator. In addition, Maisy is an active PADI Divemaster. Maisy is passionate about the marine environment and firmly believes that scientific research and community outreach through education go hand in hand. She hopes that her work at CCMI helps to educate and inspire a wide range of audiences about the ocean and its inhabitants. This includes spreading awareness about the threats currently facing the marine environment and how everyone has a part to play in reducing our human impacts.



An **EARTHWATCH TEEN TEAM FACILITATOR** (TEEN team only) will accompany the teen team from the time you step off the plane for the rendezvous until the end of the expedition. If you have any questions or problems, such as issues with another participant, homesickness, or an emergency back home, please talk to your facilitator. Follow your facilitator's advice on safety and personal conduct. All facilitators have experience teaching and leading groups of teenagers. Remember, your facilitator is there for you. (Teen: Facilitator ratio is approx. 6:1)



# RECOMMENDED READING

## YOUR RESOURCES AT HOME

### RESOURCES

#### ARTICLES

- Manfrino C., C.A. Jacoby, E. Camp, T.K. Frazer. (2013) A positive trajectory for corals at Little Cayman Island. PLOS ONE 8(10): e75432. <http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0075432&representation=PDF>
- Eakin, C.M., Manfrino, C., Yusuf, Y., 2010, Caribbean Corals in Crisis: Record Thermal Stress, Bleaching, and Mortality in 2005, PLoSOne. 10.1371: e 13969. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0013969>
- Additional articles and student posters can be accessed from CCMI's website [www.reefresearch.org/publications](http://www.reefresearch.org/publications)

#### BOOKS

- **HIGHLY RECOMMENDED:** Coral Reef Identification, Florida Caribbean Bahamas, 3rd ed. Paul Humann and Ned Deloach
- Caribbean Acropora Restoration Guide: Best Practices for Propagation and Population Enhancement <http://rjd.miami.edu/wp-content/uploads/2013/09/Johnson-2011-Acropora-Restoration-Guide.pdf>

#### PROJECT-RELATED WEBSITE

- **CENTRAL CARIBBEAN MARINE INSTITUTE WEBSITE:** <http://reefresearch.org/>

#### CCMI SOCIAL MEDIA

- **FACEBOOK:** [facebook.com/reefresearch](https://www.facebook.com/reefresearch)
- **TWITTER:** [twitter.com/reefresearch](https://twitter.com/reefresearch)
- **INSTAGRAM:** [instagram.com/reefresearch](https://www.instagram.com/reefresearch)
- **YOUTUBE:** [youtube.com/reefresearch](https://www.youtube.com/reefresearch)

#### EARTHWATCH SOCIAL MEDIA

- **FACEBOOK:** [facebook.com/Earthwatch](https://www.facebook.com/Earthwatch)
- **TWITTER:** [twitter.com/earthwatch\\_org](https://twitter.com/earthwatch_org)
- **INSTAGRAM:** [instagram.com/earthwatch](https://www.instagram.com/earthwatch)
- **BLOG:** <https://blog.earthwatch.org/>
- **YOUTUBE:** [youtube.com/earthwatchinstitute](https://www.youtube.com/earthwatchinstitute)



# LITERATURE CITED

## YOUR RESOURCES AT HOME

### LITERATURE CITED

- Coelho, V. and Manfrino, C. (2007) Coral Community Decline at Remote Caribbean Islands: Marine No-Take Reserves Are Not Enough, *Aquatic Conservation: Mar. Freshw. Ecosyst.* 16:1-20.
- Johnson ME, C Lusic, E Bartels, IB Baums, DS Gilliam, L Larson, D Lirman, MW Miller, K Nedimyer, S Schopmeyer (2011) Caribbean Acropora Restoration Guide: Best Practices for Propagation and Population Enhancement. The Nature Conservancy, Arlington, VA.
- Kiel C, Huntington BE, Miller MW (2012) Tractable field metrics for restoration and recovery monitoring of staghorn coral *Acropora cervicornis*. *Endangered Species Research* 19: 171-176.
- Knowlton, N., & Jackson, J. B. C. (2008). Shifting Baselines, Local Impacts, and Global Change on Coral Reefs. *PLoS biology*, 6, 6.
- Lirman, D, Bowden-Kerby, A, Schopmeyer, S.A., Huntington, BE, Thyberg, T., Gough, M., Gough, R. Gough, Y. Gough (2010a) A window to the past: documenting the status of one of the last remaining 'megapopulations' of the threatened staghorn coral *Acropora cervicornis* in the Dominican Republic. *Aquatic Conservation: Marine and Freshwater Ecosystems* 20 (7) p. 773-781 <http://doi.wiley.com/10.1002/aqc.1146>
- Lirman, D., Thyberg, T., Herlan, J., Hill, C., Young-Lahiff, C., Schopmeyer, S., Huntington, B., Santos, R., Drury, C. (2010) Propagation of the threatened staghorn coral *Acropora cervicornis*: methods to minimize the impacts of fragment collection and maximize production. *Coral Reefs* 29:729-735.
- Manfrino, C., Riegl, B., Hall, J.L., and Graifman, R. (2003) Status of Coral Reefs of Little Cayman, Grand Cayman & Cayman Brac, British West Indies in 1999 & 2000 (Part 1: Stony Corals & Algae), J.C. Lang (ed.), Status of coral reefs in the western Atlantic: Results of initial Surveys, Atlantic & Gulf Rapid Reef Assessment (AGRRA), Atoll Res. Bull. 496:204-225.
- Manfrino, C., Jacoby, C. A., Camp, E., & Frazer, T. K. (2013). A positive trajectory for corals at little Cayman Island. (S. Lin, Ed.) *PloS one*, 8(10), e75432. doi:10.1371/journal.pone.0075432
- Pandolfi, J. M., Connolly, S. R., Marshall, D. J., & Cohen, A. L. (2011). Projecting coral reef futures under global warming and ocean acidification. *Science* (New York, N.Y.), 333(6041), 418-422.



# EMERGENCY NUMBERS

## AROUND-THE-CLOCK SUPPORT



**EMERGENCY NUMBERS NOT INCLUDED IN THIS PUBLIC VERSION OF THE BRIEFING.**

The version in your Portal will include all of the necessary emergency numbers..





## Field Waiver, Liability & Disclaimer

**THIS DEED OF INDEMNITY AND WAIVER** (this “Waiver”) is made the \_\_\_\_\_ day of \_\_\_\_\_ between \_\_\_\_\_

\_\_\_\_\_ the parent or legal guardian of \_\_\_\_\_ (my “Child”) of \_\_\_\_\_

\_\_\_\_\_ (address) and each of the Little Cayman Research Centre (the “Research Centre”), the Central Caribbean Marine Institute (also known as CCMI), incorporated under the laws of the State of New Jersey and recognized as a federal 501c(3) non-profit organization and its affiliates, CCMI, a company limited by guarantee in the United Kingdom, and CCMI, a local company incorporated in the Cayman Islands and registered as a local charity and any of their respective parent companies, subsidiaries and affiliates (together hereinafter called “CCMI”).

In consideration of my child \_\_\_\_\_ (my “Child”) being given the opportunity to participate in a CCMI programme (the “Programme”) at the Research Centre, I hereby acknowledge, agree and confirm as follows:

I am aware of the skills needed for, and recognize the risks of injury or harm that may occur to my Child as a result of my Child’s participation in the Programme. I assume such risks on my own for myself and my Child as a condition of my Child’s being permitted to participate in the Programme. To my knowledge, my Child has no existing medical condition that could worsen or result in further injury (to my Child or to others) as a result of my Child’s participation in the Programme. I understand that neither the CCMI, nor the Research Centre nor any of their affiliates nor any of their officers, directors, trustees, agents or employees is responsible for administering any medical care or medication required by my Child whatsoever (“Medical Treatment”) during my Child’s participation in the Programme. In case of emergency, the Research Centre or any of its officers, directors, trustees, agents or employees is authorized to seek Medical Treatment for my Child, and I accept full financial responsibility for all the costs of such Medical Treatment and any associated costs connected thereto.

In the event that CCMI or the Research Centre or any of their affiliates or any of its officers, directors, trustees, agents or employees deems it necessary at their sole discretion to evacuate my Child from the Research Centre for any reason including (without limitation) in the event of a threat of a hurricane or other act of God or to relocate my Child into an alternative building for example (without limitation) a shelter, I hereby authorize CCMI or the Research Centre or any of their affiliates or any of its officers, directors, trustees, agents or employees to take any and all action that they deem necessary (“Emergency Action”) and I accept all financial liabilities related thereto.

For my Child and for myself and for my Child’s heirs, successors and assigns, I hereby release and forever discharge CCMI and any of their parent companies, subsidiaries and affiliates, and their respective officers, directors, trustees, shareholders, agents, employees, successors and assigns all in their official or individual capacities (“Indemnified Persons”) from any and all actions, costs, suits, demands, claims, damages, losses and liabilities direct or indirect howsoever arising (including without limitation reasonable attorney’s fees) of any type or kind whatsoever arising out of or caused (“Loss”) by my Child’s participation in the Programme any Medical Treatment provided or as a result of any Emergency Action taken or in connection with any damage, loss or theft of any of my Child’s personal property, equipment, clothing, or effects.

I hereby agree to indemnify, defend and hold harmless the Indemnified Persons from and against any Loss of any type or kind whatsoever arising out of or caused by my child’s participation in the Programme any Medical Treatment provided or as a result of any Emergency Action taken.

I understand and agree that none of the Indemnified Persons may be held liable or responsible in any way for any injury, death, or other damages to me, my Child, my family, or any of their estate, heirs or assigns that may occur as a result of my Child’s participation in the Programme or as a result of the negligence of any party, including the Indemnified Persons, whether passive or active. In consideration of being allowed to participate in the Programme, I hereby personally assume all risks of the Programme, whether foreseen or unforeseen, that may befall my Child while my Child is a participant in the Programme, including but not limited to the academics, confined water and/or open water activities including (without limitation) any snorkeling or other swimming activities or the use of public or private transportation. I further release, exempt and hold harmless said course and Indemnified Persons from any claim or lawsuit by me, my Child, my family, or any of their estate, heirs, or assigns, arising out of my Child’s enrollment and participation in the Programme. This Waiver may be signed in counterpart, each of which shall be deemed an original, but all of which shall constitute an instrument.

I acknowledge and agree that any Indemnified Person may rely on the terms of this Waiver and take the benefit of any of the terms contained herein. I understand and agree that the Research Centre or CCMI has the discretionary right to terminate my participation in the Programme if they conclude further participation would pose a risk to the safety of myself or others or if they conclude the Participant’s behaviour is disruptive to the best interests of the Programme. Permission is hereby given for the use the Participant’s likeness, photographs, statements, video tape, voice, music or articles in the promotion of future Programmes. This Waiver is governed by the laws of the Cayman Islands and the Courts of the Cayman Islands shall have exclusive jurisdiction.

**EXECUTED and DELIVERED as a DEED**

**By**

\_\_\_\_\_  
Signature of Participant, or Parent or Legal Guardian if Participant is a minor

\_\_\_\_\_  
Witness Signature

Print Name \_\_\_\_\_ Date: \_\_\_\_\_ Witness Name \_\_\_\_\_

**EXECUTED and DELIVERED as a DEED**

For and on behalf of CCMI

\_\_\_\_\_  
Signature of CCMI representative

\_\_\_\_\_  
Witness Signature

Print Name \_\_\_\_\_ Date: \_\_\_\_\_ Witness Name \_\_\_\_\_









# MESSAGE FROM EARTHWATCH

DEAR EARTHWATCHER,

Thank you for joining this expedition! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. It is volunteers like you who fuel our mission and inspire our work.

While at Earthwatch, I've had the opportunity to field on a few expeditions, most recently in Kenya with one of my daughters. Each expedition has touched me deeply, and made me proud to be able to roll up my sleeves alongside my fellow volunteers and contribute to such meaningful work.

As an Earthwatch volunteer, you have the opportunity to create positive change. And while you're out in the field working toward that change, we are committed to caring for your safety. Although risk is an inherent part of the environments in which we work, we've been providing volunteer field experiences with careful risk management and diligent planning for nearly 45 years. You're in good hands.

If you have questions as you prepare for your expedition, we encourage you to contact your Earthwatch office. Thank you for your support, and enjoy your expedition!

Sincerely,



Scott Kania  
President and CEO, Earthwatch





Earthwatch U.S.  
1380 Soldiers Field Rd., #2700  
Boston, MA 02135  
United States

[info@earthwatch.org](mailto:info@earthwatch.org)  
[earthwatch.org](http://earthwatch.org)

Phone: 1-978-461-0081  
Toll-Free: 1-800-776-0188  
Fax: 1-978-461-2332

Earthwatch Europe  
Mayfield House  
256 Banbury Rd.  
Oxford, OX2 7DE  
United Kingdom

[info@earthwatch.org.uk](mailto:info@earthwatch.org.uk)  
[earthwatch.org](http://earthwatch.org)

Phone: 44-0-1865-318-838  
Fax: 44-0-1865-311-383

Earthwatch Australia  
Suite G-07, Ground Floor  
60L Green Building,  
60-66 Leicester Street Carlton  
VIC 3053, Australia

[earth@earthwatch.org.au](mailto:earth@earthwatch.org.au)  
[earthwatch.org](http://earthwatch.org)

Phone: 61-0-3-9016-7590  
Fax: 61-0-3-9686-3652

Earthwatch Japan  
Food Science Bldg. 4F  
The University of Tokyo  
1-1-1, Yayoi, Bunkyo-ku  
Tokyo 113-8657, Japan

[info@earthwatch.jp](mailto:info@earthwatch.jp)  
[earthwatch.org](http://earthwatch.org)

Phone: 81-0-3-6686-0300  
Fax: 81-0-3-6686-0477