

# Timeline and Checklist

In preparing for your upcoming Earthwatch expedition, please ensure that you:

## Immediately

- Read this Expedition Briefing and all enclosed materials thoroughly.
- Book an appointment with a doctor; you will need him or her to sign the Health section of your Earthwatch Participation Form.
- Make sure you understand and agree to Earthwatch policies and participant responsibilities.

## At least 90 days prior to your expedition start date

Complete and return your volunteer forms. **Below are the specific forms required for this expedition:**

- Earthwatch Participation Form for SCUBA Divers (**Team 1 only**)
- Earthwatch Participation Form for Adults, including Water-Based Projects and Snorkel section (**Team 2 only**)
- Travel Form

European volunteers can download forms on: [earthwatch.org/europe/volunteerforms](http://earthwatch.org/europe/volunteerforms)

US/North American volunteers can download forms at: [earthwatch.org/volunteerforms](http://earthwatch.org/volunteerforms)

Australian volunteers can download forms on: [earthwatch.org/australia/expeditions/volunteer\\_forms/](http://earthwatch.org/australia/expeditions/volunteer_forms/)

Japanese volunteers can download forms on: [earthwatch.jp/getinvolved/condition/formdownload-i.html](http://earthwatch.jp/getinvolved/condition/formdownload-i.html)

- Pay any outstanding balance on the minimum contribution for your expedition.
- Book travel arrangements (see the *Rendezvous* section for details).
- If you plan to purchase additional travel insurance, note that some policies require purchase when your expedition is booked (see the *Insurance* section for more information).
- If traveling internationally, make sure your passport is current and obtain a visa for your destination country, if necessary (see the *Passports and Visas* section for more details).
- Make sure you have all the necessary vaccinations for your project site (see the *Health Information* section).
- Purchase a guide book for your destination country.
- Bring your level of fitness up to the standards required (see the *Project Conditions* section).

## At least 60 days prior to your expedition start date

- Review the packing list to make sure you have all the clothing and any special equipment needed.
- Obtain any necessary prescription medications that will be needed for your trip.

## Up to 30 days before you leave for the expedition

- Read any required reading or websites recommended by the Earthwatch scientist(s) for your expedition.
- Make sure you have enough personal funds for your expedition (see the *Travel Planning* section).
- Leave the Earthwatch emergency contact number with a friend or relative (see the *Emergency Contacts* section).
- Leave a copy of your passport, visas and airline tickets with a friend or relative.
- Confirm your travel arrangements.

**Note:** If you have signed up for an expedition within 90 days of the start date, you must return your fully completed volunteer forms as soon as possible.

# Before and After in Belize: Testing a Marine Reserve

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# General Information

<b>Project title</b>	Before and After in Belize: Testing a Marine Reserve	
<b>Earthwatch scientists</b>	Dr. John A. Cigliano, Cedar Crest College, US Dr. Richard Kliman, Cedar Crest College, US	
<b>Research site</b>	Sapodilla Cayes Marine Reserve	
<b>Expedition length:</b>	8 days	<b>Minimum age of participation:</b> 18 years of age*
<b>Team size max:</b>	8 participants	

Note: Team 3 is reserved for participants 15 to 18 years of age. (18-year-olds may only participate if they have just finished their last year of high school.) Volunteers on this team will receive a separate Expedition Briefing. It may be possible for 16- and 17-year-olds to participate on standard teams if accompanied by a parent or guardian. Contact Earthwatch for more information and see *Volunteers Under 18 Years of Age* in the *Passports and Visas* section for traveling advice for minors.

## Emergency Contacts

### Emergency contact number at Earthwatch headquarters in the US:

**+1 (978) 461-0081**

**+ 1 (800) 776-0188** Note: The 800-number works as a toll free call *only* for calls placed within the US.

After business hours, leave your message with our live answering service. State that you have an emergency communication and leave a clear message with the name of the field program, your name, location from which you are calling, and if possible, a phone number where you can be reached. An Earthwatch staff person will be contacted and will respond to your call within one hour.

### Emergency medical and evacuation assistance provider:

To contact International SOS in the event of an emergency, dial:

- For assistance **within the US**: ISOS Philadelphia, +1 (215) 942-8459
- For assistance **outside the US**: ISOS London, +44 (0) 208-762-8008
- For assistance **within Australia**: ISOS Australasia, +61 (0) 2-9372-2468

State that you are on an Earthwatch expedition. The following information must be provided:

1. The Insured Person's name
2. The Assured is **EARTHWATCH**, the Certificate No: **GP 0010214** and SOS reference **#14ACPA000075**
3. The telephone number and facsimile number where the Insured Person can be reached
4. The Insured Person's address abroad
5. The nature of the emergency



Dear Earthwatcher,

**Welcome to Earthwatch!** We greatly appreciate your decision to contribute to hands-on environmental science and conservation. As an Earthwatch volunteer, you have the opportunity to create positive change. Each year we connect thousands of people just like you with research projects—approximately 65 projects in more than 35 countries—where they can participate in the fieldwork necessary to understand and help an array of species, habitats and cultures. These projects focus on: **climate change, cultural heritage, ecosystem services and oceans.**

**We are committed to caring for the safety of all those involved in our activities anywhere in the world.** Although risk is an inherent part of the environments in which we work, through careful risk management and diligent planning we believe that all participants can have educational and inspirational Earthwatch experiences. We've been providing volunteer field experiences **for 40 years**, so you're in good hands.

**It is essential that you carefully read your Expedition Briefing and fully complete the volunteer forms so that you are prepared. Your Expedition Briefing includes important information** such as instructions for reaching the rendezvous point, what risks are present on the research project and how to avoid them, what to pack, what immunizations you need, how to physically prepare for your expedition, and more. It also explains the research being conducted on the project, why it's important, and what role you'll play as an Earthwatch volunteer.

**Well-prepared volunteers are better able to enjoy the unique and exciting experiences that an Earthwatch expedition offers** and will be more helpful to the scientists' important work. Open-mindedness, the ability to work on a team, and a desire to learn are all keys to a successful and enjoyable Earthwatch experience. We hope this expedition will inspire you to get more involved in conservation and sustainable development priorities—not just out in the field but also when you return home. We encourage you to share your experiences with others, and to transfer your skills and enthusiasm to environmental conservation efforts in your workplace, community and home.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Ed Wilson", with a large, stylized flourish extending from the end of the name.

Ed Wilson  
President and CEO



# CEDAR CREST COLLEGE

DEPARTMENT OF BIOLOGICAL SCIENCES • 100 COLLEGE DRIVE, ALLENTOWN, PA 18104-6196  
OFFICE: 610-606-4611 • FAX: 610-606-4616

Dear Earthwatcher,

Welcome to the *Before and After in Belize: Testing a Marine Reserve* expedition!

Queen conch is an important cultural and economic resource for Caribbean countries, but populations are in decline due primarily to overfishing. To protect this valuable resource and important member of the marine community, countries have enacted management plans that include harvesting regulations and marine reserves. But do these regulations work? This is where we come in. The goal of our project is to determine if the Sapodilla Cayes Marine Reserve, located at the very southern tip of the Mesoamerican barrier reef, is protecting and replenishing queen conch populations. This is a unique study because although we have been surveying the reserve for six years, four of these were before the reserve was enforced. With enforcement starting in the spring of 2010, we are now able to compare pre- and post-enforcement data to determine the effectiveness of the reserve. This study is unique because few reserves have been tested this way. Most reserves are studied well after they have been established, usually as an inside vs. outside reserve comparison. A before-after approach is more rigorous, because any differences in population characteristics will likely be due to the reserve. Differences found in the inside-outside approach might be due to the reserve but could actually be due to differences that pre-date the reserve: maybe the reserve was placed in really good habitat. You will be helping us collect the data needed to make the before-after comparison.

The reserve is made up of small cayes, seagrass beds, and coral reefs. We will be based on one of the small cayes in rustic cabins, and each day we will snorkel or dive seagrass beds to survey queen conch aggregations. We will teach you how to locate and identify queen conch, and how to tag and measure them. In the evenings, we will enter the data, talk about the day and relax. We might even get to see green sea turtle hatchlings make their way to the ocean.

The Expedition Briefing provides a lot of information about the scientific side of the project, along with information to help you prepare for the expedition but we would like to highlight a few points. Although the water is generally warm, we will be spending many hours a day in it, so we **require** that you use a wetsuit (3 mm is adequate). The wetsuit will help you stay comfortable, provide some buoyancy, and help protect you against scrapes and sun exposure. In the past, most volunteers who did not use a wetsuit quickly become uncomfortable and tired in the water. Even 80°F water gets cold after a while, and it can be a struggle to stay afloat. We won't always have the luxury of being able to stand on the bottom to rest during our snorkels. Divers should also use a wetsuit because our bottom times can be fairly long. Sand flies can be a problem, but long pants, socks, and DEET will solve the problem (we have found that Skin-So-Soft doesn't work, and it gets pretty messy). Also, there will be limited electricity on the caye, so the ability to charge batteries and the use of electronic equipment will be limited, and we will have limited hours of light in the evenings. Finally, we will be at the mercy of the weather so bring some cards, games, and a few good books to read, just in case.

The results of this study will be, and have been, shared with all of the stakeholders of the reserve: the fishers, local community members, and the Department of Fisheries. At a time when many marine species are in decline, you will have a chance to help preserve one of them, and at the same time, spend a week on an idyllic caye on the second largest barrier reef in the world.

We look forward to having you on our expedition.

John Cigliano and Rich Kliman

# The Research

## Before and After in Belize: Testing a Marine Reserve

A staple of the Caribbean diet, queen conch are easy to catch, nutritious, and tasty. But queen conch are also crucial to the health of a reef ecosystem. As grazers, they keep grasses and algae in check: hermit crabs, young groupers, octopuses and other tiny creatures find refuge in their shells; and they are important prey for many species, such as spotted eagle rays, southern stingrays, and spiny lobsters.

In much of the Caribbean, the queen conch has been overfished to the point of commercial extinction, but the fishery in Belize remains commercially viable. However, the lessons from other countries' experiences are not being ignored. Belize has been developing marine reserves to protect juveniles and breeding-age adults. If successful, individuals from these protected populations will grow and spill over into neighboring areas, where fishing is permitted. With the assistance of Earthwatch volunteers, we have been monitoring queen conch in the Sapodilla Cayes Marine Reserve since 2006. This has given us baseline data prior to enforcement of the reserve. Now that the reserve is being enforced (that is, fishing is not permitted in certain areas), the data you collect will help us determine if the reserve is succeeding.

To see how well the reserve is doing its job, you'll snorkel or dive to locate, survey, and map aggregations of these impressive mollusks. Over 3,000 conch have been tagged since 2006, and re-sightings help answer key questions for reserve management: Where do adults and juveniles come from and what are their dispersal patterns? How quickly do they grow? What sizes and ages breed most successfully? What is the overall population size and age structure? Are the conservation policies in place having the predicted and desired outcomes?

### **Fisheries and Marine Reserves**

Fisheries around the world are severely threatened by overfishing, and traditional management methods, which include limits on catch size, amount and fishing effort, and seasonal closures, have not been effective in protecting these stocks. An alternative to traditional fishery management techniques that has become popular is the designation of Marine Protected Areas (MPAs). MPAs are discrete geographic areas that are “permanently protected from at least one preventable [anthropogenic] threat” (Crowder and Norse 2005). A specific type of MPA is the Marine No-take Reserve, or Marine Reserve (MR), where all extractive or consumptive activities, including harvesting, are prohibited and other forms of disturbances are minimized. The assumptions that underlie how MPAs, and specifically MRs, can protect marine fisheries include increasing biomass and density of protected species inside the reserve due to lower mortality from the prohibition on harvesting, and an increase or maintenance of populations outside the reserve by supplying the non-protected areas outside with recruits through the emigration of post-settlement individuals (“spillover effect”) and through the dispersal of pelagic larvae (“dispersal effect”).

While there is ample evidence that reserves maintain species diversity and lead to an increase in density and biomass of the protected fisheries (e.g. Roberts 1995, Jennings et al. 1996, Halpern and Warner 2002), there is less evidence for the spillover effect (e.g. Roberts et al. 2003). The “dispersal” assumptions of MPAs have rarely been tested directly, which holds especially true for invertebrates (National Research Council 2001, Palumbi 2001, Sobel and Dahlgren 2004).

The two largest fisheries in Belize are the lobster (spiny and spotted) and the queen conch, both of which appear to be over-harvested. Traditional regulations for queen conch require that a conch be at least seven inches/eighteen centimeters in length, with a minimum weight of eighty-six grams for cleaned meat. There is also a closed season (July 1 – September 30), and the use of SCUBA to harvest conch is prohibited. A network of

thirteen MPAs has been established to protect these as well as other fisheries. One of these is the Sapodilla Cayes Marine Reserve, where this study takes place. The reserve has been divided up into zones of varying levels of protection: a General Use Zone (GUZ), where commercial extractive activities are allowed but managed, two Conservation Zones (CZ), where no commercial extractive activities are allowed (subsistence harvesting is allowed in one of the zones) but other activities, such as scuba and snorkeling are allowed, and a Preservation Zone (PZ), where entry is prohibited except with a special permit for research. However, this management plan was not being enforced until 2010. The study from this point forward will allow comparisons of conch abundance and age structure to data collected prior to enforcement of the reserve. This fortuitous history of the reserve will allow us to perform a "Before-After-Control-Impact" study to assess its effectiveness.

### **Queen Conch Ecology, Natural History, and Conservation**

The queen conch is a large marine gastropod that is found from Venezuela to southern Florida, Bermuda, and throughout the Caribbean (Randall 1964). Females produce demersal eggs that are deposited in long, crescent-shaped, sand-covered masses (Robertson 1959). Females produce egg masses containing 313,000-485,000 eggs each and spawn approximately nine egg masses per reproductive season (Randall 1964, Davis et al. 1984). The larvae (called veligers) are pelagic and, based on time to metamorphic competence (i.e. when larvae are ready to settle out of plankton), spend two weeks to as long as two months in the plankton (Davis 1993, Noyes 1996). The actual dispersal rates for queen conch veligers are unknown, but the prevailing view is that queen conch larvae disperse over long distances, even though recent models of larval dispersal in the Caribbean suggest otherwise (Cowen et al. 2003). Furthermore, ecological and genetic evidence suggest that self-recruitment of larvae might be significant in queen conch populations.

Once veligers settle out of the plankton, they bury themselves in sand for at least one year, after which they emerge and migrate in early spring to shallow nursery habitats that are typically seagrass beds in areas of good water movement (Randall 1964, Weil and Laughlin 1984). At two or three years of age, juveniles move from the shallow nursery grounds to deeper seagrass meadows and the characteristic broad shell lip begins to form (Randall 1964, Weil and Laughlin 1984). Conch move to deeper water as they grow older, with adults found as deep as thirty meters (Stoner and Sandt 1991; pers. obs.). These deep-water adult aggregations may act as important refuges in heavily exploited populations (Thiel 2001). There appears to be at least two deep-water aggregations in SCMR (P. Wood pers. comm.). Gonadal maturity is reached when shell lip thickness is four millimeter, at approximately three to four years of age (Appeldoorn 1988). However, mating and spawning might not occur until the shell lip is over eleven millimeters thick (Gascoigne and Lipcius 2004).

Reproduction generally occurs from March through September, but in Belize spawning may occur year-round (Thiele 2001). Sexually mature adults generally migrate from deep-water to shallow-water sand plains for mating and spawning (Stoner et al. 1992). In the SCMR, mating and egg-laying have been observed in deep-water aggregations (more than 15 m) (P. Wood pers. comm., Cigliano and Kliman unpubl. data). Fertilization is internal, and spawning may follow copulation by several weeks (D'Asaro 1965). During the winter, queen conch migrate to deeper waters (Weil and Laughlin 1984, Stoner et al. 1992). Only a few studies have attempted to measure migration rates and distances of juvenile and adult queen conch, and these were limited in duration and area (Hesse 1979, Stoner et al. 1988, Stoner 1989, Stoner and Sandt 1992, Stoner and Ray 1993).

### **Significance of the Project**

This project will help conserve an economically, ecologically, and culturally important species by providing valuable information that is needed for the local management of the queen conch and the reserve, and by building the capacity of the local community for long-term, successful management of the reserve.

The broad, long-term goals of this project are to:

- Determine the effectiveness of SCMR in protecting and replenishing queen conch populations
- Provide information for adaptive management of the marine reserve

- Build capacity in all stakeholders to ensure the long-term effectiveness of the reserve

To achieve these goals, we must:

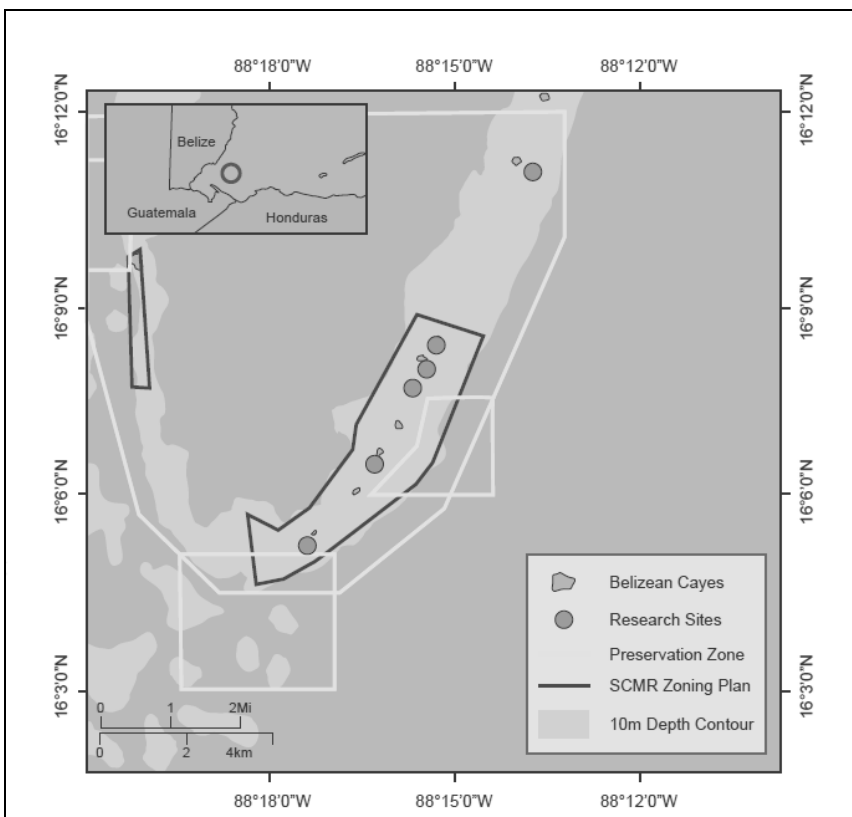
- Map queen conch aggregations and habitat within the reserve and surrounding areas
- Conduct surveys as part of a long-term monitoring effort of queen conch populations and as part of a Before-After-Control-Impact (BACI) study to determine the effectiveness of the reserve in protecting queen conch populations
- Determine the extent of demographic connectivity of the reserve with surrounding areas through post-settlement migration (spillover effect) and larval dispersal (dispersal effect) and the overall level of self-recruitment of queen conch populations within the Sapodilla Cayes and Port Honduras region
- Develop a strong collaborative relationship with local stakeholders and the Fisheries Department to help build capacity in the community, and conduct educational outreach activities with local stakeholders

### Research Area

We will be working in the Sapadilla Cayes Marine Reserve. We will be staying on Lime Caye, which is a typical small tropical caye with sand beaches and palm trees. The marine habitat contains both shallow and deep reef, as well as seagrass meadows, mangrove forests, coral rubble reefs, and sand flats. And there is a good chance of seeing the endangered green sea turtle laying eggs and hatching out during our time on the caye.

### Sapodilla Cayes Marine Reserve (SCMR)

The southern 3.7 miles/6 kilometers of the Mesoamerican Barrier Reef System (MBRS) consists of a series of large shoal patches intersected by deep channels. Standing on these patches are seven carbonate islands known as the Sapodilla Cayes.



*The southern extent of the Mesoamerican barrier reef. The Sapodilla Cayes Marine Reserve is located within the box at the end of the reef.*

The Sapodilla Cayes are located in an area that is recognized as a tri-national border among Belize, Guatemala and Honduras. Designated as a Marine Reserve and a UNESCO World Heritage Site in 1996 because of its extraordinary natural value and socio-economic significance, the Sapodilla Cayes Marine Reserve (SCMR) is currently co-managed by the Belize Department of Fisheries and a Non-Governmental Organization, the Southern Environmental Association (SEA Belize).

SCMR covers an area of approximately 48.3 square miles/125 square kilometers and includes 14 sand and mangrove cayes along the southernmost tip of the Belize Barrier Reef. The outer portion of the reserve is characterized by shallow water reefs that occur as a fringe around the cayes. The depth of water over these

fringing reefs is often less than 15 feet/4.6 meters, and some of them are exposed at low tide. The drop-off east of the islands is gently sloping, in contrast to the near vertical walls further north and surrounding the outer coral atolls.

### **Punta Gorda**

Known locally as PG or Peini, this is the southernmost town in Belize and the capital of the Toledo District. The population is close to 6,000 people, with a mixture of Mopan and Kekchi Maya, Garifuna, Creoles, Lebanese, East Indian and Chinese peoples.

With its cool sea breezes and friendly people, Punta Gorda is a pleasant and interesting town. The pace of life is slow and easy-going. Traffic is minimal on streets with no traffic lights. People hang out on street corners chatting, while children play chase in the schoolyards. The town springs to life on holidays and market days—Friday, Saturday, and Wednesday mornings—when the villagers pour in to town to buy and sell homegrown produce and simple household goods around the clock tower.

The earliest known inhabitants of southern Belize were the ancient Maya. Great Mayan cities and ceremonial centers grew and flourished throughout the region. Uxbenka (“The Old Place”) is one of the oldest settlements known, perched on a hill outside of Santa Cruz village. Nim Li Punit (“Big Hat”) wasn’t discovered until the 1970s, and is known for its variety and number of stele (modest-sized monoliths). Lubaantun (“Place of the Fallen Stones”) is thought to have been the regional capital, acting as the religious, administrative, political and commercial center of the region.

Today, the Maya comprise the largest percentage of the population in Toledo and have remained the most traditional and culturally distinct. The Mopan and Kekchi Maya have together formed over 30 communities throughout Toledo. The other ethnic groups—Garifuna, Creole, East Indians and Chinese—live together in Punta Gorda and a few other small communities along the coastline.

**Note:** Earthwatch and the *Before and After in Belize: Testing a Marine Reserve* project does not discriminate against volunteers of any race, religion or sexual preference. However, homosexual acts are illegal in Belize and, for safety reasons, discretion is required for same-sex relations.

### **Research Achievements**

This study will contribute significantly to the management, and thus the protection, of this important species. All data will be shared with SEA Belize and the Fisheries Department, as well as other stakeholders. The expectation is that these data will be incorporated into policy related to the management of SCMR. It is also hoped that these findings will be disseminated to managers of other MRs in Belize and might influence public policy related to these reserves. Queen conch is also an important export in other Caribbean countries. The findings of this project will be applicable to management policies in these other countries as well. It is anticipated that this project will lead to several publications in peer-reviewed journals. It is also likely that this project will be attractive to popular publications.

### **Initial Research Results**

- Earthwatch volunteers have helped survey over 3,800 conch and tag over 3,000 conch
- Aggregation density varies from 0.00 conch per square meter to 0.88 conch per square meter, which are among the highest reported for shallow-water nursery aggregations (see Wicklund et al. 1991; Tewfik and Guzman 2003).
- All sampled shallow aggregations are in water less than four meters and associated with reef cuts, and consist primarily of sparse to medium-heavy seagrass.
- Age structure of shallow-water aggregations are skewed heavily towards juveniles: over 90% of conch are juveniles, making these nursery aggregations.

- Nine deep-water sites (greater than 6 m deep) were added to the project in 2011. Spawning has been observed in three of these sites; these are, thus, inhabited spawning aggregations. Two or three more might be spawning sites based on average age of the conch.
- Approximately 250 tagged conch have been re-sighted or harvested.
- Preliminary results suggest that deep-water conch do not migrate, while shallow-water conch use two reef cuts as a primary migration route (deep water in winter, shallow water in spring/summer). However, shallow-water conch appear to have strong site fidelity (return to same aggregation in spring).
- It is not known what percentage of juvenile conch migrate, but it appears unlikely that spillover into unprotected areas is occurring.
- Through tag-recaptures, we estimate that conch grow approximately five centimeters per year in total length.
- Surveys of veligers (the planktonic larval form of queen conch) strongly suggest that self-recruitment is an important source of queen conch in the SCMR—that is, the veligers come from eggs laid within or adjacent to the SCMR, which then settle out of the water column inside the reserve. These eventually become the conch that we survey in the nursery aggregations. This is good news because it means that the SCMR does not rely on outside sources, which might not be protected, for queen conch.

## PROJECT STAFF

### Earthwatch scientists

**Dr. John A. Cigliano** is an associate professor of biology at Cedar Crest College. His research interests include marine ecology and conservation, especially the conservation of marine fisheries and the effect of global warming and climate change on marine populations. His field responsibilities include oversight of the entire project, leading field teams, education of field teams on queen conch ecology and marine reserve theory, research design, and data analysis. Dr. Cigliano has conducted research on queen conch conservation ecology in the Bahamas (Andros) and in the Turks and Caicos Islands (South Caicos). Dr. Cigliano will be present for all teams in 2012.

**Dr. Richard M. Kliman** is a professor of biology at Cedar Crest College. He is a population geneticist with research interests in conservation genetics, natural history of closely related species and molecular evolution. Dr. Kliman collaborates with Dr. Cigliano on the queen conch research program, which combines fieldwork on population demographics with laboratory work on DNA sequence variation within and among conch populations. His field responsibilities include supervision of teams and education on the use of genetics to study population history and migration. Dr. Kliman will be present for all teams in 2012.

### Staffing Schedule (Subject to Change)

Staff Member Present	Team 1	Team 2	Team 3
Dr. John A. Cigliano	X	X	X
Dr. Richard M. Kliman	X	X	X

# Daily Life in the Field

## VOLUNTEER TRAINING AND ASSIGNMENTS

### Training

Earthwatch expeditions provide both a scientific research experience and an educational experience. Educating volunteers about coral reef ecosystems, queen conch, marine conservation issues, and Belize are as important to us as conducting scientific research. Throughout the expedition, the team will participate in lectures, discussions, and nature walks.

The team will be in Punta Gorda for the first day of the expedition. Over dinner and coffee, volunteers and staff members will get to know each other and will also go over the general daily structure of the expedition. Day 2 of the expedition will consist of a morning boat ride to Lime Caye. Once at the caye, we will give an orientation to the site and a talk about safety. After settling in and eating lunch, we will discuss the project's background and data recording techniques. The team will then practice the field techniques on land and in shallow water until all volunteers feel comfortable with them. That evening, we will discuss the day's activities and clarify any confusion about research techniques. The rest of the expedition will be devoted to data collection and entry. Each night after dinner, the team will review the day, record data, and discuss the next day's schedule.

Throughout the expedition the project staff will lead discussions on marine conservation, focusing on marine reserves, tropical marine conservation, and the need to build capacity in local stakeholders. When possible, colleagues from the University of Belize, SEA Belize, Toledo Institute for Development and Environment (TIDE) and the Fisheries Department will be invited to discuss local culture and conservation-related issues. Project staff will also take volunteers on island walks and lead snorkeling trips to the adjacent barrier reef. In addition to scheduled discussions, staff will encourage discussions during breaks, meals and all other periods of down time. You are encouraged to be curious and ask questions.

The Earthwatch scientist will give the team a more detailed onsite project briefing when you arrive.

## Assignments

Volunteers will assist in all aspects of the study. In the field, you will assist in queen conch surveys, veliger (larva) surveys, mapping of conch aggregations, habitat assessment, and tagging and recapture of conch. You will also be responsible for data entry.

Volunteers should expect to spend 60-150 minutes in the water at any one time (up to three times a day) doing a variety of activities. The kind and level of activities, and swimming abilities needed, include short dives to shallow depths (5-10 feet/1.5-3 meters, but occasionally to 16 feet/4.6 meters) to count and collect organisms and samples, and transcribing data onto data sheets. Not all volunteers are expected to do all of these activities. Individual tasks will be determined based on ability and comfort level.

**Important Note:** Earthwatch teams will work around coral reefs, across sandy flats in between reefs, and in seagrass beds. Some areas may have high coral, fish, and invertebrate diversity. Belize hosts over sixty-five species of corals and three hundred species of marine fish. However, some areas will appear degraded, highly impacted by anthropogenic effects. While every snorkel may not be crystal-clear and on a pristine reef, you will see many interesting species, such as queen conch, anemones, sea cucumbers, and sea urchins, plus lots of different species of reef fish. Regardless of the appearance of the reef, the data collected are extremely valuable.

Much of this research is conducted underwater, and conditions can and do change related to weather. Visibility is sometimes near perfect. But sometimes wind and rain combine to create limited visibility conditions. In-water work will continue as long as the visibility makes it possible. If one site is too murky, the team will try to find one where work can be done. While some areas have been surveyed several times in the past, we will continue to explore the reserve for other aggregations.

Please keep in mind that you are snorkeling to conduct research, and to contribute to a database that will help scientists and local communities better manage queen conch populations in the reserve. This is not a snorkel vacation, but a field science project where your snorkeling skills and desire to contribute to marine conservation can really have a positive impact.

# TEAM ITINERARY AND DAILY SCHEDULE

Please be aware that weather and research needs can lead to changes in the daily schedule. Should this situation arise, your cooperation and understanding are appreciated.

## Day 1

Rendezvous, travel to accommodations, introduction to staff and overview of the project, relax, unwind, and settle in.

## Day 2

Time of Day	Activity
6:30 a.m.	Wake up, eat breakfast
7:30 a.m.	Early morning travel to Lime Caye in SCMR (approximately two hours by boat)
12:00 noon	Lunch
1:30 p.m.	Training, fieldwork
6:00 p.m.	Return from field, leisure time, dinner
8:00 p.m.	Informal talks, reports of field observations, data entry, leisure time
9:00 p.m.	Suggested bedtime

## Days 3-6

Time	Activity
6:30 a.m.	Wake up, breakfast
7:30 a.m.	Transportation to field site
8:00 a.m.	Surveys, fieldwork
12:00 noon	Lunch, rest, and return to fieldwork
1:30 p.m.	Surveys, fieldwork
6:00 p.m.	Return from field, leisure time, dinner
8:00 p.m.	Informal talks, reports of field observations, data entry, leisure time
9:00 p.m.	Suggested bedtime

## Day 7

Time	Activity
6:30 a.m.	Wake up, breakfast
8:00 a.m.	Transportation to Punta Gorda
12:00 noon	Lunch
1:30 p.m.	Recreational time: there may be time in the afternoon for excursions in Punta Gorda and to nearby Mayan ruins at the participants' expense.
6:30 p.m.	Dinner
8:00 p.m.	Informal talks, reports of field observations, data entry, leisure time
9:00 p.m.	Suggested bedtime

## Day 8

**End of expedition.** The team will depart from Punta Gorda airstrip at 6:30 a.m. local time (the flight is scheduled to arrive at Goldson International Airport, Belize City, at 7:30 a.m.)

### Earthwatch Recreational Time Policy

Earthwatch will generally accompany participants from the rendezvous to the end of the expedition with the exception of recreation time.

- For days when no research activities are scheduled, referred to as recreational days, Earthwatch scientists will offer either a planned team activity or a range of recreational activities that have been vetted and comply with Earthwatch standards. Participants will also have the option of remaining at camp or project accommodations to rest.
- Participants who are determined to pursue options other than those recommended by the project staff will be required to sign a release before doing so. If there is a period of time during a regular research day when no research activities are scheduled, adult participants may have the opportunity to leave the project site on their own; they will be asked to sign out of the project giving their intended destination. Not appearing for the next scheduled activity will trigger the Emergency Response Plan (ERP) regarding missing people. Earthwatch will assess the general risks of adult participants leaving the project site on their own at night after work hours, but cannot guarantee participant safety or an awareness of all issues.
- In some cases, due to local conditions, it may be advisable to restrict adult participants to the project camp or accommodation after dark. This will be clearly communicated in the on-site safety briefing. However, if the local conditions are such that adult participants can go out at night under their own recognizance, there will be a sign-out process through which participants should state their proposed destination and estimated return time. Participants will be given twenty-four-hour contact information for project staff should assistance be needed. The sign-out is informational only and will not be used to enforce a curfew on adult participants. Adult participants should understand that unless contacted for help, project staff will not start a search for a missing participant unless he or she fails to appear the following morning or for the next scheduled research activity.

# ACCOMMODATIONS

The first and last night will likely be spent at the Sea Front Inn ([seafrentinn.com](http://seafrentinn.com)) located along the waterfront in Punta Gorda. The hotel has a spectacular view of the Caribbean Sea and portions of the Port Honduras Marine Reserve. It is a four-story structure with rooms named after animals and plants indigenous to this part of Belize and the décor coordinating with the room name. All teams will stay in the Sapodilla Cayes for the duration of the fieldwork.

## Sleeping

*Sea Front Inn:* Volunteers of the same sex will sleep two to a room. A single or double bed will be available for each person. Singles (potentially for extra cost) or couples can be accommodated in their own room if arranged in advance. Please notify Earthwatch when you sign up for your team.

*Sapodilla Cayes:* Volunteers will be staying on Lime caye, one of the small islands (within the Sapodilla Cayes Marine Reserve, sharing small, single-sex cabanas with bunk-beds. Depending on team size, accommodations for couples may be possible in a small cabana with a full-sized bed. Again, please communicate your desire for couples accommodation to Earthwatch as soon as possible in order to be considered for this possibility.

## Bathrooms

*Sea Front Inn:* There are *en suite* bathrooms with hot and cold water. Linens and towels are provided, but please bring your own beach towel.

*Sapodilla Cayes:* Bathrooms and showers will most likely be in separate buildings, and hot water is likely to be limited.

## Electricity

*Sea Front Inn:* Electrical outlets with a voltage of 110 are available in the rooms. You may bring your own cameras and digital equipment, but be aware that power outages, salt air, sand, and water can be rough on sensitive equipment.

*Sapodilla Cayes:* Electricity is limited; a generator will run lights and provide electricity for a few hours each night.

## Internet and Communications

*Sea Front Inn:* There is wireless Internet access in the rooms, but the connection is unreliable.

*Sapodilla Cayes:* None

## Facilities and Amenities

*Sea Front Inn:* You will be within walking distance of downtown Punta Gorda, the TIDE boat dock, the TIDE and SEA Belize offices, and other local amenities. Every room offers cable television and air-conditioning. There is a dining facility at the hotel where breakfast will be served. Laundry, phone, and postal services can be arranged for an additional cost. Tours to inner Toledo and Mayan ruins can be booked upon request. Credit cards and US and Belizean dollars are accepted at the hotel where local souvenirs can also be purchased.

*Sapodilla Cayes:* There are no amenities other than spectacular ocean views, sandy beaches, palm trees, and iguanas.

## Distance to Field Site

The field accommodations are at the field site. Volunteers will be transported by boat. Travel time is between a few minutes to a half an hour.

## Services and Restaurants in Walking Distance

Only at the Sea Front Inn, which is near several places to eat in Punta Gorda; however, the team will eat as a group.

## FOOD

Volunteers will eat at restaurants in Punta Gorda or at the fieldwork accommodations. We will have a cook to do all the meal preparations (and coffee brewing!) at the field site. Volunteers should bring any special foods they need.

Below are examples of the foods you might expect in the field. Please bear in mind that variety depends on availability. This list is intended to provide a general idea of food types, but it is very important that volunteers be flexible.

<b>Breakfast:</b>	Bacon, eggs, rice, beans, oatmeal, cereal, toast, assorted tropical fruit
<b>Lunch:</b>	Rice, beans and meat or fish, assorted tropical fruit, coleslaw, plantains
<b>Dinner:</b>	Rice and beans (mixed or served separately), curried chicken, fish, shrimp, stewed chicken, kriel bread (bread made with coconut milk), assorted tropical fruit, white rice, coleslaw, plantains
<b>Snacks/Other:</b>	Volunteers can purchase snacks like chips and cookies in Punta Gorda, but these are expensive.
<b>Beverages:</b>	Orange and lime juice, coffee (local beer and soda are available for purchase in Punta Gorda at your own expense)
<b>Water:</b>	Bottled water is preferable to local water and will always be available.

## Special Dietary Requirements

Please alert Earthwatch to any special dietary requirements (e.g. diabetes, lactose intolerance, nut or other serious food allergies) as soon as possible, and note them in the space provided on your volunteer forms. Accommodating special diets is not guaranteed and can be very difficult due to availability of food, location of field sites, and other local conditions.

**Special note to vegans:** Please be aware that it is often difficult to accommodate vegans. It may be possible to get meatless meals, but vegans may have a problem avoiding animal products altogether (e.g. in broths or sauces). If this is an issue, then participation on this Earthwatch expedition should be carefully considered.

# Travel Planning

**Note:** Earthwatch Institute's international emergency medical and evacuation assistance provider, International SOS, has a wealth of useful information available at their website, including visa, passport, currency, medical, etc. information for the country in which this project takes place. See [internationalsos.com](http://internationalsos.com) and enter Earthwatch's member identification number: **14ACPA000075**. Under "Select Resource" choose "English Country Guide," and then select this project's country from the list.

You are encouraged to register your travel itinerary with your embassy. For information on embassies around the world, see [embassyworld.com](http://embassyworld.com).

- Citizens of Australia may register online at: [orao.dfat.gov.au](http://orao.dfat.gov.au).
- British citizens may register online at: [fco.gov.uk/en/travel-and-living-abroad/staying-safe](http://fco.gov.uk/en/travel-and-living-abroad/staying-safe).
- Citizens of the United States may register online at: [travelregistration.state.gov](http://travelregistration.state.gov).
- Citizens of other countries are encouraged to check with their appropriate embassy or consulate regarding registration.

## RENDEZVOUS

The rendezvous information for this project has been removed from this web version of the Expedition Briefing. Please do not make any travel arrangements to join an expedition on this project without receiving full and up-to-date rendezvous information from Earthwatch. Full rendezvous details, including places and times are available from Earthwatch upon request prior to registration for an expedition. Please use the "Contact Us" button on the top right hand corner of our website to get in touch with us and we will be very happy to help you. This information is provided in the printed version of this Expedition Briefing.

## PASSPORTS AND VISAS

### Visa Information

Citizens of the US, EU, Australia, Canada and Japan **do not** need a tourist visa for entry. Citizens of other countries should check with their travel agent or a visa agency for specific visa and entry requirements. Travelers are advised to check visa regulations well in advance of traveling.

**Note: If you are traveling from outside the US to Canada, Mexico, Latin America, South America, the Bahamas or the Caribbean and have a stopover in the US, you are required to register through the ESTA program.**

### Passport Information

Most volunteers traveling from outside the host country will require a passport valid for at least six months beyond the dates of travel.

## Electronic System for Travel Authorization (ESTA)

Online registration is now mandatory for all visitors traveling to the United States without a visa. The Electronic System for Travel Authorization (ESTA) is used to screen short-term visitors who are citizens of the 36 countries eligible for the US Visa Waiver Program (for a list of participating countries, see [travel.state.gov/visa/temp/without/without\\_1990.html](http://travel.state.gov/visa/temp/without/without_1990.html)).

Visitors are required to complete ESTA **at least three days before traveling to the US**. Once approved, the authorization will be valid for up to two years if the individual's passport does not expire in the meantime. Applications can be submitted through the ESTA website [esta.cbp.dhs.gov/esta](http://esta.cbp.dhs.gov/esta). **Note:** As of September 2011, ESTA costs approximately US\$14.00.

Citizens of countries covered by the Visa Waiver Program (VWP) traveling to the US for tourism or business for 90 days or less do not need to obtain a visa provided they have a valid passport (for exceptions see the VWP Quick Reference Guide on [travel.state.gov/pdf/VWP-QuickReferenceGuide.pdf](http://travel.state.gov/pdf/VWP-QuickReferenceGuide.pdf)).

## For Volunteers Requiring Visas ONLY: Essential Information

<b>Type of Visa</b>	Volunteers requiring a visa must get a <b>TOURIST VISA</b> .
<b>Where to Get a Visa</b>	Contact the nearest <b>Belizean embassy or consulate</b> to find out how to apply for your visa. Please note that this process can take weeks or more. We strongly recommend using a <b>visa agency</b> , which can both expedite and simplify the process. See below for a list of visa agencies.
<b>Required Information</b>	You will need to send your <b>passport</b> (valid for at least six months beyond your stay), a <b>Visa Application and Immigration Form</b> , <b>2-4 passport-size photos</b> , and <b>payment</b> to the embassy or visa agency (if applicable). Please be sure that your passport is valid for at least six months beyond your stay.
<b>Contact Information</b>	You may be required to list the following contact information on your Visa Application and Immigration Form:  This information is available in the print version of the briefing only.
<b>Cost of a Visa</b>	Generally between US\$40-100, but varies from country to country and can potentially cost <b>up to US\$180</b> . A visa agency will charge an additional fee.

**Note:** The purpose of your visit is for vacation, holiday or travel. Foreign immigration officials do not always understand the concept of a “working vacation” or “volunteering.” Words such as “working,” “volunteering,” “research,” or “scientific expedition” can raise questions concerning the country’s foreign labor laws and/or prompt questions about official scientific research permits and credentials, etc., to which volunteers on their own will not be equipped to respond. All required research permits for the project are in place and have been approved by the proper authorities.

## Visa Agencies

In the United States	In Europe	In Australia
Trivisa* 290 5th Avenue, 4th Floor New York, NY 10001 Tel: (212) 613-2223 Fax: (212) 613-2287 Hours: 9:00 AM to 5:00 PM EST Web: <a href="http://trivisa.com">trivisa.com</a> (*See the website for additional offices)	CIBT, Inc.-UK 25 Wilton Road Lower Ground Floor Victoria SW1V 1LW Tel: 0844-736-0211 Fax: +44 (0) 207-828-5411 Calling from Europe outside UK: +44 (0) 207-802-1000 Email: <a href="mailto:info@uk.cibt.com">info@uk.cibt.com</a> Web: <a href="http://uk.cibt.com">uk.cibt.com</a> (has alternate address for urgent requests)	Ask your travel agency if it can send your visa application on your behalf.

## Volunteers Under 18 Years of Age

### Entry to Foreign Countries

It may be possible for 16- and 17-year-olds to participate on standard Earthwatch teams *if* accompanied by a parent or guardian. However, in an effort to prevent international child abduction, many governments have initiated procedures at entry/exit points to protect minors. Thus, if a minor will be traveling with only one guardian, or if for any reason they will be traveling alone (such as for a Teen Team), it may be necessary to have a notarized letter from all legal guardians stipulating that they may travel unaccompanied or in the presence of a single guardian. This letter must give an explanation for why only one parent or someone other than a parent is signing the letter. For example, if one parent is deceased, only one parent has legal guardianship, or someone other than the parents are legal guardians, the letter should state that.

### Airline Documentation Requirements

Airlines may also have documentation requirements for unaccompanied minors. Parents of minors are responsible for checking with each airline that their child will be flying to ensure that sufficient documentation is provided. This could include a copy of a birth certificate or a notarized letter stating that the minor has his or her parent's permission to travel alone or with only one parent.

**Note:** Requirements by specific countries and airlines vary and change frequently. You **MUST** keep informed of the requirements on your own to avoid problems at immigration. If a letter is not available, the volunteer under 18 can be refused entry into the country or on a flight. There is nothing Earthwatch Institute can do to help in this circumstance.

### Additional Passport and Visa Resources

- For Japanese citizens: [rainbowt.jp/travel/visa\\_top.html](http://rainbowt.jp/travel/visa_top.html)
- For Australian citizens: [passports.gov.au](http://passports.gov.au) and [dfat.gov.au/visas/index.html](http://dfat.gov.au/visas/index.html)
- For US citizens: [passportvisasexpress.com](http://passportvisasexpress.com)
- Travel Document Systems: [traveldocs.com/index.htm](http://traveldocs.com/index.htm)

# INSURANCE

MedEvac assistance, advice and insurance are included in the contribution you pay to Earthwatch. It covers your travel medical risks, including medical expenses and emergency medical evacuation, while you are traveling, as well as trip cancellation and baggage and personal money insurance. It doesn't provide personal liability insurance. This coverage is valid in the country of your Earthwatch expedition and during travel to and from your expedition (**Note:** For US volunteers, the coverage is valid only when the expedition is over 100 miles from your place of residence). Please see [earthwatch.org/europe/downloads/Insurance/post15Jan\\_FAQs.pdf](http://earthwatch.org/europe/downloads/Insurance/post15Jan_FAQs.pdf) for information about when coverage starts and ends, and answers to other frequently asked questions.

If you have additional vacation time before and/or after your Earthwatch expedition that forms part of your overall time away from your place of residence, this additional vacation time is not covered under this policy. If you are in any doubt as to whether your travel plans before and/or after your Earthwatch expedition constitute additional vacation time please contact Sutton Winson.

**This insurance policy is secondary to your existing health insurance policy (e.g. the NHS in the UK).**

## **If you signed up through Earthwatch UK/Europe, or Earthwatch Japan:**

Details of this insurance policy are included in your expedition briefing pack and can be found at [earthwatch.org/europe/insurance](http://earthwatch.org/europe/insurance). Please refer all queries regarding this policy to Sutton Winson in the UK at +44 (0) 1444 251 164 or on [earthwatch@swib.co.uk](mailto:earthwatch@swib.co.uk).

Information about additional insurance available to UK residents can be found at [earthwatch.org/europe/insurance](http://earthwatch.org/europe/insurance). Should you have any questions about whether you require additional coverage for your travel plans, please contact Sutton Winson. Earthwatch is not authorized by the FSA to give advice on any additional travel insurance you might require.

## **If you signed up through Earthwatch US:**

Details of the US insurance policy can be found at [earthwatch.org/insurance](http://earthwatch.org/insurance). Please refer any queries regarding this policy to Sutton Winson in the UK. From the US, dial 011 44 1444 251 164, or email [earthwatch@swib.co.uk](mailto:earthwatch@swib.co.uk). Please note the time difference between the US and the UK and call during UK business hours, which are from 08:45 to 17:00 GMT (from November to April) and GMT +1 (from April to November).

Information about additional insurance can be found at [earthwatch.org/insurance](http://earthwatch.org/insurance). Should you have any questions about whether you require additional coverage for your travel plans, please contact Sutton Winson. Earthwatch is not authorized by the FSA to give advice on any additional travel insurance you might require.

## **Emergency Medical and Evacuation Assistance (for all volunteers)**

Emergency medical and evacuation assistance is available for all Earthwatch participants from International SOS (ISOS), a twenty-four-hour, independently operated international emergency medical and evacuation service. Please see the contact information and card on the *General Information* page. Participants should carry the card with them on the expedition.

## ADDITIONAL TRAVEL INFORMATION

### Luggage

- *General considerations:* Do not bring more luggage than you can carry and handle on your own. If traveling by air and checking your luggage, you are advised to pack an extra set of field clothing and personal essentials in your carry-on bag in case your luggage is lost and/or takes several days to catch up with you. Many airlines have strict baggage policies. Please check with your airline(s) on baggage weight limits, liquid restrictions, fees for checked baggage, etc. (See the *Rendezvous* section for more information on luggage limits.)
- *Checking luggage:* Please note that if you will be taking an international flight that has one or more connections within the country of your destination, it will be necessary to collect any checked bags at the airport where you first arrive in the destination country. After proceeding through customs, you will have to recheck your luggage before flying on to your final destination.
- *Type of luggage:* **Please bring soft duffle-type bags or backpacks, not hard or rectangular suitcases.**

### Money Matters

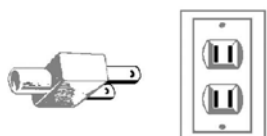
- *Local currency:* The official currency is Belizean dollars; however US dollars are welcomed everywhere at a fixed rate of BZ\$2 = US\$1, which is a better exchange than you get at the bank.
- *Personal funds:* There is NO NEED to change US dollars into Belizean dollars. Past volunteers typically spent limited funds while on the expedition. However, please note that tipping is customary in Belize (see below). Small bills are useful (US\$1, US\$5, US\$10), as change will be given in Belizean dollars. Traveler's checks and credit cards are somewhat difficult to use. Visa and MasterCard credit cards can be used to get cash advances from most banks. Your debit card may work in the ATMs in Belize; check with your bank. There are few ATMs in Punta Gorda and only a few in the Goldson International Airport. Larger stores, restaurants and hotels take Visa and MasterCard, but few take American Express. Smaller shops and street vendors only take cash.
- *Tipping:* As a visitor, it is customary to tip for services in Belize. The researchers understand that cultural differences, financial situations, and value systems may affect your willingness or ability to tip.
- *Airport fees and/or departure taxes:* Belize charges a departure tax of US\$39.25, plus a US\$0.75 security fee. These are usually included as part of your airline ticket, but you should confirm this with your airline.

### Your Destination

- *Language:* The country's official language is English, but many people speak Kriol (Belizean Creole) in informal situations.
- *Cultural considerations:* Belize is a predominately Christian culture. Shorts and t-shirts are fine for both men and women. Swimwear is appropriate for time spent on the Sapodilla Cayes, but not for Punta Gorda or Belize City, where shirts and shoes are recommended at all times. We will be working with officers from the Department of Fisheries and possibly other stakeholders, such as SEA Belize and University of Belize, so modest swimwear is required.

The project is able to remain in Belize due to the courtesy of the people and the Government of Belize. As such, you will be expected to conduct yourself in a manner that is respectful of local sensitivities, customs, and laws. Any violations of Belizean law will be prosecuted in Belize with no recourse to foreign laws and attorneys. Any conduct that reflects negatively on the project will be grounds for immediate dismissal at the expense of the individual(s) involved.

- *Electricity:* 110 volts AC, 60 Hz, flat two-pin plugs (Type A) or two flat parallel prongs and a grounding pin (Type B). For additional information, see [kropla.com/electric2.htm](http://kropla.com/electric2.htm).



Plug Type A



Plug Type B

- *Time zone:* GMT/UTC – 6. For time worldwide with GMT/UTC, see [worldtimeserver.com](http://worldtimeserver.com).
- *Telephone Dialing codes:* When calling Belize from another country, dial the country's international dialing code, followed by 501 and the number. When calling within (Belize), dial 501 (0) and then the number. When calling another country from Belize, dial 00, followed by the other country's country code and the number. **PLEASE NOTE:** you should check with your cell phone provider to obtain any carrier-specific dialing codes you may need; many providers have dialing procedures that may differ in whole or in part from these directions. For additional information, see [kropla.com/dialcode.htm](http://kropla.com/dialcode.htm).

## Country Information

- UK Foreign and Commonwealth Office: [fco.gov.uk/en/travel-and-living-abroad/](http://fco.gov.uk/en/travel-and-living-abroad/)
- Country information from around the world: [countryreports.org](http://countryreports.org)
- National Geographic Map Machine: [plasma.nationalgeographic.com/mapmachine](http://plasma.nationalgeographic.com/mapmachine)
- US State Department: [state.gov](http://state.gov)
- Online unit conversions: [onlineconversion.com](http://onlineconversion.com)
- Worldwide weather: [wunderground.com](http://wunderground.com) or [tutiempo.net/en](http://tutiempo.net/en)
- ATM locator: [visa.via.infonow.net/locator/global/](http://visa.via.infonow.net/locator/global/) or [mastercard.com/atmlocator/index.jsp](http://mastercard.com/atmlocator/index.jsp)

## RECOMMENDED READING

Below are additional recommended materials for those interested in further preparing for the expedition. Some may be purchased online through popular vendors. See [earthwatch.org/volunteerresources](http://earthwatch.org/volunteerresources) or [earthwatch.org/europe/volunteerresources](http://earthwatch.org/europe/volunteerresources) for suggested vendors.

### Scientific media

#### Coral reef information

- Brown, B.E. and J. Ogden. "Coral Bleaching." *Scientific American* (1993).
- Gardner, T.A. et al. "Long-Term Region-Wide Declines in Caribbean Corals." *Science* (2003): 958-961.
- Humann, Paul. *The Reef Set*. Jacksonville, FL: New World Publications, 1994. **Note:** This guide is expensive and a copy will be available to all teams; while you do not need to purchase it, it is a fantastic book with great photos that will help you come to better recognize the fish and corals of this region.

- Marshall, P.A. and H.Z. Schuttenberg. *A Reef Manager's Guide to Coral Bleaching*. Great Barrier Reef Marine Park Authority, Australia 2006. **Note:** Available at [coris.noaa.gov/activities/reef\\_managers\\_guide](http://coris.noaa.gov/activities/reef_managers_guide).
- Pandolfi, J.M. et al. "Are U.S. Coral Reefs on the Slippery Slope to Slime?" *Science* Vol. 307 (2005): 1725-1727.

### Guides to Belize

- Beletsky, Lee. *Belize: And Northern Guatemala (Travellers' Wildlife Guides)*. Northampton, MA: Interlink Books, 2004 (approx. US\$23).
- Hoffman, Eric. 1994. *Adventuring in Belize: The Sierra Club Travel Guide to the Islands, Waters, and Inland Parks of Central America's Tropical Paradise*. Sierra Club Books (approx. US\$13).
- Miller Carlstroem, Carolyn and Debra Miller. *Lonely Planet Belize*. Oakland, CA: Lonely Planet Publications, 2002. **Note:** This book is highly recommended and costs approx. US\$15.
- Mallan, Chichki and Joshua Berman. *Moon Handbooks: Belize 6<sup>th</sup> Edition*. Avalon NJ: Avalon Travel Publishing, 2004. **Note:** This book is highly recommended and costs approx. US\$17.
- Peedle, Ian. *Belize in Focus: A Guide to the People, Politics and Culture*. Northampton, MA: Interlink Books, 1999. (approx US\$11).

### Project-related websites

- Southern Environmental Association (SEA Belize): [seabelize.org](http://seabelize.org)
- Sapodilla Cayes Marine Reserve: [southernbelize.com/sapodilla.html](http://southernbelize.com/sapodilla.html)
- Punta Gorda Town website: [puntagordabelize.com/organizations.htm](http://puntagordabelize.com/organizations.htm)
- Belize Tourism Board: [travelbelize.org](http://travelbelize.org)
- Belize News—provides links to major Belizean news sources: [belizenews.com](http://belizenews.com)
- Belize by Naturalight—commercial website about Belize: [belizenet.com](http://belizenet.com)
- Official government website—provides contact info for ministers, press releases, library, national symbols, etc.: [belize.gov.bz](http://belize.gov.bz)

### Field report

- Each Earthwatch project submits a report on the past year's research and results to Earthwatch, generally on an annual basis. The most recent field report for this project is available online at [earthwatch.org/FieldReportPDF/Cigliano\\_FieldReport2010.pdf](http://earthwatch.org/FieldReportPDF/Cigliano_FieldReport2010.pdf).

## HELPFUL RESOURCES

Please see Earthwatch's Volunteer Resources pages for additional information on:

- Travel agencies with whom Earthwatch volunteers can get preferential rates
- Recommended kit and clothing providers
- Recommended travel booksellers

Volunteers who sign up through our US office, visit: [earthwatch.org/volunteerresources](http://earthwatch.org/volunteerresources)

Volunteers who sign up through our UK office, visit: [earthwatch.org/europe/volunteerresources](http://earthwatch.org/europe/volunteerresources)

# Project Conditions

Please show this section to a doctor when he/she is completing the Health section of your Earthwatch Participation Form. Be sure to discuss vaccination requirements with the doctor well in advance of your departure date. See the Health Information section for vaccination information.

## To the doctor:

This patient has volunteered to join a field research team that has specific physical demands of which you and the patient should be aware. **We need your accurate evaluation of this patient's ability to meet the conditions detailed below in order to care for his/her health and safety, and to assess that he/she can participate fully and effectively.**

## General Conditions

Belize has a sub-tropical climate. The coastal areas are exposed to southeast trade winds averaging 10-13 knots. These winds are more consistent during the month of July. On many days, the humidity is masked by cooling sea breezes. Temperatures in Belize range from 50°F/10°C to 95°F/35°C with an annual mean of 79°F/26°C. May through August is the warmest period, with an average temperature of 81°F/27°C. Inland areas to the west can be several degrees cooler than the coast.

The area around Punta Gorda has inland sub-tropical rainforest inland and coastal wetlands dominated by mangroves. The terrain is mostly flat. The offshore cayes, like Lime Island, are small, sandy coralline islands covered by mangrove patches or by mixed low vegetation and dotted with palm trees.

The weather is expected to vary within the limits below.

June–August conditions	
Humidity	86% to 91%
Temperature range	65°F/18°C to 100°F/38°C
Rainfall	200 cm/78 in per year

## Essential Eligibility Requirements

All participants must be able, independently or with the assistance of a companion, to:

- Follow verbal and or visual instructions.
- Enjoy being outdoors all day in all types of weather and in the potential presence of wild animals and insects.
- Endure tropical (hot and humid) work conditions.
- Work on a boat for approx. 3 hours per day with limited break options (e.g., no bathroom on the boat, except for the ocean).
- Maintain a seated, upright position within boat during transit, which can sometimes be bumpy. Note that this can be uncomfortable for individuals with back problems.
- Wear all protective equipment recommended or required by industry standards.

- Team 1 only:** Meet all SCUBA requirements listed on the next page, and be prepared for 2-3 shallow (less than 20 m/65 ft) dives per day.
- Be extremely comfortable in the water and able to swim 200 meters unaided by flotation devices or fins. Expect to swim up to 100 meters at a time, for a total of 4 to 6 hours per day.
- Carry personal daily supplies such as lunch, water, and some small field equipment (Up to 5-gallon/19-liter buckets of water for all projects; 10-20 pounds of snorkel gear daily for snorkel projects only).
- Be comfortable with living in and moving between remote study sites.
- Navigate stairs and maneuver in and out of small boats.

The researchers recommend that volunteers prepare for the project by increasing daily exercise, with an emphasis on swimming and holding their breath for short dives of 5-10 feet/1.5–3 meters.

**Notes on Medical Equipment:**

- Because of the high humidity, those persons using a *hearing aid device* may find it doesn't work properly. You should consider purchasing a hearing aid dehumidifier. For example, see [shopmash.com/AIDS\\_TO\\_DAILY\\_LIVING/HEARING\\_ASSIST\\_DEVICES/HEI400587/product.aspx](http://shopmash.com/AIDS_TO_DAILY_LIVING/HEARING_ASSIST_DEVICES/HEI400587/product.aspx).
- Volunteers must be able to do without *C-PAP machines* for the length of the project as this project may not have a reliable source of electricity throughout the night.

**Water Conditions**

The water conditions are expected to vary within the limits below.

Typical water temperature at working depths	25°C/78°F	to	32°C/89°F
Typical water visibility	0.9 ft/0.3 m	to	66 ft/20 m
Typical maximum water depth in area	1 ft/0.3 m	to	100 ft/33 m
Site diving type	bay/ cove		
Anticipated depth of snorkeling dives	4 ft/1.2m	to	15 ft/4.6m
Anticipated depth of SCUBA dives	16 ft/5m	to	65 ft/20m
Anticipated number of dives per day	2	to	3
Dives initiated from	boats		
Timing of dives	day		
Egress into water	over edge		
SCUBA Diving Bottom-Limit	16ft/5m	to	65ft/20m

## **Team 1 Only**

A certified dive master or instructor will be present on all Earthwatch projects that involve SCUBA. The dive master/instructor is responsible for all aspects of safe diving. He/she will also inform divers about safety procedures, environmental rules and regulations, and safe diving limits. The dive master/instructor has the right to exclude anyone from participating in SCUBA activities if he/she fails the check-out dive, dives unsafely, or places him/herself or others in a situation of undue risk. The dive master/instructor may limit or modify the planned diving activities if he/she determines that a volunteer does not have suitable abilities to participate safely. If the dive master/instructor determines that the conditions are not suitable for diving, he/she may halt SCUBA or other in-water activities at any time.

### **To participate as a SCUBA diver on this project, a volunteer must:**

- Provide proof of diving certification and DAN (or equivalent) insurance.
- Meet the minimum dive certification level of all Earthwatch dive projects, which is NAUI SCUBA Diver or PADI or SSI Open Water Diver or equivalent.
- Have logged at least 10 dives post certification.
- Have completed at least five dives within a year prior to the project, or completed a refresher course or skills check-out from a certifying agency or instructor (divers with 100+ logged dives may have a skills check-out, divers with under 100 dives must take a refresher course).
- Have good buoyancy control and be completely comfortable under water.
- Send Earthwatch the most recent 10 dives from his/her dive log (NOT the entire log), and bring the log to the field for the project dive master to check.
- Undergo a medical exam and have the Earthwatch SCUBA participation form signed by a diving doctor prior to the expedition.
- Undergo a check-out dive by the project dive master, who will have the right to modify activities if needed.
- Bring his/her own mask, snorkel, fins, BC, weight belt (not weights), wetsuit/dive skin, regulator, computer, booties, light, etc.
- Have his/her regulator serviced within a year prior to the expedition, and dive with that equipment immediately prior to the expedition in order to test its use.

### **Marine Information**

- Divers Alert Network: [diversalertnetwork.org](http://diversalertnetwork.org)
- Dive Master Insurance Consultants Ltd.: [dive-master.net](http://dive-master.net)
- South Pacific Underwater Medicine Society: [spums.org.au](http://spums.org.au)

# POTENTIAL HAZARDS

If you feel ill once you return from your trip, make sure you inform your doctor that you have recently returned from a tropical region.

Hazard Type	Associated Risks and Precautions
Transportation	There is higher risk of traffic accidents in Belize than in the US and most European countries. You will travel by taxi from the airport to the hotel. While we will make every effort to arrange transport that has seatbelts, they are not always available. If there are seatbelts, volunteers must wear them. Traffic rules will be followed. Volunteers will not drive.
Walking/Hiking/ Climbing	Recreational activities could include strenuous hiking, but this is always optional. If you intend to do extensive walking/hiking, please bring appropriate footwear. Sandals or sneakers will suffice around the project sites.
Terrain	The edges of the cayes may be rocky and slick. Shells and other hard objects may be found in the sand. Sandals/shoes/appropriate footwear should be worn at all times.
Marine Animals	Potentially dangerous animals include sharks, stingrays, sea urchins, jellyfish, and others. You will be trained to identify dangerous species and to avoid touching any organisms. Those with a severe allergy to bee or wasp stings may have a similarly dangerous reaction to corals and jellyfish and must have and carry an Epi-Kit with them at all times. The best prevention is to avoid touching unfamiliar animals.
Insects	<p>Sand flies (also known as “sand fleas” or “no-see-ums”) and mosquitoes are nuisances throughout the year. Sand flies are believed to be a vector for leishmaniasis in some regions. Most volunteers find them to be only irritating, but occasionally people find they have very bad reactions to the bites. For this reason, it is best if you come prepared with an oral anti-histamine that you are certain you can tolerate, as well as topical anti-itch creams. Those traveling from outside the Americas may have a more severe reaction to bites than others. A good way to avoid sand flies is to wear lightweight long pants and socks sprayed with 30% DEET during the evening. Sand flies generally bite from the knee down.</p> <p>Mosquitoes may transmit a number of diseases, including malaria, which is present in Belize. Although avoiding mosquito bites by covering up at night and using repellent are effective measures, volunteers should consult a doctor for updated conditions and consider taking an anti-malarial medication. Volunteers who will be snorkeling/diving and plan to take an anti-malarial should inform their doctor of their planned activities. Some anti-malarial medications are contraindicated for snorkeling/diving. Mosquitoes are effectively deterred by repellents containing DEET. If you are very allergic, plan your clothing accordingly—lightweight long pants, shirts and socks for the evening.</p>
Climate/ Weather	The Caribbean sun is very intense, and the research boat may not have a shade available to protect from direct sun exposure. You are encouraged to bring plenty of good-quality waterproof sunscreen at several SPF levels. You’ll also want to bring after-sun lotion to soothe your skin after a long day in the sun. Some volunteers have found it helpful to bring long-sleeved lightweight cotton or (fast-drying) nylon shirts and long pants to wear whenever not in the water (including on the boat between dives). A hat with a wide brim is recommended, as are polarized sunglasses and a cord to secure them around your neck. With the sun comes heat and risks of overheating and dehydration. Both events can lead to illness. Drinking water freely and minimizing exposure to the sun will help make your experience more enjoyable. Brief periods of intense rain are not uncommon during the field season. More extreme tropical storms and hurricanes traditionally can occur from June through November with late August, September, and October as the most active periods. A hurricane plan exists and will be followed in the case of an extreme weather event.
Personal Security	Volunteers should exercise caution and good judgment regarding their personal security. You are advised to not travel alone at night and to safeguard your valuables. For those

	<p>traveling to other regions in Belize before or after the expedition, be aware that Belize City is a high crime area and that crime is rising in well-traveled tourist destinations in Belize. Please consult <a href="http://travel.state.gov/travel">travel.state.gov/travel</a> for the latest travel information.</p>
Swimming/ Snorkeling	<p>Snorkeling is a physically demanding activity with inherent risks, including the effects of environmental conditions, nitrogen (for those who've recently been scuba diving), barotrauma, boat traffic, marine life and other risks specific to your own physical/medical history. When snorkeling, it is important to learn to properly control your breathing to reduce the risk of hyperventilation and blackout. You need to bring and maintain your own mask, snorkel, fins, booties, and exposure protection. Snorkel vests can be provided for those that either prefer them or are required to use them. It is critical that you ensure that all gear is in good working order and that you are fully trained in appropriate response if a failure occurs while in the water. Except in protected areas like coves, currents are always present. Safety procedures are established to minimize the risk associated with snorkeling and should be adhered to closely.</p> <p><b>A two-millimeter (or three-millimeter if you chill easily) wetsuit is required for snorkeling teams</b> to prevent pica-pica ("itchy-itchy," a skin irritation caused by marine organisms), sunburn, and other stings, and provide buoyancy, which some find helpful while treading water during conch surveys.</p>
SCUBA Diving <b>(Team 1 only)</b>	<p><b>A three-millimeter wetsuit is required for SCUBA diving on Team 1.</b> SCUBA diving is a physically demanding activity with inherent risks. Safety procedures are established to minimize the risk associated with diving and should be adhered to closely. To dive, you must be in good physical condition and must have undergone a recent physical examination by a physician familiar with diving. Anyone who is under the influence of alcohol or drugs will not be permitted to dive. Those who join the SCUBA diving activities must have PADI Advanced SCUBA certification or equivalent and 10 logged dives, and must be able to carry equipment and stand with the weight of scuba gear. SCUBA certified volunteers who have not dived in over a year must take a NAUI or PADI refresher course. As with all diving activities, there is a risk of a de-compression illness (DCI). There isn't a recompression chamber on the island; therefore, there will be strict diving restrictions imposed. See above information on SCUBA projects for more on Earthwatch requirements and related safety procedures.</p>
Working on a boat	<p>Working aboard a small boat poses risks. The trips to/from the Sapodillas Cayes and the mainland cross 40 miles/64.4 kilometers of ocean and can be very rough, bumpy, jarring, and wet. Bouncing or jostling can be quite uncomfortable for volunteers with chronic back problems or a history of seasickness. Volunteers who experience seasickness are advised to enter the water as soon as the boat anchors or to consider bringing and taking motion sickness medication. Be sure to check with your doctor before taking any medication while snorkeling. Boat surfaces are wet and can be slippery, putting you at risk of falling and injury. You must be able to keep your balance on a rocking boat. Unplanned immersion in the water from falling overboard can also put one at risk of injury and/or cold related illnesses. The boats are equipped with appropriate safety equipment, including life jackets for each person. Staff will brief volunteers on risks and precautions.</p>
Traveler's diarrhea	<p>Traveler's diarrhea affects 20-50% of all international travelers. Always wash your hands with soap and water or a hand sanitizer before eating, and drink only filtered or bottled water. You should also carry an over-the-counter anti-diarrheal medication in your personal first aid kit. Speak to your doctor about other options for treating traveler's diarrhea and see the ISOS or CDC websites for advice on avoiding this condition.</p>
Distance from Medical Care	<p>It can take up to 4 hrs to arrange transport and reach the nearest hospital. If you have a chronic condition which could require immediate medical care (e.g. heart conditions, kidney problems, severe asthma, etc.), or if you are pregnant, please discuss your participation on this expedition with your physician.</p>

# HEALTH INFORMATION

See [internationalsos.com](http://internationalsos.com) for information on the current health conditions in Belize. At the homepage, enter Earthwatch's member identification number: 14ACPA000075. Under "Select Resource" choose "English Country Guide," and then select Belize from the list.

## Routine Immunizations

All volunteers should make sure to have the following up-to-date immunizations: DPT (diphtheria, pertussis, tetanus), polio, MMR (measles, mumps, rubella) and varicella (if you have not already had chicken pox). Please be sure your tetanus shot is current.

## Project Vaccinations

**Medical decisions are the responsibility of each volunteer, and the following are recommendations only.**

While Earthwatch can provide details regarding suggested vaccinations, we are not a medical organization and decisions about which vaccinations to receive should be made between you and a doctor. Health conditions around the world are constantly changing, so keep informed and consult your physician, a local travel health clinic, the US Center for Disease Control ([cdc.gov](http://cdc.gov)), the World Health Organization ([who.int](http://who.int)), and International SOS (see above) for the latest health information for travelers. Please consult a physician for guidance on vaccinations if you intend to travel to other parts of the country.

Vaccination chart available on ISOS member site (English Country Guide, medical summary).

	Required for Entry	Recommended for Health Reasons
Typhoid		X - often recommended - check with your physician
Yellow fever	X - if traveling from countries or region where it is endemic, a Certificate of Vaccination is required.	
Hepatitis A		X - often recommended - check with your physician
Hepatitis B		X - often recommended - check with your physician
Tetanus		X - Tetanus immunization is recommended

## Advice Regarding Diseases

Diseases found in tropical regions include malaria, dengue fever, filariasis, leishmaniasis, onchocerciasis, trypanosomiasis, schistosomiasis, hepatitis and typhoid. Please see the CDC ([cdc.gov](http://cdc.gov)) or WHO ([who.int](http://who.int)) websites for more information.

- *Malaria* is present in southern Belize. The CDC reports that there is risk of malaria in all parts of Belize except Belize City. They recommend the use of a prescription anti-malarial drug and protection against mosquito bites using clothing and repellent. Volunteers should consult a doctor and consider taking a prophylactic. Be sure to inform your doctor if you will be SCUBA diving, as some malarial prophylactics are contraindicated for SCUBA diving.
- *Tuberculosis*: The WHO estimates that one-third of the world's population is infected with the bacterium (*M. tuberculosis*) that causes tuberculosis (TB). Incidence of tuberculosis is higher in developing countries, particularly in Asia, Africa, the Caribbean and Latin America. In general, approximately 10% of persons infected with *M. tuberculosis* are at risk for developing active TB during their lifetimes. TB is considered highly treatable with medications that are of relatively low toxicity and cost. Volunteers returning from developing countries are encouraged to have a (PPD)-tuberculin skin-test to screen for potential infection.

- *Dengue fever*: Dengue fever is endemic in more than 100 countries in Africa, the Americas, the Eastern Mediterranean, South-east Asia and the Western Pacific, and can occur throughout the year. Globally there has been a 30-fold increase in the number of reported cases of dengue fever. Dengue fever is a flu-like virus spread primarily by day-biting mosquitoes. It is characterized by fever, headache, rash, vomiting and severe muscle pains. There is no vaccine and mosquito bites should be avoided whenever possible. Insect repellent and long sleeves and pants are highly recommended. There is no treatment for standard dengue fever other than acetaminophen (avoid aspirin), fluids and rest. It is usually resolved after about two weeks. However, hemorrhagic dengue fever, characterized by bleeding and shock, can occasionally occur and requires medical care.
- *Bot flies* occur rarely in coastal Belize. Humans become infected when the eggs of the bot fly are transmitted by mosquitoes. The larvae grow under the skin and cause swelling, pain and redness, though in most cases it is not dangerous. Infestations can be avoided by wearing appropriate clothing and repellent to ward off mosquitoes, their intermediate host.

### Additional Health Information Resources

- Travel health website: [mdtravelhealth.com](http://mdtravelhealth.com)
- The Travel Doctor: [tmvc.com.au](http://tmvc.com.au)
- Australian Department of Health and Aging: [health.gov.au](http://health.gov.au)
- Hospital for Tropical Diseases: [thehtd.org](http://thehtd.org)
- Traveller's Healthline Advisory Service Tel: (020) 7950-7799
- MASTA Travelers' Healthline (UK) Tel: (0906) 8-224100 (within the UK)

## EMERGENCIES IN THE FIELD

Minor injuries will be treated onsite. A boat will be available to transport anyone with major injuries to the Punta Gorda Town Hospital. Anyone with a life threatening condition/injury will be evacuated by the British Army Training Support Unit Belize (BATSUB) via helicopter from Hunting Caye. If other medical care is needed they will be transported to Belize Medical Associates in Belize City.

Proximity to Medical Care	
Physician, nurse or EMT on staff	Project staff are not medical professionals
Staff certified in safety training	CPR (Cardiopulmonary Resuscitation/AED): John Cigliano, Richard Kliman First Aid: Richard Kliman Water Safety: John Cigliano (Rescue Diver, Dive Master), Richard Kliman (Rescue Diver)
Nearest hospital and/or clinic	Punta Gorda Town Hospital Main Street, Punta Gorda +501 (0) 722-2026
Distance	10 minutes to 4 hours away, depending on where team is located at the time of emergency. When at the research site, will need to be transported by boat to Punta Gorda

# COMMUNICATIONS

## Emergency Communications in the Field

While the team is out on the research vessel, VHF radios will be available for emergency communications. Onshore, radios and mobile phones will be available. An emergency satellite telephone will be available on Lime Caye.

**The emergency contact number at Earthwatch in the US is +1 (978) 461-0081 (see *Emergency Contacts for calling instructions*).**

## Personal Communications

You can make international phone calls in Punta Gorda from the Sea Front Inn, the BTL office, or pay phones (using a credit card or a calling card). The cost of making an international phone call is high—up to US\$7 per minute. There is an Internet café in Punta Gorda. You should not bring a laptop for email, as it just adds unnecessary weight and we will not have Internet access during the majority of the expedition.

The Sapodilla Cayes are a remote group of islands located 40 miles offshore. There are no phones or Internet connections available to volunteers in the cayes. While out at the cayes, volunteers will be unable to make personal calls or send/receive regular mail or email. Communications will be via VHF radio or satellite telephone and will be for emergencies only.

Family and friends of Earthwatch volunteers should be aware that personal communication with outsiders is not always possible while participating in an expedition. Earthwatch encourages volunteers to minimize outgoing calls; likewise, family and friends should restrict calls to urgent messages only. Measures have been taken to ensure that appropriate communication tools are available in cases of emergency.

All volunteers are asked to remember that Earthwatch expeditions offer a rare chance to escape from hearing ringing phones and others' phone conversations, and to regulate their cell-phone use with respect for fellow volunteers and staff accordingly.

## Contact Information

This information is available in the print version of the briefing only.

# Appendix

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# Earthwatch Institute Policies & Participant Rights and Responsibilities

This document contains important information concerning Earthwatch Institute policies and participant rights and responsibilities for inclusion on an Earthwatch expedition. Please read this document thoroughly and sign the Liability Release section of your Earthwatch Participation Form to indicate that you understand and accept the risks inherent to your expedition and the policies, rights, and responsibilities enumerated in this document. Participants will not be permitted to partake in an expedition until Earthwatch has received the signed release form.

## **Intellectual Property Rights**

It is permissible to share photos, videos, and stories of your expedition with family, friends, local media, and in a public forum. Sharing your new perspectives and experiences is welcomed and encouraged.

However, please recognize that all information, data, and images shared or gathered in the course of your expedition's field work become the intellectual property of the Earthwatch scientist (ES). Co-opting or plagiarism of data, images or information gathered during an expedition for use in a scientific thesis, masters or PhD work, or for profit or for the academic or business use of a third party without the permission of the ES is strictly prohibited. Please be aware that data gathered during the interviewing of local people becomes the intellectual property of the ES. Earthwatch scientists have the right to place additional restrictions on your ability to share data or certain research-related images.

Conversely, an Earthwatch scientist may give written permission to use data and images for academic or profitable activity. Please be sure to ask what is acceptable to the Earthwatch scientist.

Fellows or scholarship recipients are sometimes required to submit a written report reflecting what they have learned on a project, sometimes as a step toward developing a curriculum. Earthwatch scientists have the right but not obligation to review and edit materials involving information gathered on one of their expeditions.

## **Discrimination**

Earthwatch does not discriminate on the basis of race, religion, ethnicity, national origin, gender, sexual orientation, or any other reason prohibited by applicable law and respects participants' right to privacy. However, you must be aware that local laws in countries in which Earthwatch operates may not be anti-discriminatory and that the possibilities exist that local residents may not have an awareness of best practice regarding discrimination.

Discrimination on the basis of race, religion, ethnicity, or sexual orientation will not be tolerated on Earthwatch teams. Disruptive behavior, or verbal, physical or any other type of abuse or harassment will also not be tolerated. Violation of Earthwatch's non-discrimination policy is grounds for expulsion from the program without a refund.

## **Intimate relationships**

Earthwatch scientists, their staff, their colleagues, and their associates are prohibited from becoming romantically involved with participants during the entire duration of the period that the team is in the field. Romantic relationships that may otherwise seem permissible may eventually create an unpleasant or unproductive work environment and are therefore strongly discouraged for the duration of an Earthwatch project.

## **Sexual Harassment**

Please recognize that the relationship that exists between Earthwatch scientists and staff and participants is analogous to the student-teacher relationship. Therefore, please be aware of the following policies.

Sexual harassment of participants by the Earthwatch scientist or Earthwatch staff is prohibited. Likewise, sexual harassment of other participants, Earthwatch field staff, or local people by participants is also prohibited.

Sexual harassment infringes on an individual's right to an environment free from unsolicited and unwelcome sexual overtones of conduct either verbal or physical. Sexual harassment does not mean occasional compliments of a socially acceptable nature.

Sexual harassment refers to conduct which is offensive, which harms morale, or which interferes with the effectiveness of Earthwatch expedition teams; such conduct is prohibited. Lewd or vulgar remarks, suggestive comments, displaying derogatory posters, cartoons or drawings, pressure for dates or sexual favors and unacceptable physical contact or exposure are examples of what can constitute harassment. No one should be touched in areas that otherwise would be covered by a bathing suit. It is important to realize that what may not be offensive to you, may be offensive to participants, the local population, and Earthwatch field staff.

Any individual who feels subjected to sexual harassment or has any knowledge of such behavior should report it at once to his or her PI or to Earthwatch staff members. All Earthwatch scientists and Field Team Leaders (FTLs) will notify Earthwatch immediately when an accusation of sexual harassment or abuse is made or witnessed.

All reports of sexual harassment will be handled with discretion and will be promptly and thoroughly investigated. Any participant who is found to have engaged in conduct constituting sexual harassment will be immediately removed from the expedition at his or her own expense. If a minor is immediately involved in allegations of sexual harassment, his or her parents will be contacted.

### **Drugs**

Laws on drug use in most countries are severe and may carry lengthy imprisonment or death penalties. I understand and accept that the manufacture, possession, use, purchase and/or sale of illegal drugs or other illegal substances while on an Earthwatch expedition is strictly prohibited. Prescription drugs may only be purchased and used by the individual indicated on the prescription in keeping with their intended use guidelines.

### **Alcohol**

Local statutes, customs, practices, ordinances, and regulations with regard to the use, possession, sale, or purchase of alcohol are applicable to all participants and project staff in Earthwatch expeditions. Participants and project staff on Earthwatch expeditions must comply with the law of the country in which a project is located regarding the minimum age required to consume alcohol. In addition, restriction on the use, possession, sale, or purchase of alcohol may be set by the Earthwatch scientist. Any restrictions on the consumption of alcohol should be clearly outlined by the project staff in the briefing to participants at the start of the project, and in the Expedition Briefing.

Consumption or possession of alcohol or smoking is not permitted on any Earthwatch Teen Team, regardless of local law.

Excessive consumption of alcohol by staff or participants is not acceptable on any Earthwatch project. Intoxication can jeopardize personal safety, in addition to the safety of the team. It can also cause delay, and hinder response in the event of a crisis or emergency situation.

Earthwatch staff and the Earthwatch scientist have the discretion to remove individuals from the project who consume alcohol in a time and manner that endanger the safety and/or productivity of the expedition.

### **Minors**

Earthwatch considers participants under eighteen (18) years of age to be minors. Minors are not permitted to participate on any of Earthwatch's standard teams unless accompanied by a parent or legal guardian in which case the minimum age is sixteen (16). Minors on regular teams do not receive additional guidance or supervision from Earthwatch beyond what is offered to the adult participants. The number of minors on regular teams is limited to two (2) per team. Earthwatch has developed teams specifically for 16 and 17 year olds ("Teen Teams") as well as teams specifically for families ("Family Teams") with children as young as 10 years old. These teams focus on the same research activities and have the same expectations as our regular teams, but with more facilitation and support. Exceptions for some projects are made at the discretion of Earthwatch and the Earthwatch scientist. Due to a more in-depth screening process for certain programs that select candidates based on school year rather than age, there may be 18 year olds fielding on the same team as 16 and 17 year olds. Please be aware that some Earthwatch projects do not allow participation by minors in any circumstance.

### **Participants and Driving**

Participants are not allowed to drive project vehicles or aircraft during an expedition. In select circumstances, participants may be able to drive boats under the direct supervision by project staff. These circumstances are pre-determined by project staff in collaboration with Earthwatch. Participants must respect the restrictions for boat driving in place for each project.

If a project environment is such that participants can drive their own vehicles to the rendezvous, those who have driven themselves to the project may not drive their own vehicles to, from or for project activities, including the transport of project equipment after arriving at the site.

Participants who have driven themselves to the project may choose to utilize their own vehicle during recreational time, but project staff will brief them on the driving restrictions. All driving during recreational time is done at your own risk.

Please be advised that the only exception to the above driving restrictions is emergency situations.

Riding in other participants' vehicles is not covered under the participants' insurance policy for the expedition. Riding in another participant's vehicle is done at a participant's own risk.

### **In the Event of an Emergency**

In the event of emergencies, judgments must be made by Earthwatch field staff and participants. While Earthwatch makes an effort to ensure that qualified people make the most informed decisions possible, occasionally first aid may be administered and other immediate steps taken by expedition participants who are not licensed medical providers.

Each Earthwatch expedition has safety protocols and emergency procedures in place. Earthwatch encourages team members (the field staff and participants) to exercise their best judgment with regard to their own safety and the safety of other team members. Other participants may perform "Good Samaritan" actions, or actions taken to assist fellow participants during emergency situations in the field. However, Earthwatch does not encourage or expect you to jeopardize your own safety or that of others in attempting to rescue or assist your fellow team members.

### **Right of Refusal**

Earthwatch reserves the right to refuse an applicant's participation on Earthwatch projects at any time and to terminate any work being done by a participant and require the participant to vacate the project site if any of the Earthwatch Expedition Team in his or her absolute discretion considers it appropriate. In this event, the participant (and his/ her parent/ guardian, if appropriate) will be responsible for arranging and paying for any accommodation, travel or other arrangements which may be necessary following the termination of a participant's involvement in a project, for whatever reason and may not be eligible for a refund.

Earthwatch and the project staff may not refuse a participant for discriminatory reasons (race, religion, ethnicity, national origin, sexual orientation, or any other reason prohibited by applicable law). However, participants may be denied in the interest of team compatibility. Earthwatch will make reasonable efforts to accommodate participants with disabilities and the organization endeavors to find appropriate expeditions for those participants that have physical limitations. Refusal of a participant is an unusual event and is generally due to either an applicant's failure to meet the essential eligibility requirements of a particular project, or in the interest of team compatibility. In the event that an applicant is refused participation for health reasons, Earthwatch will refund in full any deposit or payment made toward the expedition.

Earthwatch scientists have the right to refuse special requests, such as media visits (film, photography or print), special groups or teams (students, donors, etc.), if they conflict with Earthwatch scientist schedules, safety, research objectives or general performance of the team.

Any participant found in violation of any of the policies described in this document ("Earthwatch Institute Policies & Participant Rights and Responsibilities") is subject to removal from the team at their own expense. By signing the Liability Release section of your Earthwatch Participation Form, participants are indicating that they have read and understand the policies in this document. Removal of a participant from a team is at the discretion of the Earthwatch scientist or Field Team Leader and Earthwatch staff. In addition, Earthwatch will support the right of the scientist to send participants away from a project once in the field should their behavior compromise the safety, research objectives or general performance of the team, or if the participant has violated a stated policy. In the event that a minor is dismissed from a project, Earthwatch will contact the participant's parents or legal guardian prior to their dismissal. Should a participant be removed from a team, he/she is responsible for any or all costs associated with departure from the team and will receive no refund of the share of costs of the expedition nor any expenses incurred in participation on the expedition.

(November 2010)

# Expedition Packing Checklist

## Required Items

- This Expedition Briefing
- 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) (see *Volunteers Under 18 Years of Age* in the *Travel Planning* section)

### **Clothing/Footwear for Fieldwork**

- Be sure to bring your Earthwatch T-shirt and remember to wear it, as appropriate, throughout your expedition
- Reef shoes, booties or sandals (coral can be sharp and cut your feet)
- Casual shoes/flip flops
- Bathing suits (2)
- Easy drying, lightweight shorts (2-3)
- Loose fitting, quick-drying, comfortable pants (1-2) – pants with zip-off legs work well and can double as shorts
- Quick-drying, lightweight shirts (2-4)
- Lightweight, long-sleeved shirts to prevent sunburn (1-2)
- Rain jacket (for teams in June, July and August, waterproof rain gear is recommended, as the lighter-weight nylon jackets will get soaked straight through)
- Hat with wide brim (a chin strap or toggle is recommended for the boat)
- Thin socks for mosquito protection

### **Clothing/Footwear for Leisure**

- One set of clothing to keep clean for end of expedition

### **Field Supplies**

- Small daypack/rucksack
- Drybag or plastic sealable bags (good for protecting equipment such as camera from dust, humidity, and water)
- Insect repellent spray
- Two one-liter water bottle(s)
- Polarized sunglasses with a strap to hold them around your neck
- Hard case for sunglasses or prescription glasses for protection on the boat
- Small notebook and pencil(s) to bring in the field
- Alarm clock/watch
- Mask, snorkel and fins, plus extra mask and fin straps
- Thin (2-3 mm) wetsuit
- Headlamp or flashlight/torch with extra batteries and extra bulb

### **Team 1 Only: Required Items for Scuba Volunteers**

- Certification card and dive log showing at least last ten dives
- DAN Insurance card
- Buoyancy compensator (BC)
- Regulator with octopus and compass
- Depth and pressure gauge(s) (minimum required, though a dive computer is optional)
- Webbing style weight belt (weights provided at site) with buckle and clips or integrated weight pockets for the BC
- Emergency whistle
- Safety sausage
- Dive tables
- Dive watch
- Spare batteries for dive computer and other equipment
- Repair kit with extra parts for all scuba gear (O rings, fin and mask straps, BC patch kit)
- Mesh bag to keep all of your gear together

### **Bedding and Bathing**

**Note:** Blankets and pillows will be provided by the project.

- Beach towels (1-2)
- Bath towel

### **Personal Supplies**

- Personal toiletries (biodegradable soaps and shampoos are encouraged)
- Antibacterial wipes or lotion (good for cleaning hands while in the field)
- Personal first aid kit (e.g. anti-diarrhea pills, antibiotics, antiseptic, itch-relief, pain reliever, bandages, blister covers, etc.) and personal medications
- Sunscreen lotion with SPF 30 or higher
- Seasickness medication if there is ANY chance you may get sick (Dramamine, Bonine, etc.)

### **Miscellaneous**

- Spending money
- Camera, film/memory card(s), extra camera battery

### **Optional Items**

- Earplugs
- Blank CD or DVD or thumb-drive for sharing digital photographs at the end of the expedition
- Travel guidebooks
- Books, games, journal, art supplies, etc. for recreational/rest time and travel
- Video camera
- Binoculars
- Extra sunglasses and hat (you don't want to be without these)
- Dry box to protect equipment from humidity (cameras, hearing aids, etc.)
- Pack-towel or sarong

**Note:** Required and Optional Items lists are accurate to the best of Earthwatch's knowledge at the time of publication.