



PROJECT OVERVIEW

Antillean manatees (*Trichechus manatus manatus*) are found throughout Central America and the Caribbean, but are Red Listed by the IUCN as endangered, in continuing decline, with severely fragmented populations. The UN Caribbean Environmental Programme considers them an endangered and protected

species of regional concern, threatened by poaching, boat strikes, entanglement in fishing gear, and habitat degradation. Belize may be the last stronghold for Antillean manatees in the Caribbean; and the Drowned Cayes area is one of the most important activity centers in Belize. However, the existing body of knowledge is inadequate to develop and implement site-specific management and recovery plans. Because manatees are elusive, endangered, and have slow reproductive rates, long-term studies in this area are necessary to evaluate and monitor the population status and develop practical conservation plans to ensure survival of the population, and ultimately, the sub-species. This comprehensive and collaborative project began in October 1998 and hopefully, will continue indefinitely into the future!

Bottlenose dolphins (*Tursiops truncatus*) are not endangered, but their stocks are considered depleted by the U.S. Marine Mammal Protection Act. A study of the local population was started in the Drowned Cayes by Oceanic Society Expeditions (OSE) in 1997, however it was abandoned in 2001 when OSE moved their base to Turneffe, an atoll approximately 10 miles east of the Belize Barrier Reef. In collaboration with Dr. Leszek Karczmarski, we re-started a photo-id project in 2005 with the hope of additional collaboration with OSE and other dolphin researchers in the region.

Students and volunteers have been an integral component of the project since its conception. We rely on you to assist us with a wide range of data collection and processing during each survey. During this course, half-day (3-4 hours) manatee & dolphin surveys will be conducted from a small boat on 10 or your 14-day expedition.

WELCOME LETTER

While in Belize, be warned, “If ya drink de watter, ya mus com bok.” This old Belizean Creole proverb is true! On my first trip to Belize in 1998, I drank the water and fell in love with both the people and the place...and the manatees and dolphins, of course. Since that first trip, Belize has been my 2nd home. Hopefully, you will soon be equally enthusiastic about the opportunities and challenges that await you in this tropical paradise.



This is no ordinary field course! During the course, you will be collecting data on manatees, dolphins, and their habitat that my research partners and I actually use for our long-term studies of Antillean manatees and bottlenose dolphins in the Drowned Cayes (pronounced "keys") area of Belize. Although our project focuses primarily on manatees and dolphins, you will also experience the mangrove-seagrass-coral reef system in which we live and work. Perhaps most importantly, the data you will help collect are also used by Belizeans, local NGOs, agencies, & decision-makers, to better develop marine conservation strategies.

The Drowned Cayes is a complex labyrinth of mangrove islands, just east of Belize City, surrounded by the Caribbean Sea. Since we are located two miles inside the Belize Barrier Reef, we are quite well protected from severe wave action, but if a tropical storm or hurricane threatens the western Caribbean, we will implement our Hurricane

Plan, which includes evacuation. The Caribbean Sea and sunshine are breathtaking, but they can cause great discomfort without proper protection, so you must pay close attention to the Packing Checklist in this briefing. Photo (c) C. Self-Sullivan: “Mario” a friendly, unmarked manatee videoed at North Gallows in 2001.

You should be prepared to spend equal time in the classroom and on the water in a small boat, searching for and observing manatees and dolphins. If you wish, you will have an opportunity to snorkel in the seagrass beds, mangrove bogues, or on coral patches. But please don't expect to swim with manatees and dolphins – our wild animals are not acclimated to humans and swimming with manatees & dolphins is not permitted in Belize. After a few days in the field, you will understand why we refer to manatees as elusive. We can pretty much guarantee that you will see both manatees & dolphins in the wild, but we can't predict how many or how close they will come to our research boat. However, the more you read about manatee & dolphin ecology and behavior prior to your arrival, the more rewarding your observations will be.



You should also be prepared for total immersion into private island living. As field researchers, we spend much of our time innovating and problem solving. On this expedition, you will experience the unique lifestyle of wildlife researchers under moderate conditions. While we live comfortably compared to most cayewdwellers, it's quite different from life in the northern hemisphere. Spanish Lookout Caye, a 184-acre mangrove island, is shared by Spanish Bay Conservation and Research Center, the Hugh Parkey Foundation for Marine Awareness and Education, and Hugh Parkey's Belize Dive Connection and Adventure Lodge. During your two recreational days, we will be using Belize Dive Connections to experience an inland adventure to a Maya site, and a sea

adventure on kayaks, snorkel or SCUBA (you may SCUBA only if you are a certified diver...bring your sea card & dive log). Photo (c) C. Self-Sullivan: "Dubya" a dolphin we've observed in our study area since 2004.

Evening entertainment includes good conversation, star gazing, and a few old fashioned board and card games. So bring your favorite stories to share with us as we create some new stories to take back to your friends! Hopefully, participating on this expedition will leave you with a new perspective on sustainable living – are you up to the challenge?

Cheers,

Dr. C

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ABOUT BELIZE

Research Site: The project is based on Spanish Lookout Caye, a 184-acre twin-mangrove island located in the Drowned Cayes, about 10 miles east-southeast of Belize City. The Drowned Cayes are a maze of mangrove islands inside the Belize Barrier Reef. Approximately 10 acres of Spanish Lookout Caye have



been filled and developed, leaving over 170-acres of pristine mangroves and mangrove swamps divided by a fast flowing channel of water commonly known as Gilroy's Creek. Mangrove islands are famous for their wildlife and you will share this island home with birds, crabs, mosquitoes, and sandflies; you might even be lucky enough to sight an American crocodile or boa constrictor. Thirty to forty hours will be spent on our research boat, and marine hazards in the area include jellyfish and fire coral. The tropical sun is strong and the humidity is very high. Among the best reasons for visiting Belize are its

long-standing and rapidly expanding conservation ethic and the incredible diversity of natural habitats. The spectacular Belize Barrier Reef, which is the second largest barrier reef in the world and runs along the entire 280 km coastline (Beletsky 1999), is perhaps its most celebrated natural treasure.

Cultural, Social and Political Environment: Belize is a small country located between Mexico and Guatemala on the Yucatan Peninsula and was formally known as British Honduras. Because Belize was a British protectorate, English is taught and spoken at all school levels and is the official language. The more common language spoken between Belizeans is Creole – an unwritten language that combines English with African, Maya, and Spanish words. Most Belizeans speak at least two languages: English and at least one other such as Creole, Garifuna, Spanish, Maya Mopan, Kechi Maya, German (Menonites), etc.

Belize is a politically stable democracy, with a Parliamentary system of government and elections every five years. Elections were held in spring of 2008, and the United Democratic Party (UDP) currently holds the majority of governmental seats. The People's United Party (PUP) is the dominant opposition, having just lost their first election in 10 years. There are a few independents in office. The current Prime Minister is the Honorable Dean Barrow (also father of Rapper Jamal "Shyne" Barrow). Belizeans are quite vocal about their political opinions; almost everyone turns out to vote, and local taxi drivers are a good source of information about the current issues. Christianity is the predominant religion with many churches serving both Catholic and Protestant congregations.

Like any large urban area, Belize City has its share of crime. The relatively small population of less than 300,000 people consists of predominantly five unique cultures: Maya, Mestizo, Creole, Garifuna, and European. More recently Mennonites, Chinese, and Taiwanese populations are growing in Belize.

PRINCIPAL INVESTIGATOR

Caryn Self-Sullivan, Ph.D., is currently a Visiting Assistant Professor at Georgia Southern University, President of Sirenian International, Scientific Advisor to the NCRC West African manatee project in Volta Lake, Ghana, and Marine Science Advisor to the Hugh Parkey Foundation for Marine Awareness and Education in Belize. She graduated from Coastal Carolina University in 1997 with a B.S. in Marine Science and minors in Mathematics and Biology and started her graduate work at Texas A&M in 1997. She was an NSF Graduate Fellow from 1999-2001, and received her Ph.D. in Wildlife & Fisheries Sciences in 2008. Additionally, Dr. C serves on the IUCN Species Survival Commission Sirenia Specialist Group, the Belize National Manatee Working Group, and the Belize Marine Mammal Stranding Network. Her research interests include marine science, animal behavior, endangered marine species, and conservation biology, with a focus on marine mammals. In the field, Dr. C is responsible for supervising the students and staff, field training, coordinating the lecture/discussion series, overseeing experimental design and data collection methods, capturing manatees with underwater video camera equipment, and capturing dolphins

with above water digital camera equipment. During this course, Dr. C will be your primary expert on the local research project.

CO-PIs AND VISITING SCIENTISTS (2010)

Katherine S. LaCommare, M.S., ABD, is a Ph.D. Candidate in the Environmental Biology Program, Department of Biology, University of Massachusetts, Boston, and an adjunct professor at Lansing Community College in Lansing, Michigan. Her previous degrees include a M.S. in Forestry, Conservation Biology Program, Department of Forestry and Natural Resources, Purdue University; and a B.S. in Anthropology/Zoology, University of Michigan. Katie co-founded Sirenian International with Dr. C and has been the co-PI on our long-term manatee research project since its inception in 1998. During this course, Katie will be your primary expert in the fields of ecology, marine mammal biology, and conservation biology.

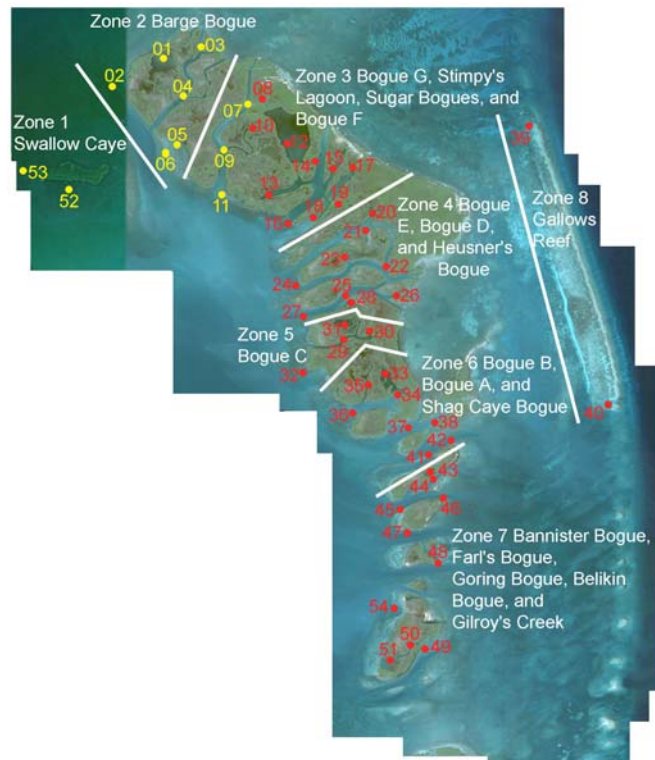
Bruce A. Schulte, Ph.D., is the Biology Department Head at Western Kentucky University. He received his Ph.D. from the State University of New York, College of Environmental Science and Forestry in 1993; his M.S. in Biology from University of Southern California, and his B.S. from the College of William and Mary. He has regularly taught courses in Animal Behavior, Behavioral Ecology, Chemical Ecology, Conservation, and Environmental Biology. His research interests include communication and social behavior of herbivorous mammals, such as elephants, manatees, beavers and horses. His research group also examines how an understanding of behavior can facilitate positive human-animal interactions, such as reducing human-wildlife conflict. During this course, Dr. Schulte will be your primary expert in the fields of animal behavior, chemical ecology, and conservation behavior.

Jessica R. Young, Ph.D. is Associate Professor of Biology and Associate Vice President for Academic Affairs at Western State College of Colorado. She received her Ph.D. in Population Biology and Behavioral Ecology from Purdue University in 1994; and her B.A. in Ecology, Behavior, and Evolution from UC San Diego in 1988. Her general research interests integrate evolutionary theories of behavioral ecology and animal communication with applied aspects of conservation biology and wildlife management. For the past two decades, she has been working with a unique species of grouse, the Gunnison Sage-grouse, which was recognized by the AOU in 2000 as a distinct species based on physical, behavioral, and genetic traits and the first new bird species described in over 100 years. In the field, Dr. Young will be your primary expert in the fields of behavioral ecology and ornithology.

FIELD TRAINING AND ASSIGNMENTS

During each field course, students are encouraged to become proficient in at least one aspect of the research and will have some input on the assignments in which they would like to participate. For example, one participant might become proficient in looking for manatee signs, while another might be better at operating the Global Positioning System (GPS) or recording data. Most days, students will spend 1/2 day (3-4 hours) on a small boat conducting surveys and observing manatee & dolphin behavior.

Our data collection is generally done from 25-foot fiberglass research boats, equipped with a single 115 HP Yamaha four-stroke engine. We carry a mobile phone, a magnetic compass, GPS unit, fire extinguisher, First Aid kit, and life jackets for 13 passengers, including the captain. Other standard safety equipment includes an anchor with anchor line, swim ladder, pole, bailing bucket, and bimini top for shade. There is no head facility on board. We relieve ourselves in the water or in a bucket.



Skills and talents extremely helpful to the project include patience, flexibility, attentiveness, a love for watching animals, a passion for learning, a passion for living sustainably in an outdoor environment, swimming, snorkeling, good handwriting, positive problem solving, positive attitude, strong team spirit, respect for low-tech data collection methods, and the ability to design and create something from nothing.

Students will be expected to participate in all of the following tasks:

- *Continuous scanning surveys:* These include both boat surveys and point scans designed to search for manatees & dolphins within the study area. During boat surveys and point scans students are needed to actively watch for manatees, dolphins and signs of their presence, and to record survey and sighting data. During sightings, students will record additional data, including behavioral states, breath cycles, and movements, as well as data about other boats in the scan area.
- *Environmental variable recording:* Air and water temperature, salinity, wind direction and speed, sea state, turbidity, water depth, and bottom type will all be recorded. During boat surveys, point scans, and/or whenever a manatee or dolphin is sighted, locations will be marked with a GPS unit and general location will be plotted on the field map. At the end of each point scan students will use field equipment to take these measurements.
- *Focal follows:* During focal follows, which are 40-minute increments of time during which we focus on a single manatee or group of dolphins, students record manatee or dolphin behavioral states, breath cycles, movements, and any other activity in the area.
- *Underwater ID captures:* These are attempted by the Principal Investigator (PI) only, using a digital video camera and underwater housing. During an underwater attempt, students record both the manatee and the PI movements on a focal follow data sheet.
- *Surface photo-identification:* During dolphin focal follows, the PI photographs dolphins from the bow of the research vessel; students document details on data sheets. Students will have an opportunity to photo dolphins when conditions are appropriate.

Note: Students should NOT expect to swim with the manatees and dolphins, as commercial swimming with these endangered animals is prohibited in Belize. The PI has special permission to get into the water to photograph and video-tape animals, but this permission does not extend to students.

ACCOMMODATIONS

Students and staff will share dormitory style housing. Each room will consist of a combination of bunk beds, sleeping up to 12 per room. Shared bathroom facilities include conventional toilets, showers and sinks. Rooms will be divided by gender. Private rooms for couples are not available. Rooms have screened windows to allow for ocean breezes and limit nocturnal insect visitors; however we recommend you consider bringing your own personal mosquito netting.



Spanish Lookout Caye is powered by solar, wind, and diesel generators. Fresh water is precious and we mandate water conservation. We capture rainwater and recycle all waste water using a state-of-the-art tertiary recycling plant. Volunteers are taught to conserve water by taking one quick (island) shower per day, turning off the faucet while lathering soap, brushing teeth, etc. Drinking water is purchased from Belize and available 24-7 at designated dispensers.

There is sufficient power to recharge batteries. We encourage students to bring digital cameras. We rely on you to take pictures of the project and we like to download them during the expedition.

Please bring the appropriate charging devices (110 volts AC, 60 Hz, flat two-pin plugs) and your data cable to share images with your classmates and instructors. Also, please bring rechargeable batteries; used disposable batteries must return home with you! Note that there is NOT adequate electricity for high voltage appliances such as curling irons, blow dryers, or coffee makers. Internet access and phone usage on the caye is limited to emergency use by the instructors. Many US and UK cell phones (except Sprint) work in Belize, but the international fees are generally expensive.

FOOD

We will eat in the Belize Adventure Lodge dining area or in the staff dining area, depending on the number of other guests on the caye. Due to the logistics of living on a mangrove island, there is a limited amount of variety during the expedition. Some special diets may be accommodated if advanced notice is given.

PLEASE EMAIL ME ASAP IF YOU HAVE ANY DIETARY RESTRICTIONS INCLUDING, BUT NOT LIMITED TO VEGETARIAN, VEGAN, LACTOSE INTOLERANT, GLUTEN INTOLERANT, FOOD OR OTHER ALLERGIES.

The goal is to make the diet as traditional as possible, in order to make food a part of your experience. Weekly menus may include eggs and chicken, beef, pork, and local seafood when available, seasonal fruits and vegetables, tortillas, rice and beans, beans and rice (there is a difference), and pasta dishes. Water is the staple drink, supplemented with fruit juices, coffee, and tea. Also, if there are foods you do not eat for any reason please let us know so we don't waste food by putting items on your plate that you won't eat. For example, tomatoes are expensive so if you don't eat them, just let us know and the staff will not put them on your plate!

Comfort foods/drinks such as chips, cookies, candy, sodas, beer, rum, and wine are available (at your own expense) on the caye. A Gift Shop with limited supplies is located on our island and is open approximately daily from 9-4.

Below are examples of the foods you might expect during the expedition. 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.

- Breakfast:** Eggs, beans, breakfast meats, tortillas, pancakes, oatmeal, fresh fruits
- Lunch:** Tortillas, pasta, fresh veggies, rice, beans, boiled eggs, fresh fruit
- Dinner:** Rice, beans, chicken, beef, pork, pasta, veggies
- Snacks:** Oranges, bananas, papaya, pineapple, watermelon
- Beverages:** Water, coffee, tea, fruit juices

ENVIRONMENTAL CONDITIONS



SBCRC is situated on a 184-acre twin mangrove island, partially cleared and filled, but with over 80% of the mangrove ecosystem intact, including the mosquitoes and sand flies. A mangrove island harbors many little hazards such as broken shells and mangrove roots to trip you up, so it's important to pay close attention to this rustic environment, which is free of paved roads and sidewalks. The sun is very strong here, and brief periods of intense rain are not uncommon during the field season. More extreme tropical storms and hurricanes traditionally occur from June through November with late-August, September, and October as the most active periods. In the event of

a hurricane, we may evacuate the island and move inland for the duration of the storm. This has occurred three times during the 11 years of this project.

Potential Hazards

We take pride in our experience, training, and track record with respect to students' health and safety. So even when it seems that we are "mothering" you too much, we do expect you to follow our advice regarding your healthy and safety at all times!

Hazard Type	Associated Risks and Precautions
Climate	Students must be prepared to spend long hours in hot, humid, and wet conditions. The tropical sun is very strong. Dehydration, sunburn, and other heat related illnesses are a risk.
Insects	Sand flies and mosquitoes can be problematic. Sand flies are believed to be a vector for leishmaniasis in some regions. Mosquitoes may transmit a number of diseases (see <i>Diseases</i> below). Bot flies are also found in Belize, and mosquitoes may transmit their larvae to human hosts where the larvae will grow and develop. This is not life threatening, but can be painful and unpleasant.
Marine life	Fire corals, several species of stinging jellyfish, sharks, sea urchins, and other potentially dangerous marine organisms can be found in the study area. These can all give painful and occasional severe stings or bites which may become infected if untreated. Those with a dangerous allergy to bee or wasp stings may have a similarly dangerous reaction to corals and jellyfish. The best prevention is to avoid and not touch the animals. Please bring your epi-pen if you are allergic to anything.
Snorkeling	All the inherent risks of snorkeling are obviously present, including the effects of environmental conditions, marine life and other risks specific to your own physical/medical history. Snorkeling is optional and will be conducted in seagrass beds and on coral patches. Volunteers who chose to snorkel should know how to do so safely without hyperventilating or kicking up the substrate.
Boats	We will be aboard a boat for most fieldwork. All the fiberglass boats should have ladders and a bimini cover for sun protection. However, in some instances we may use a boat that lacks a ladder or shade. Deck surfaces of boats will become slippery and may place you at risk of slips, falls, and injuries that result from these accidents.
Disease	Diseases found in tropical regions include malaria, dengue fever, filariasis, leishmaniasis, onchocerciasis, trypanosomiasis (Chaga's disease), schistosomiasis, leptospirosis, rabies, brucellosis, hepatitis, and typhoid. Most diseases are prevented with basic safety cautions.
Driving	Driving conditions are considered poor by western standards and pose inherent risks. Volunteers will not be permitted to drive during the expedition.

Medical Conditions of Special Concern

Students should be physically fit, competent swimmers, and comfortable spending 3-4 hours on a boat. Those with chronic back problems or seasickness will find working and riding in small boats very uncomfortable. If you suffer from seasickness and intend to treat this with either over-the-counter or prescribed medication, please discuss the use and side effects with your physician. Please also let the Instructor know what medications, if any, you are taking for seasickness and/or malaria prevention. Some prophylactics have severe interactions with sun exposure and must be avoided. Any conditions that interfere with or limit stamina in the water, balance, swimming, or breathing should be carefully considered. If you have a current ear or sinus infection, it should be fully healed prior to participation in snorkeling or SCUBA. If you are allergic to bee stings, you may be allergic to Cnidaria stings (jellyfish and corals) and must bring an Epi-kit. Visual acuity (corrected via glasses or contacts is fine) and good hearing are important. Conditions or medications that increase one's light sensitivity or sunburn risk should be discussed with a physician.

HEALTH INFORMATION

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 Inoculations

The following are recommendations only. Medical decisions are the responsibility of each student and their doctor. Note that 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 (www.cdc.gov), the World Health Organization (www.who.int). Please consult your physician for guidance on inoculations if you intend to travel to other parts of the country.

Typhoid	These inoculations are recommended for health reasons.
Hepatitis A	
Hepatitis B	

Other Advice / Information

- *Malaria*: Malaria is not present at the research site, but it is found within Belize. Prophylaxis is recommended by the CDC for all areas except Belize City. The risk is highest in the western and southern regions of the country, which you may visit on a recreational day.

PACKING CONSIDERATIONS

Remember to review the Packing Checklist at the end of this briefing.

General Considerations

Do not bring more luggage than you can carry and handle on your own. Space is also extremely limited in the dorm rooms. We recommend that you pack a carry-on bag with an extra set of field clothing and personal essentials in the event that your luggage is lost and/or takes several days to catch up with you.

Remember to bring old t-shirts and shorts that you don't mind getting dirty and possibly ruining. Expect to wear the same shorts and t-shirts repeatedly due to lack of laundry facilities. Clothes get ruined in the field; you will NOT need any good/nice clothes at the research camp. You might want to save a clean t-shirt and shorts for visiting inland sites, but, you don't need dress slacks or skirts. If you have side trips planned before/after your research trip, plan accordingly.

We have found some diversity among our previous students as to what they think should be mandatory. It varies not only with temporal conditions on the island, but also with students. The Packing Checklist at the end of this briefing contains recommendations based on our experience with over 500 previous students & volunteers. Some folks will require more creature comforts, and others can do without some of the recommended items. All volunteers should read this entire briefing carefully, and those who have done a lot of traveling can use the information to pack according to their experience. Less experienced travelers should bring everything we recommend!

Note: As the project is stationed on a mangrove island, any trash produced must be burned. There are few recycling facilities in Belize. Please help protect the environment by leaving disposable products and plastic packaging at home.

Cultural Considerations

Belize is predominately a Christian culture. Shorts and t-shirts are fine for both men and women. Swimwear is appropriate for beaches, but not for Belize City, where shirts and shoes are recommended at all times.

Essential Items

While it is recommended that you pack as light as possible, the following items are essential for participation: bug repellent for mosquitoes, oil (Avon Skin-so-Soft or olive oil is recommended) for sand flies, sunscreen (15-45 SPF), hat, long-sleeved shirt/cover up for boat, swimsuit, 1-2mm wetsuit or diveskin, and field clothes.

Please see the Packing Checklist for a complete list of what you will need to take with you. We recommend going through the list with a pen or pencil and marking off each required item right before you leave for your expedition.

EMERGENCIES IN THE FIELD

The researchers and their host, Hugh Parkey's Belize Dive Connection, are concerned with your health and safety during the field course. Minor injuries will be treated onsite using Red Cross First Aid and DAN Marine First Aid procedures. We take a precautionary approach to minor illnesses and injuries and will insist on scheduling an appointment with a local doctor if the situation does not improve within 24-48 hours after First Aid treatment. Volunteers with major illnesses or injuries will be transported to Belize City for medical advice and treatment. There is always a boat available for transport in case of an emergency. In case of a life-threatening illness/injury, we will take the following steps:

- 1) Insure that all students/staff are safe from further injury
- 2) Give First Aid/CPR as necessary to stabilize the victim(s)
- 3) Contact HP's Belize Dive Connection to report the situation
- 4) Transport the victim(s) by boat to Belize City
- 5) Notify victim's Emergency Contact at first opportunity
- 6) Arrange transportation from the dock in Belize City directly to an emergency care facility, Belize Medical Associates
- 7) Follow up with HP's Belize Dive Connection as soon as the victim is under professional medical care
- 8) Follow up with the rest of the class to keep them informed
- 9) Follow-up with victim's Emergency Contact

OTHER USEFUL INFORMATION

- Our Host: Ms. Teresa Parkey, Hugh Parkey's Belize Adventure Lodge, PO Box 1818, Belize City, Belize, Central America. Tel: 501-223-4526 or 223-5086, Fax: 501-223-7874, E-mail: info@belizeadventurelodge.com.
- Do not book your flight until your registration and the course has been confirmed! Expected confirmation date: April 15th, 2010.
- Airport Code BZE: American Airlines and Continental Airlines fly into Philip S. W. Goldson International Airport in Belize City daily; Delta and US Airways also have a more limited schedule. If you are flying from the West Coast of the US, you might consider TACA. Round-trip airfare is currently running between US\$600-\$800.
- You must have a Passport for entry into Belize; if you are a US Citizen you will automatically be granted a 30-day tourist VISA upon arrival. If you are not a US Citizen, or for additional information, visit the Belize Tourism Board Website for additional information: <http://www.travelbelize.org/>
- Consult the US State Department Website for current information regarding travel to Belize: <http://www.state.gov/p/wha/ci/bh/index.htm>
- Consult the CDC for immunization recommendations: <http://wwwnc.cdc.gov/travel/destinations/belize.aspx>

- If you plan to arrive before the rendezvous date or remain in Belize after the departure date, please contact Dr. Self-Sullivan, for additional information on travel and accommodations in Belize. You may find the Moon Handbook Belize 8th Edition, by my friend and colleague Josh Berman, a valuable resource, available online at Amazon.com.
- Recommended Field and Travel Guides:
 - Birds of Belize (The Corrie Herring Hooks Series), By H. Lee Jones
 - Moon Handbooks Belize, 8th Edition, by Joshua Berman
 - Travellers' Wildlife Guides Belize & Northern Guatemala, By Les Beletsky
 - Reef Creature Identification: Florida, Caribbean, Bahamas by Paul Humann and Ned DeLoach
 - Reef Coral Identification: Florida, Caribbean, Bahamas (Reef Set, Vol. 3) by Paul Humann and Ned DeLoach
 - Reef Fish Behavior: Florida, Caribbean, Bahamas by Paul Humann and Ned DeLoach
 - Reef Fish Identification: Florida, Caribbean, Bahamas by Paul Humann and Ned DeLoach
- *BELIZE time zone:* GMT/UTC -6:00; Daylight Savings Time is NOT observed in Belize.
- *Local currency:* Belize dollars, however, US dollars are accepted everywhere for a fixed exchange rate of US\$1 = BZ\$2. There is NO NEED to change US\$ into BZ\$.
- *Electricity:* 110 volts AC, 60 Hz, flat two-pin plugs (same as USA). Electricity is only minimally available at the project site, although charging of digital cameras and some small electronics is fine.
- *Language:* English, also spoken: Spanish, Maya, Garifuna, Creole
- *Telephone dialing codes:* When calling Belize from another country, dial the country's international dialing code (e.g., 011 in the USA), followed by 501 (Belize Country Code) and the number (e.g., 627.0061). When calling within Belize, omit the 501, and just dial the number. When calling another country from Belize, dial 00, followed by the other country's country code and the number. For example, to call the USA, dial 001+area code+number.
- *Personal conduct:* The field course and project are able to remain in Belize due to the courtesy of the people and government of Belize. As such, you will be expected to conduct yourselves 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 project will be grounds for immediate deportation at the expense of those involved.
- *Personal funds:* Past students have spent limited funds during the course (primarily at the island gift shop). You will have opportunities to shop on one of your recreational days. Small bills are useful (US\$1, US\$5, US\$10) as change will be given in BZ dollars. Traveler's checks and credit cards are more difficult to use, but OK at more and more locations each year. Debit cards may be problematic, but VISA and MasterCard credit cards have been used to get cash advances from banks in Belize City. There are ATMs, but they appear tied to VISA credit cards only. Larger stores, restaurants and hotels take VISA and MasterCard credit cards, but few take American Express. Smaller shops and street vendors only take cash.
- *Tips:* As a visitor, it is customary to tip for services in Belize. We have not included tips in the budget for this field course. If you wish to tip any of the staff (boat captain, kitchen staff, etc.) you can do so individually, or we can take up a collection at the end of the course. Typically, tips given per student range between 5-10% of the total cost of the expedition, i.e., \$120-\$250 per student, and are divided among the boat captain, crew, kitchen, dining, and housekeeping staff.

PACKING CHECKLIST

Essential Items

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

Required Items

Clothing/Footwear for Fieldwork

Old shorts

Old t-shirts

Lightweight, breathable long-sleeved shirts for protection from sun/bugs

Sweatshirt, sweatpants, socks

Long pants with tight cuffs (highly recommended as the best defense against sand flies)

2-3 bathing suits (things don't always dry over-night in the tropics)

Well worn-in and comfortable walking shoes (sneakers or Teva-like sandals)

Boat shoes (sneakers, sailing shoes, sandals, or water shoes)

Rain gear or rain poncho

Hat with wide brim to protect head from sun (very important!)

Clothing/Footwear for Leisure

One set of clothing to keep clean for day-off and end of expedition

Field Supplies

Polarized sunglasses with retaining strap

Small daypack/rucksack/backpack for inland trip

Drybag or plastic sealable bags for boat (for protecting equipment such as camera from dust, humidity, and water)

Water bottle - 1 liter refillable, such as Nalgene

Mask, snorkel, and fins if you want to participate in tasks requiring snorkeling, or for snorkeling during free time (we encourage you to invest in good quality mask and fins, not the department store variety)

Dive skin or 1-2mm wetsuit

Mosquito repellent (with Deet)

Oil or oil-based repellent (e.g. olive oil, AVON Skin-so-Soft Original Bath Oil, citronella oil repellent, Bit Blocker) for sandflies (oil creates a physical barrier from the sand flies; the researchers have found NOTHING except oil prevents the sand flies from feasting on you when/if the wind dies)

A box of mosquito coils (commonly called “fish” in Belize) and a lighter for burning in your room at night to keep both mosquitoes and sandflies away

Waterproof sunscreen with SPF 30 or higher

Lip balm with SPF, also Blistex ointment if you are prone to fever blisters

A notebook for your personal field notes and a couple of pencils (unlike ink pens, pencils continue to write even if they get wet)

Personal Supplies

Toiletries, such as a bar biodegradable soap, deodorant, toothpaste, toothbrush, shampoo, conditioner, and moisturizing lotion (no-fragrance types may help reduce the attraction of mosquitoes)

Antibacterial wipes or lotion (good for “washing” hands while in the field)

Personal medications, such as vitamins, prescription drugs, emergency allergy injections (Epi-kit), inhalants, motion sickness medication and over-the-counter antihistamines and anti-itch products

Extra contact lenses and saline solution and/or spare glasses (you will need your reading glasses if you wear them)

Miscellaneous

Cash for snacks, gifts, tips, etc.

Camera, film/memory cards, extra camera battery/battery charger, and computer cable for downloading images from digital cameras

Blank CDs or flash/pen drive if you want to share photos with the team or refresh your storage chip

Optional Items

Flashlight/torch or headlamp with extra batteries and extra bulb

Earplugs (your roommates might snore!)

Some duct tape wrapped around a bottle or other gear (a full roll is not needed)

A lightweight sweat suit, encase you get chilled from water/rain

Very fine gauge mosquito net for hanging over your bunk (also to keep the sandflies out)

Snack food

Paperback books/field guides

Small battery-operated fan with additional batteries

Battery-operated tape/CD/MP3 player with headphones (NOT allowed on research boat)

Binoculars

Playing cards, board games, musical instruments, etc.