EARTHWATCH INSTITUTE

EARTHWATCH 2015

RECOVERY OF THE GREAT BARRIER REEF

DEAR EARTHWATCHER,

Welcome to Recovery of the Reef, which is jointly supported by Earthwatch, The Australian Institute of Marine Science and James Cook University. We are very pleased to have your involvement in a challenging yet rewarding field of science that will focus on understanding the impacts and causes of diseases affecting corals of the Great Barrier Reef.

Coral reefs around the world are under increasing threats from direct human activities and global climate shifts, which together are contributing to accelerating rates of reef deterioration. In Australia, the Great Barrier Reef is fundamental to our nation's economy and a national icon that needs to be preserved to ensure on-going sustainability of our marine resources. Warming seawater temperatures, ocean acidification, and increased freshwater inputs carrying pollutants onto these reefs all disrupt the sensitive symbiotic associations that determine the health of corals, the major group of organisms that build the structural framework of coral reefs. Understanding how these environmental stressors cause declining coral health leading to disease is critical for preventing the loss of coral reefs and an important step towards preserving them for future generations.

This project will be conducted from the Orpheus Island Research Station, located on an idyllic tropical island in the central inshore section of the Great Barrier Reef Marine Park. The Research Station offers excellent facilities for hosting scientists and volunteers and provides convenient access to surrounding fringing coral reefs and adjacent platform reefs. An ongoing monitoring program has documented patterns of increasing coral disease incidence, and in particular recurring black band disease outbreaks, highlighting the urgent need to understand the potential impact of coral diseases in this reef system. Black band disease (BBD) is an infectious coral disease threatening coral populations worldwide. Some of the important questions that need to be answered concern the environmental and microbial factors that facilitate progression and transmission of black band disease. In view of demonstrated links between global ocean warming and increasing impacts of diseases on coral populations, a better understanding of virulent coral diseases like black band disease will assist i n the development of management actions to protect and ensure the long-term persistence of coral reefs.

In this project, you will participate in an ongoing program to monitor coral disease outbreaks in the field through diving activities. Participation in the project will also provide you with hands-on experience in setting up and conducting controlled laboratory experiments, which will tease apart environmental and microbiological factors contributing to disease outbreaks. Your participation is highly welcomed and will contribute significantly to the success of our continuous field monitoring program and experimental studies.

The first day of the program will provide you with the opportunity to visit and stay at the Australian Institute of Marine Science (AIMS), a world renowned scientific Research Institute. There will be a tour of AIMS facilities followed by a meeting with some of the scientific staff. Transfer to Orpheus Island will occur the following day and will involve a 2.5 hour bus trip and 30 minute boat trip. Once at the Research Station, you will commence a challenging week that will combine long days of diving on adjacent coral reefs with activities in experimental aquarium systems and scientific laboratories. Please keep in mind, that some aspects of the program are unpredictable, in particular the weather (rain and wind is possible), so please bring suitable wet-weather gear. The temperatures should be warm (daily average above 30°C in summer), and the humidity may at times be high (greater than 90 per cent). With long days of fieldwork, good sun protection is important, so please bring hats, sun-shirts and sunscreens.

We look forward to meeting and engaging with you in these scientific activities

Sincerely,
David Bourne, Yui Sato, Bette Willis

TABLE OF CONTENTS

GENERAL INFORMATION

RECOVERY OF THE GREAT BARRIER REEF

EARTHWATCH SCIENTISTS: Dr David Bourne (AIMS)
Prof Bette Willis (James Cook University)
Yui Sato (James Cook University)

RESEARCH SITE: Orpheus Island, Queensland, Australia.

EXPEDITION LENGTH: 8 days

TEAM SIZE MAX: 8 participants

MINIMUM AGE OF PARTICIPATION: 18 years of age*

EXPEDITION DATES

Team 1: Apr. 22–Apr. 29, 2015

Team 2: Sept. 3–Sept. 10, 2015

Complete travel information is not available in this version of the briefing.

Please contact Earthwatch with any questions.

TRIP PLANNER

TO DO IMMEDIATELY

- ❑ Make sure you understand and agree to Earthwatch policies and participant responsibilities.
- ❑ Book an appointment with a qualified SPUMS dive doctor.

90 DAYS PRIOR TO EXPEDITION

- ❑ Log in at **earthwatch.org** to complete your volunteer forms. Below are the specific forms required for this expedition:
  - ❑ SCUBA Adult Form. Along with:
  - ❑ Dive insurance card (stating what type of coverage is provided)
  - ❑ Logs of 4 most recent (1 within 6 months) and first dive
  - ❑ Open water certification
  - ❑ Occupational/Commercial diving medical
  - ❑ Travel Form

  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.
- ❑ Pay any outstanding balance on your expedition.
- ❑ Book travel arrangements.
- ❑ If you plan to purchase additional travel insurance, note that some policies require purchase when your expedition is booked (see the Insurance section, pg. 23, 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, pg. 17, for more details).
- ❑ Make sure you have all the necessary vaccinations for your project site (see the Health Information section, pg. 22).
- ❑ Bring your level of fitness up to the standards required (see the Project Conditions section, pg. 18).

60 DAYS PRIOR TO EXPEDITION

- ❑ Review the packing list (pg. 4) to make sure you have all the clothing, personal supplies, and equipment needed.

30 DAYS PRIOR TO EXPEDITION

- ❑ Leave the Earthwatch 24-hour helpline number with a friend or relative (see pg. 30).
- ❑ Leave copies of your passport, visa, and airline tickets with a friend or relative.
- ❑ Confirm your travel arrangements.

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

EXPEDITION PACKING CHECKLIST

REQUIRED ITEMS

GENERAL

- ❑ 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)
- ❑ **AUSTRALIAN RESIDENTS ONLY:** Please bring your Medicare card and (if applicable) your private health insurance and ambulance cover policy numbers

DIVE GEAR

NOTE: These items are NOT available on the island and must be supplied by you.

- ❑ Dive booties, thick soled for walking across the reef
- ❑ Mask
- ❑ Snorkel
- ❑ Fins
- ❑ BCD *
- ❑ Regulator *
- ❑ Full wetsuit. For March trip, 3–5mm is recommended.
- ❑ Gloves
- ❑ Hood

* **PLEASE NOTE** if you do not have your own BCD and regulator, contact Earthwatch directly to arrange.

DOCUMENTS FOR SCUBA PARTICIPANTS

- ❑ Dive insurance card (stating what coverage is provided)
- ❑ Dive log
- ❑ Dive qualifications

CLOTHING/FOOTWEAR FOR FIELDWORK

- ❑ Earthwatch T-shirt
- ❑ Long-sleeved shirt or rash guard for sun protection on the boat, and to wear under wetsuit
- ❑ Warm wind/water proof jacket
- ❑ Wide-brimmed hat
- ❑ Swimsuit(s)
- ❑ Sunglasses (polarized lenses are best)—neck strap recommended

CLOTHING/FOOTWEAR FOR LEISURE

- ❑ Shorts
- ❑ T-shirts
- ❑ Footwear for walking around island (thongs, sandals or sneakers)

FIELD SUPPLIES

- ❑ Small daypack (large enough to hold below listed items)
- ❑ Dry-bag or plastic sealable bags (good for protecting equipment such as camera from dust, humidity, and water)
- ❑ Insect repellent spray
- ❑ Water bottle(s)
- ❑ Waterproof sunscreen with SPF 30 or higher
- ❑ Beach Towel

BEDDING AND BATHING

NOTE: Blankets, pillows and linen will be provided by the project.

- ❑ Towel (please note 2 towels are recommended, one for showering, one for in the field—as under "Field Supplies")

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-diarrhoea pills, antibiotics, antiseptic, itch-relief, pain reliever, bandages, blister covers, etc.) and personal medications
- ❑ Spending money

SUGGESTED ITEMS

MISCELLANEOUS

- ❑ Flashlight or headlamp with extra batteries and extra bulb
- ❑ Earplugs for light sleepers
- ❑ Hardware for sharing digital photographs at the end of the expedition
- ❑ Travel guidebook
- ❑ Books, games, journal, art supplies, etc. for recreational/rest time and travel
- ❑ Water-resistant wristwatch
- ❑ Underwater camera, film/memory card(s), extra camera battery (if you bring a digital camera, bring your interface cables for downloading)
- ❑ Binoculars
- ❑ Pencil, pen, notebook
- ❑ Bathrobe
- ❑ Dive Computer or tables
- ❑ Safety sausage
- ❑ Dive knife (preferably small, BCD mounted)

NOTE: Required and optional items lists are accurate to the best of Earthwatch's knowledge at the time of publication.

THE RESEARCH

WILDLIFE OF AUSTRALIA'S RAINFORESTS

THE STORY

Coral diseases are reported to be one of the most significant threats to tropical coral reef ecosystems. Recent assessments show that approximately 19% of the world's coral reefs have been effectively destroyed with no immediate prospects of recovery (Wilkinson 2008). An additional 15% are under imminent risk of collapse through human pressures within the next 10-20 years, and a further 20% are under a longer-term threat of collapse. Infectious diseases have been identified as a major contributor to this decline in coral reef ecosystems worldwide, particularly in the Caribbean region, where disease epizootics have led to mass mortality of vulnerable, framework-building corals. On the Great Barrier Reef (GBR), patterns of increasing coral disease prevalence have also been identified by the Australian Institute of Marine Science's long-term monitoring (Sweatman et al. 2008), indicating that there is an urgent need to understand potential impacts of disease outbreaks on GBR coral populations.

The first outbreak of black band disease (BBD), a virulent disease that causes rapid loss of coral tissue and currently threatens reef corals worldwide, was observed on an inshore reef in the central GBR in 2006. An ongoing monitoring program has recorded recurring summer outbreaks of BBD, causing significant mortality in susceptible coral populations (Sato et al. 2009). Numerous studies have linked increasing impacts of BBD on coral populations with global ocean warming, highlighting the urgent need for improved understanding of the biology and ecology of BBD under predicted climate change scenarios. Such knowledge is critical to enable reef managers to predict future disease consequences and develop appropriate strategies to mitigate the impacts of this emerging threat to coral health on the GBR.

While high temperatures and solar irradiance are known to increase spread of BBD lesions, little is known about the responses of individual BBD microbial pathogens to these environmental factors that result in increased disease virulence. Furthermore, there is only limited information about how complex microbial communities of BBD form in the field at the onset of infection.

Research to unravel fundamental microbial mechanisms responsible for BBD pathogenesis is warranted, and this can be achieved through a combined field based and laboratory approach which investigates the environmental and microbial drivers of developing BBD lesions.

THE RESEARCH

This project has three themed objectives:

1. To elucidate the environmental drivers of BBD around Orpheus Island
2. To elucidate microbial drivers of BBD
3. To test these drivers in aquarium based experiments

The approaches chosen for this project will produce a tremendous amount of data regarding bacterial genes within bacterial communities associated with BBD. Thus, results will significantly improve our understanding of the BBD microbial communities, as well as pathogen responses to a changing environment, which will be ultimately utilised to target key BBD pathogen(s) for the development of potential therapies to control this disease.

Considering the global distribution of BBD on coral reefs, management strategies based on outcomes from this study will be applicable to reef management agencies worldwide.

HOW YOU WILL HELP

Participants will undertake up to two 90 minute dives on days 3 through to 7. During these dives, divers will map locations of all BBD colonies inside permanently established plots, as well as characteristic coral colonies and underwater structures. Diseased corals will be marked with numbered tags attached to substratum near each colony to facilitate relocation in subsequent surveys. Mapping of each quadrat will be performed by a team of 2~3 divers and completed during the dive. Tagged colonies will be also photographed from the same angle together with a ruler as a scale during this dive to monitor the progression of disease across corals using an image analysis programme to calculate changes in the surface area of live tissue at each survey. Other diseases at the sites will also be recorded and core samples will be collected by scientists for microbial analysis.

Participants will also undertake aquarium based experiments, which will be conducted alongside each field based component. Participants will play an active role in sampling, set-up and conducting the aquarium based experiments. This experiment monitors responses of diseased coral samples in changing environmental factors such as of light, temperature, pH and nutrients. Due to the nature of combined synergistic effects, one experiment will be too large to test all of these combined parameters. Therefore each period of field work will incorporate a tiered experimental approach looking at temperature and nutrients, light and nutrients, temperature and pH, light and pH, etc. during the three year program.

Aquarium experiments will be dependent on weather conditions at the time of the field work. For example if poor weather prevents diving on certain days, then extra efforts will be placed on the aquarium based experiments. These experiments will usually be undertaken during the course of the week long field work, Experiments will be set up early in the week with work being undertaken using live coral samples collected during the first dive days. Observations and data collection will be conducted daily after the days diving activities.

WHY FIELD RESEARCH?

As an Earthwatch participant, you will spend a significant amount of time each day assisting scientists with data collection. Some of this work will be repetitive, but it is fundamental to our scientific understanding of nature. Ecosystems are incredibly complex. The only way to begin to unravel this complexity is by designing good experiments, and carefully collecting as much data as possible. Without the work of thousands of dedicated scientists, we would know nothing about climate change, the effects of pollution, the thinning of the ozone layer, the extinction of species, or how to find cures for diseases or improve crops. Without science we would be blind to the world. This is your chance to be part of the scientific effort, to find solutions to pressing environmental and cultural problems, and to enjoy the beauty and diversity of nature as you work.

YOUR DESTINATION

ABOUT ORPHEUS ISLAND

Orpheus Island is located 120km north of Townsville on t he Great Barrier Reef and forms part of the Palm Island group of islands. Orpheus Island is within the Townsville/Whitsunday management area of the Great Barrier Reef Marine Park Authority and as the only national park within the Palm Island group is also under the management of the Queensland Department of Environment and Resource Management.

Composed of volcanic rocks, the island stretches for 12km and comprises of 1,368 hectares of dry woodlands with Moreton Bay ash and acacias dominating, scattered rainforest gullies featuring Figs and Macaranga trees, grasslands, granite outcrops, beaches and bays which are surrounded by fringing reefs. Several mammals and reptiles are found on the island including Bandicoots and Antechinus as well as many species of birds such as the orange-footed scrubfowl, and seabirds such as ospreys and egrets. A known 1100 species of fish and 340 of the 350 known species of reef coral can be found in the underwater gardens of the surrounding fringing reef and adjacent mid shelf reefs.

Aerial View of Orpheus Island © James Cook University, Orpheus Island Research Station

Location of Orpheus Island

DAILY LIFE IN THE FIELD

PLANS AND POLICIES

TRAINING: On Day 1 an overview of the project will be given on site at AIMS in the public lecture theatre. This presentation will provide a brief overview of the goals of the project highlighting the benefits this research can bring to the coral disease field. A series of short 15 minute presentations (2 or 3) in other areas will also be provided to demonstrate the range of projects currently being conducted at AIMS. Subsequently a tour of the AIMS facilities will be conducted to further showcase the research being performed and in the context of the Australian marine and Great Barrier Reef ecosystem.

Participants do not need any prior training in research methodologies. All methods, tasks and use of equipment will be outlined and demonstrated at the beginning of the project.

All participants will be entered into the AIMS visitor registration system for the duration of this project to ensure your safety and appropriate emergency support through AIMS systems. There will be AIMS registration paperwork that will be completed in addition to the Earthwatch paper work plus a safety induction that involves viewing a short video and answering an on-line quiz. Since AIMS is a remote location and you will stay on site it is important to highlight potential dangers and hazards and any procedures to be followed in the unlikely event of an emergency.

TRANSPORT AND DRIVING POLICY: Transport from AIMS to Lucinda Point will be provided in a small people mover. Once at Lucinda Point all participates will board the James Cook University operated boat "the Challenger" for transfer to the Island. A safety briefing will be provided by the skipper of the Challenger before departure to Orpheus Island Research Station. The transfer is approximately 30 minutes.

Safety is enforced at all times © C. Gillies

Participants who have driven themselves to the project may not drive whilst on the project. This includes driving to and from AIMS. Participants who ignore this policy and do drive or ride in another participant's vehicle during the project will be doing so at their own risk and will not be covered under the Earthwatch insurance policy for the expedition.

EARTHWATCH RECREATIONAL TIME POLICY

Project staff will generally accompany participants from the rendezvous to the end of the expedition. For recreational days, when no research activities are scheduled, Earthwatch scientists will offer either a team activity or a range of recreational activities that comply with Earthwatch standards. Participants may also remain at project accommodations. Those who pursue other options must sign a release form.

If there is a period of time during a regular research day when no research activities are scheduled, adult participants may leave the project site on their own; they will have to sign out first. Unless contacted for help, project staff will not search for a participant unless he or she fails to appear the following morning or for the next scheduled research activity.

Earthwatch will assess the general risks of adult participants leaving the project site, but cannot guarantee participant safety or an awareness of all issues. In some cases, due to local conditions, adult participants may have to stay at the project site during recreational time, which will be clearly communicated on site.

SAFETY BRIEFING: Once participants have received facility inductions and settled into the accommodation on Orpheus Island, a further project and safety briefing will be conducted in the common room at the Research Station. This briefing will specifically highlight any safety issues on the Island and sort out basic operating procedures including timetables for cooking, cleaning and planned field activities. This is followed by introducing procedures for organizing aquarium set-ups for hosting live coral samples that will be collected in the following days for research experiments.

GENERAL DIVE PROCEDURES: To help in training of volunteers for the field work, a dive induction will be carried out in the calm water just off from the research station. This is planned for on the first day on the island just off from the point of the station. Participants can acclimatise themselves to the diving activities including preparation, communication involved and familiarisation with any equipment to be used (e.g. cameras, transect tapes etc.). After the dive, a debrief will occur to highlight any issues or concerns for relevant parties prior to the start of the science based activities.

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 they fail their check-out dive, dive unsafely, or place themselves 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.

Before the start of each day's diving activities a toolbox session will be undertaken, to fully explain the aims of the diving activities and how the daily tasks will be performed and achieved. This will include assigning dive buddies, work tasks both above and below the water and the expected outcomes. Any potential hazards of dangers will be discussed especially in relation to updated weather conditions.

All participants and project staff will wear full wetsuits, dive booties, fins, snorkel and masks. There will be sun exposure risks for all participants whilst travelling on the boat, and snorkellers should be extra cautious. High factored waterproof sun block should be worn on exposed areas, and hats should be worn whilst on the boat.

For further information on Earthwatch Diving operations please contact the Earthwatch Australia office: +61 (0) 3 9016 7590.

During each evening a summary of activities from that day will be undertaken and any problems or issues raised and discussed.

ITINERARY AND DAILY SCHEDULE

Weather and research needs can lead to changes in the daily schedule. We appreciate your cooperation and understanding.

DAY 1: ARRIVAL DAY

Time of Day	Activity
11:00–12:00	Arrive at Townsville and meet the team. Drive to AIMS
12:00–1:00	Arrive at AIMS and have lunch
1:00–2:30	Presentations by AIMS scientist
2:30–4:00	Tour of AIMS
4:00–6:00	Settle into accommodation, free time until dinner
6:00–7:30	Dinner

DAY 2: TRAVEL DAY

Time of Day	Activity
Morning	Travel to Orpheus Island Settle in accommodation Safety briefing and orientation
Afternoon	Organization of laboratory and aquarium facilities
Late afternoon	Preliminary dive to assess ability of all participants—area off from the station
6:00–7 :30	Dinner

DAYS 3-7: FIELDWORK DAYS

* ½ a day will be allocated to free time on one of the afternoons during days 3-7.

Time of Day	Activity
7:00–8:00	Breakfast
8:00–8:30	Morning brief on the day's activities: Outline the aims for the field-based activities for that day.
8:30–9:30	Prepare all equipment and supplies and load the boats in preparation for leaving.
9:30–10:00	Travel to the site for that day.
10:00–3:00	Undertake the day's field activities which will usually include 2 x 90 minute dives with more than 1 hour surface interval. Lunch taken between dives.
3:00–3:30	Return to OIRS
3:30–5:00	Wash all gear, clean required equipment and fill scuba tanks for the next day
5:00–6:00	Free time for showers, personal activities
6:00–7:00	Dinner time
7:00–8:00	Summary of the day's activities plus a scientific talk on relevant marine topic, laboratory observations.

DAY 8: FIELDWORK DAYS

Time of Day	Activity
Morning	Breakfast, pack and tidy up and depart OIRS and return to Townsville.

ACCOMMODATIONS AND FOOD

ABOUT YOUR HOME IN THE FIELD

The first night of the project is spent at AIMS headquarters, which is located on a 207 hectare coastal site 50 km from Townsville, Queensland, in a scientific zone surrounded by National Park and Marine Reserve. AIMS provide on-site accommodation to visiting researchers, guests and staff running overnight experiments. Accommodation includes six self-contained houses (sleep up to six) and six motel-style units (sleep up to two).

The remainder of the project is spent on Orpheus Island Research Station, operated by James Cook University. The research station is located on the western side of Orpheus Island within Pioneer Bay.

Participants will stay in Havana house, a double-storey accommodation block capable of housing 48 guests. A separate building houses a large recreational area including a TV/video, CD's and stereo, lounge chairs and a range of games, combined with 2 well equipped kitchens. The iconic Australian barbecue will also be at hand.

The kitchen is equipped with a refrigerator, a gas stove and a sink connected to running water. The stations fresh water supply is derived entirely from rain water. Consequently visitors are asked to conserve water at all times and restrictions may be put in place during prolonged dry periods.

It is possible that there will be other guests staying at the Research Station that are not associated with the Earthwatch project, so the team will need to respect other visitors and keep noise to a minimum.

SLEEPING

Staying in the Havana house, rooms are shared; single sex will be arranged if possible, with 4-6 bunk beds. Each room is equipped with a wall fan and open wardrobes and over looks either the ocean or rainforest. Pillows, mattress protectors, linens and a blanket are provided.

BATHROOMS

Bathrooms are located at the back of Havana house. They are shared facilities offering six hot water showers and compost toilet stalls, as well as 3 deep water sinks for laundry. Showers must be kept to a minimum time (3 mins), as the water supply is the rainwater tanks.

ELECTRICITY

Electricity at the research station is provided by a stand-alone system consisting of a generator and battery bank. The Havana House is supplied with access to 24 hour electricity and all rooms are equipped with working power sockets. Participants are asked to conserve energy wherever possible to help conserve power consumption. Additionally due to changes in load demand, this may result in low level surges in the power supply. It is recommended that if visitors are using sensitive electronic equipment to bring surge protection boards.

INTERNET AND COMMUNICATIONS

Orpheus Island Research Station offers internet access and wireless in most buildings free of charge. However, they do not provide computers so participants will have to bring their own laptop.

Mobile phone reception, with the exception of Vodafone, is generally available at the beach. Telstra Mobile tends to have the best coverage in Australia. Communication between teams of volunteers on-site will be via UHF radio.

For further information on Orpheus Island Research Station see **public.jcu.edu.au/oirs/index.htm**

FACILITIES

The research station supports a number of temperature control rooms and both a wet and dry laboratory. Participants are not to access any of the temperature control rooms if they are in use, as this will interfere with the research being conducted. The wet lab, a large undercover concreted area, is where the aquarium experiments will be performed.

There is also a small library on site located within the lecture theatre. The library contains a selection of reference books, which includes identification guides that are relevant to the area and required reading material for education field trips. There is also available a selection of paper and electronic theses, journal articles and reports based on work conducted at OIRS.

DISTANCE TO FIELD SITE

Participants will travel by boat for approximately 30 minutes to the field locations.

FOOD

Earthwatch will provide all food during your stay at the research site.

Participants and staff will be responsible for making their own continental breakfasts in the morning.

Lunch will be had in the field, and participants and project staff will be expected to make their own sandwiches in the morning before departing. Fruit and snack foods (e.g., muesli bars) will be available to pack as well.

Dinner will be a cooked meal and all participants will be expected to participate in the preparation of meals according to a roster. Evening meals will be hearty and comprise meats, vegetables, pastas, rice etc. BBQs will be planned but will be dependent on weather.

Housekeeping will be shared, with small teams assigned to duties each day. Tasks may include washing and drying dishes, sweeping the kitchen floor, wiping benches, cleaning the bathroom, packing away chairs and tables after meals etc. A roster with full tasks will be established on the first day of the project.

Fresh drinking water will always be available at the accommodation quarters. All freshwater on the island comes from rain water tanks, which is filtered and safe to drink. Water should not be wasted.

Tea, coffee and cordial will also be readily available at the accommodation.

Below are examples of the foods you might expect in the field. Variety depends on availability, and while this list provides a general idea of food types, please be flexible.

BREAKFAST: Cereals, toast and spreads.

LUNCH: Sandwich meats, spreads and salads, cheese, fresh fruit, muesli bars.

DINNER: Pasta, curries, stir fries, BBQ meat and salads, sauces, etc.

SNACKS: Crackers, fruits, sweet biscuits, muesli bars.

BEVERAGES: Coffee, tea, milk, fruit juices / cordial, water.

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.

TRAVEL TIPS

SUGGESTIONS FOR THE ROAD

LUGGAGE

GENERAL CONSIDERATIONS: Do not bring more luggage than you can carry and handle on your own. If travelling 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.

TRANSFERRING LUGGAGE: If you will take an international flight with one or more connections in the country of your destination, you must collect any checked bags at the airport where you first arrive in the destination country. After proceeding through customs, you must recheck your luggage before flying on to your final destination.

PACKING YOUR LUGGAGE: Make sure to check the Expedition Packing Checklist for a complete list of what you will need to take with you. You are encouraged to go through the list and mark off each required item right before you leave for your expedition. Also take weather conditions into consideration when packing.

MONEY MATTERS

LOCAL CURRENCY: Australian Dollar. See xe.com/ucc for currency information and exchange rates.

PERSONAL FUNDS: No funds are required for the expedition, however participants may wish to take some cash (AUD$) with them to buy snacks and beverages before going to the island. There are no shops on the island so any additional snacks/ beverages will need to be bought beforehand. For those travelling from overseas, airports and most major towns will offer banks and/or exchange bureaus during business hours, as well as ATM's for cash withdrawals (please check with your bank beforehand to see if yours cards are compatible with Australian ATM's). In most locations you can use EFTPOS or credit cards for large purchases but smaller purchases are paid for with cash.

Please also check with your bank in regards to accessing your money within Australia. You may require additional funds while travelling before/after your expedition – MasterCard and Visa are widely accepted throughout Australia, however cash is preferred for small purchases.

YOUR DESTINATION

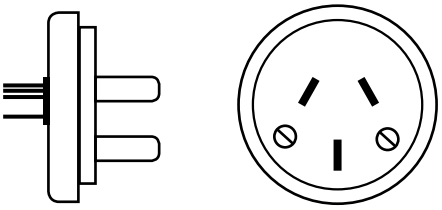
LANGUAGE: English

TIME ZONE: GMT/UTC +10 For time worldwide with GMT/UTC see: worldtimeserver.com.

TELEPHONE DIALLING CODES: When calling Australia from another country, dial the country's international dialling code, followed by 61 and the number. When calling within Australia, omit the 61. When calling another country from Australia dial 0011, followed by the other country's country code and the number. **NOTE:** you should check with your cell phone provider to obtain any carrier-specific dialling codes you may need; many providers have dialling procedures that may differ in whole or in part from these directions. For additional information see kropla.com/dialcode.htm

ELECTRICITY: V240 volts, 50 Hz, three-pronged plug with flat blades. For additional information see kropla.com/electric2.htm

PLUG TYPE I



OTHER USEFUL LINKS:

UK FOREIGN AND COMMONWEALTH OFFICE:
fco.gov.uk/en/travel-and-living-abroad/

COUNTRY INFORMATION FROM AROUND THE WORLD:
countryreports.org

NATIONAL GEOGRAPHIC MAP MACHINE:
plasma.nationalgeographic.com/mapmachine

US STATE DEPARTMENT: state.gov

ONLINE UNIT CONVERSIONS: onlineconversion.com

WORLDWIDE WEATHER: wunderground.com or tutiempo.net/en

ATM LOCATOR: developer.visa.com/atmlocator or mastercard.com/atmlocator/index.jsp

PASSPORTS AND VISAS

WILL YOU NEED A PASSPORT?

Yes. In most cases, your passport must be valid for a minimum of six months after the date of entry into the country you are visiting.

WILL YOU NEED A VISA?

Citizens of every nation except for Australia and New Zealand need to apply for a visa to enter Australia. There are 3 types of tourist visas available for various nations (ETA, EVisitor & Visitor subclass 600). You can complete a questionnaire directly on the Australian immigration website immi.gov.au/visawizard/ that will determine which of these visas is right for you. Alternatively, you can also check with your local travel agent or a visa agency to find out. Participants are advised to check visa regulations well in advance of travelling.

INFORMATION FOR VOLUNTEERS REQUIRING VISAS ONLY

TYPE OF VISA TO GET: TOURIST

The purpose of your visit is for vacation, holiday or travel. 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 labour laws and about official scientific research permits and credentials, etc., to which volunteers will not be equipped to respond on their own. All required research permits for the project are in place and have been approved by the proper authorities.

WHERE TO GET A VISA: Depending on which visa you are eligible for, you can apply for it online at immi.gov.au/ or contact the nearest Australian embassy or consulate to find out how to apply. This process can take weeks or even months. We strongly recommend using a visa agency, which can expedite and simplify the process.

SUGGESTED AGENCIES

IN THE U.S.: Travisa; 212-613-2223; travisa.com

IN EUROPE: CIBT, Inc. (U.K.) uk.cibt.com

IN AUSTRALIA: Ask your travel agency if it can send your visa application on your behalf.

COST OF A VISA: If you are a EU passport holder, your visa will generally be for free. Other visas can cost AU$20 or even AU$115 in some circumstances. A visa agency will charge an additional fee.

CONTACT INFORMATION: You may be required to list the following contact information on your visa application and immigration form:

Cassandra Nichols
Earthwatch Australia
126 Bank Street
South Melbourne
VIC 3205, Australia
EMAIL: cnichols@earthwatch.org.au
PH.: +61 (0) 3 8102 1210

PROJECT CONDITIONS

THE FIELD ENVIRONMENT

GENERAL CONDITIONS

The information that follows is as accurate as possible, but please keep in mind that conditions may change.

The weather is expected to vary within the limits below.

The climate at Orpheus Island is tropical, with the summer (November to April) hot and humid with the temperate in the low 30's (°C = high 80's°F). The rainy months are during January to March with an average annual rainfall of 1680mm (5.5ft). Summer winds are variable, with extended calm periods. Cyclones developing in the Coral Sea (November to May) may produce strong winds and heavy rains, but rarely threaten the island. Southeast trade winds dominate the cool, sunny, dry season from June to November. During this period daily temperatures may be variable and a range of attire is recommended with overnight temperatures dropping to 20° Celsius.

CONDITIONS

Condition	April	September
Humidity	75%	56%
Temperature Range	20–29° C / 68–84° F	16–28° C / 61–82° F
Rainfall	Monthly average 203.4 mm/ 0.8 ft	Monthly average 203.4 mm/ 0.8 ft
Altitude	Sea level	Sea level

Water Conditions	
Typical water temperature at working depths	28°–30°C / 82°–86°F
Typical water visibility	2–10m / 6.6–33ft
Typical maximum water depth (bottom depth) in area	3–30m / 9.8–98.4ft
Site diving type	Fringing Reef
Anticipated depth of dives	3–10m / 9.8–33ft
Anticipated number of dives per day	2–3
Dives initiated from	Boats & shore
Timing of dives	During the day
Egress into water	over edge
Diving bottom limit (20m/65ft is max. under EW policy)	15m / 50ft

Water temperatures range from 28 to 30° Celsius (82 to 86° Fahrenheit) in summer and can drop as low as 23° Celsius (75° Fahrenheit) in winter.

ESSENESSENTIAL ELIGIBILITY REQUIREMENTS

Physical Demands: The project can be very demanding physically, due to strong currents and sea swell. Those who are prone to seasickness should bring preventative treatments with them. If you feel nauseous, it is best to stay in the water rather than get back on board the vessel, as the rocking of the boat is likely to make you feel worse.

Expected demands of the project: Please keep in mind that conditions may change and the project could potentially be more or less strenuous than these points indicate. 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, in the potential presence of wild animals and insects.
- ❑ Sit for 2-3 hrs per day (travel via vehicle or boat, evening lectures).
- ❑ Walk distance to access research boats depending on tide levels on a sand flat in front of the research station (up to 300 m).
- ❑ Carry their own dive equipment except for dive-weights and SCUBA tanks (up to 10 kg) to and from the boat and may help carry research equipment. The distance differs according to the tide level (up to 300 m) and it may be in shallow water (up to 50 cm). Loading heavy equipment will be done at high tide. This is across a short distance on the beach, 50-100m, and a carrying cart/vehicle will be available.
- ❑ Dive/Swim/Snorkel twice a day for 90 mins each.
- ❑ Bend 2 hrs per day when doing aquarium experiments, cleaning field gear.
- ❑ Work on a boat for 2-3 hrs a day. Travel to research sites will be via boat and take no longer than 30 mins. 1 hour surface time will be spent on the boat
- ❑ Adhere to the briefing guidelines, be aware of their limitations and apply common sense while participating.

BOATING REQUIREMENTS: In order to assist on the research boat you will need to be relatively fit and agile. Although research boats may have a canopy for shading, sun protection is required for the 1hr surface interval and other field activities. Depending on winds, the trip may be bumpy and participants may feel cold on the return trip after being in the water all day. An all-weather proof or wind breaker jacket may be advisable.

SNORKELLING REQUIREMENTS: In order to participate in the project you must have had some dive experience, even if you are joining as a snorkeller. Dive experience is important as it teaches you important fin technique, and how to clear your mask under difficult conditions. Having dive experience should also mean that one is likely to feel more comfortable in open water with strong currents. The risks involved with snorkelling and duck diving are similar to those experienced when diving. Therefore, we do require that participants complete a Recreational Dive Medical, which can be performed by any General Practician and replaces the medical section within the application form.

DIVING REQUIREMENTS: 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. If you intend to dive, you must be in good physical condition and must have undergone a recent physical examination by a certified SPUMS Dive Examiner. An individual with heart trouble, current cold or congestion, ear infection, epilepsy, asthma, a severe medical problem or is under the influence of alcohol or drugs should not dive without a physician's explicit approval.

If wishing to participate as a diver on this project you will need to register as an Earthwatch Australia Registered Diver. In order to register you need to meet the requirements and supply copies of all supporting documentation, see below. In addition, this project in particular requires competent divers. Divers must have experience in low visibility and strong currents. You may be required to present documentation (written log) demonstrating this, therefore the original documents need to be brought along.

Check	Requirements	Documentation required
❑	Hold at least an 'Open-Water' diver certification from a recognised diver training agency	Dive Certification Card
❑	Have a working familiarity with the short form DCIEM Air Decompression Tables	No documentation required
❑	Pass an Occupational/commercial dive medical within 12 months prior to diving by a medical practitioner appropriately trained in underwater medicine and registered with SPUMS*	Supply a diving medical from a SPUMS registered doctor dated within 12 months of the start date of the project stating that the diver is fit to dive using compressed air, as well as noting any limitations imposed by the doctor
❑	Have logged at least 30 dives since completion of 'Open-Water' dive course, with at least one of those dives logged within six months of the start date of the project, and in waters similar to those of the planned dive (e.g. temperate)	Copy of last 30 dives from dive log (Please bring full dive log on trip) with evidence that your last dive was within 6 months of the start date of the project
❑	If intending to use your own SCUBA diving equipment, it must be serviced 6 months prior to diving and will be inspected by the Dive Master or Dive Coordinator prior to diving	Evidence to show that the equipment is in current test and/or has been serviced within 6 months prior to diving
❑	Hold dive insurance which provides emergency evacuation service as well as dive accident treatment cover.	DAN Dive Insurance Card or equivalent (stating what type of coverage is provided. E.g. Standard, Preferred or Master). See danasiapacific.org/index.php.

You can find a doctor nearest to you at the South Pacific Underwater Medicine Society site (SPUMS):* **spums.org.au/diving-doctors-commercial *by clicking the commercial diving doctor list.*

Currently commercial diving doctors are available in following countries: United Arab Emirates, Australia, Azerbaijan, Belgium, Canada, Switzerland, Germany, Hong Kong, Malaysia, Netherlands, New Zealand, Philippines, Saudi Arabia, Singapore, Thailand, United Kingdom, United States (please keep in mind that doctors may change. Visit the SPUMS website for a more up-to-date list of Commercial diving doctors).

Costs may vary between doctors and you will need a chest x-ray as well. You will need to have your x-ray and x-ray report with you for the Occupational/Commercial Dive Medical examination. If you are unable to see a SPUMS registered doctor before your arrival in Australia, you will need to organise an appointment in Australia prior to fielding. It is necessary that you bring your original chest x-ray and doctor's x-ray report (in English) from your country of residence with you in order for the Occupational/ Commercial Dive Medical to be completed within Australia.

Below is a list of Commercial Dive Doctors located in Townsville. Please note that you will have to arrive at least a day before project start if you are seeing a doctor in Australia.

DR J W CAIRNS
07 4721 2455
Queensland (4810)
TOWNSVILLE

DR CONWAY SAVIS
07 4779 0622
Queensland (4810)
TOWNSVILLE

DR JOHN CD TURNER
07 4795 7800
Queensland (4813)
TOWNSVILLE

DR LORETTO MAXWELL
0747799544
Queensland (4810)
TOWNSVILLE

JOSH MUNN
07 4772 5191
Queensland (4810)
SOUTH TOWNSVILLE

POTENTIAL HAZARDS

Hazard Type	Associated Risks and Precautions
Transportation	Vehicles will be driven on sealed roads to AIMS and to the boat launch site to Orpheus Island. All vehicles are equipped with airbags, seatbelts, spare tires, first aid kit with Emergency Response Plan and mobile phone. Only experienced project staff will drive vehicles and they will obey all road rules. Passengers and driver will be instructed to wear seatbelts at all times whilst the vehicle is in motion. Participants are not allowed to drive (including their own vehicles) whilst on an Earthwatch team.
Working in boats	Boats are well maintained, and include, UHF radio, life preservers, emergency flares, fire extinguisher, and first aid kit. Life jackets are available for all passengers. All participants and project staff will be wearing wetsuits which assist with buoyancy. All participants must be able to swim. The boat is only used in daylight hours and only when sea state is acceptable to the skipper. The skipper is certified and experienced in driving boats in the area. Boat communications include EPIRB, flares, UHF radio and mobile phones. There is a communications plan with the research station outlining boat return time, destination and people manifest
Slips and Trips	Participants will need to board the boat by walking out on to the beach to the closest point where the boat can get in due to tides. Participants are instructed to be careful when embarking and disembarking the vessel and should hold on to the hand rail or sides of boat. Participants should always wear their booties when walking out on the reef and boarding the boat.
Snorkelling	Only participants with appropriate swimming abilities and fitness are allowed to participate in the research. Participants are paired up so that a strong snorkeller is matched with a weaker snorkeller. An experienced project staff member is always present, in order to supervise snorkellers. Participants will wear wetsuits which provide buoyancy. During the safety briefing participants learn snorkelling safety signals, and are advised how to use them if they run into trouble.
Diving	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. As with all diving activities there is a risk of a decompression illness (DCI). There isn't a recompression chamber on the island; therefore, there will be strict diving restrictions imposed. Only participants who have signed up to the Earthwatch Australia Dive Register through passing a dive medical, providing clear x-rays, providing evidence of significant dive experience can participate on Earthwatch dive projects. A Dive Master is always present with divers. Oxygen is kept on board the boat. Project staff are first aid qualified. Participants are buddied up based on experience. Participants are guided down and up slowly in order to prevent descending and ascending too quickly. There is a diver reponse plan in place.
Poisonous and stinging marine animals	There is potential for participants or staff to be stung or bitten by some species of marine life present. For e.g. stone fish, sea snakes, stingrays, various jellyfish. Participants should wear wetsuits, flippers and mask, which will provide protection from most stinging wildlife. Participants are instructed not to pick anything up or touch dangerous creatures. If participants are stung they should alert project staff and apply first aid according to what has caused the sting. Participants should wear booties or some closed footwear when walking in the water and shallow reef in the bay.
Sharks	There is low risk of encountering a dangerous shark on the project. If a shark is present nearby and advance warning has been given to the team via the staff at OIRS then research activities will be cancelled in that location. These large sharks will most likely demonstrate aggressive behaviour before they strike. If a shark is spotted and displaying aggressive behaviour, all participants will evacuate the water as quickly as possible.
Low hanging branches can cause head or eye injury	Participants should be careful when walking around the island, and to not walk with heads down.
Heat related illnesses, dehydration	Participants should bring water-proof sunscreen. Participants should drink plenty of water throughout the day. If participants start to feel unwell they should notify a project staff member immediately, get out of the water as quickly as possible, and rest in a shaded area, whilst cooling themselves with water.
Coral rubble and sharp shells	Participants should not go barefoot when walking around base camp or when walking out on the reef.
Gas stove	Participants will be cooking on gas stoves and the risk of burns is possible. Participants will be briefed about the cooking facilities and warned to take care when using any gas elements.
Snakes	Venomous snakes are found on the island. If participants come across a snake, they should not try to catch it or kill it. Participants should back away from the snake and let it be. Participants will be briefed on snakes on arrival and advised to wear closed in shoes when walking around the island.

SAFETY

HEALTH INFORMATION

ROUTINE IMMUNISATIONS

All volunteers should have the following up-to-date immunisations: 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.

Medical decisions are the responsibility of each volunteer and his or her doctor, and the following are recommendations only. Earthwatch can only provide details regarding suggested vaccinations, and we are not a medical organisation.

PROJECT VACCINATIONS

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

RECOMMENDED: Tetanus is generally recommended for health reasons.

Health conditions around the world are constantly changing, so keep informed and consult your physician, a local travel health clinic, the US Centre for Disease Control (cdc.gov), or the World Health Organization (who.int) for the latest health information for travellers.

Any prescription medication brought into Australia needs to be accompanied with a letter from your doctor for Customs Inspection purposes. For further information the regulation of medications, please see:

tga.gov.au/consumers/travellers.htm. Medical attention, of high quality, will be sought should any serious ailments occur.

ADDITIONAL HEALTH INFORMATION RESOURCES

TRAVEL HEALTH WEBSITE: mdtravelhealth.com

THE TRAVEL DOCTOR: tmvc.com.au

AUSTRALIAN DEPARTMENT OF HEALTH AND AGING: health.gov.au

HOSPITAL FOR TROPICAL DISEASES: thehtd.org

MEDICAL CONDITIONS OF SPECIAL CONCERN

Hydrophobia, discomfort in or around boats; uncontrolled inner ear infections, conditions that reduce or limit your ability to equalize pressure in one's ears; conditions that affect balance, blood clotting issues and/or any condition that interferes or limits a volunteers' swimming or breathing should be considered carefully. If you are pregnant, you should inform your doctor prior to diving. If you suffer from motion or seasickness and intend to treat this with either over-the-counter or prescribed medication, please discuss the use and side effects with your doctor.

Condition	Concerns and precautions
Medical Complaints	Due to the remoteness of the area and the time it takes to evacuate, those who may require quick access to medical care due to any medical complaints should not take part on this project.
Allergies	Those with known allergies to dust, grasses, mammals, plants or insects (including mosquitoes and sand-fries) should bring appropriate medications in order to participate on this project. Those with severe bee-sting allergies should bring an Epi-kit and carry it with them at all times.
Back or neck problems	Those with chronic or constant back or neck pain should be aware that some days may require travelling on the boat in bumpy conditions and should reconsider their ability to participate.
Knee or ankle problems	This project requires bending and lifting as well as participants to walk over uneven and steep terrain.
Physical limitations	Volunteers with physical limitations should be aware that the work involved generally requires a good level of fitness.

EMERGENCIES IN THE FIELD

The nearest medical care and pharmacy is available on Palm Island. Participants would be transported by boat to Palm Island which takes approximately 30 minutes. For more serious injuries participants would be transferred to taken directly to the hospital in Ingham. This would take approximately 40 mins, via boat to Taylors beach then ambulance to Ingham hospital. For life threatening injuries, Royal Flying Doctors will be called and participants would be airlifted from the island directly to Ingham or Townsville hospital.

PROXIMITY TO MEDICAL CARE

Physician, nurse, or EMT on staff: Project staff are not medical professionals.

Staff certified in safety training: All AIMS and JCU team members are qualified in CPR and hold a First Aid / oxygen provider certificate. All Earthwatch Team Leaders are qualified in CPR and hold a First Aid certificate.

NEAREST MEDICAL TREATMENT:

JOYCE PALMER HEALTH SERVICE

Beach Road
Palm Island, QLD 4816
Telephone: (within Australia) (07) 4752 5291
(International) +61 7 4752 5291
Travel time from project: 20 min boat

INGHAM HEALTH SERVICES

McIlwraith Street
Ingham, QLD 4850
Telephone: (within Australia) (07) 4720 3000
(International) +61 7 4720 3000
Fax: +61 7 4720 3001
Email: THSD-Feedback@health.qld.gov.au
Travel time from project: 45km/40 mins boat + ambulance

THE TOWNSVILLE HOSPITAL

100 Angus Smith Drive
Douglas, QLD 4814
Mailing Address: P.O. Box 670, Townsville QLD 4810
Telephone: (within Australia) (07) 4796 1111
(International) +61 7 4796 1111
Fax: 4796 1197
Email: THSD-Feedback@health.qld.gov.au
Travel time from project: 155km / 2.5 hours

INSURANCE

Travel insurance is included in the contribution you pay to Earthwatch. The insurance covers your travel medical risks, including medical expenses and emergency medical evacuation, while you are traveling. It also provides trip cancellation insurance and baggage and personal money insurance. This insurance policy is secondary to your existing health insurance policy.

Refer any queries regarding Earthwatch's travel policy to our insurance liaison at +1 (978) 450-1222 or insurance@earthwatch.org.

If you booked through Earthwatch Australia, please contact them at +61 (0) 9016 7590 or earth@earthwatch.org.au for any queries.

For more information, please see earthwatch.org/expeditions/travel-insurance.

EMERGENCY MEDICAL AND EVACUATION ASSISTANCE

For emergency assistance in the field, please contact Earthwatch's 24-hour emergency hotline number highlighted below. If you have booked through any Earthwatch office outside Australia, you may contact our provider, Healix International, in the event of a medical/evacuation emergency or for routine medical and travel advice, such as advice on visas and vaccine requirements. Volunteers booking through the Australia office, please contact them at the hotline number below for all emergencies.

EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE (OUTSIDE AUSTRALIA)

Call Earthwatch's 24-hour on-call duty officer in the U.S.:

+1 (978) 461-0081
+1 (800) 776-0188 (toll-free for calls placed from within the US)

HEALIX INTERNATIONAL:

+44 (20) 3667-8991 (collect calls/ reverse charges accepted)
US TOLL FREE: 1 (877) 759 3917
UK FREE PHONE: 0(800) 197 5180
EMAIL: earthwatch@healix.com

EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE (WITHIN AUSTRALIA):

+61 (0) 3-8508-5537

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

PROJECT STAFF

YOUR RESOURCES IN THE FIELD

EARTHWATCH SCIENTIST DR DAVID BOURNE is a Research Scientists at the Australian Institute of Marine Science (AIMS). He has been involved in a number of research themes at AIMS including marine microbes for drug discovery and the microbial dynamics in aquaculture (Rock Lobster) larval rearing systems. More recently his work is solely focused on understanding microbial interactions with corals. This work is divided essentially into two areas, the first investigating the normal microbial communities associated with corals and their functional roles in maintaining coral fitness. The second research focus is to elucidate pathogens and mechanism of disease onset in corals and the implications this has on a stressed reef ecosystem in light of climate change being a major driver of coral reef degradation.

David is the Principal Investigator on Project Manta and will be present on all teams.

EARTHWATCH SCIENTIST PROF. BETTE WILLIS is a Professor in the School of Marine and Tropical Biology at JCU, where she has led an active research group addressing questions relating to the impacts of stress on the biology and ecology of scleractinian corals for about 25 years. Also, she is a Chief Investigator in the ARC Centre of Excellence for Coral Reef Studies and was the co-chair of the GEF/World Bank Working Group on Coral Disease in the Coral Reef Targeted Research program 2004-2009. Her early research was directed towards understanding the evolutionary implications of mass spawning and hybridization in corals. Most recently, a major research focus has been to determine the ecological significance of coral disease on the Great Barrier Reef and potential environmental drivers of coral diseases. A second focus has been to evaluate the potential for algal endosymbioses to enhance the capacity of corals to cope with climate change. Overall, her research strives to understand factors that underpin the health of reef corals and the replenishment of reefs, from mechanisms of innate immunity to those enabling acclimatization o r adaptation to thermal stress.

FIELD STAFF YUI SATO is a Postdoc at James Cook University and a member of AIMS at JCU. His current research interests include ecology and microbiology associated with disease and health of reef-building corals. His Ph.D. thesis addresses population dynamics of black band disease in the central Great Barrier Reef, its environmental drivers and microbial mechanisms that lead to the onset of this disease. Yui is a multiple-award winner for his excellence in scientific publication and oral-presentations at Australian and international conferences.

NOTE: In addition, there will be various Research Assistants joining the expedition. A staffing schedule is still to be announced.

RECOMMENDED READING

YOUR RESOURCES AT HOME

SCIENTIFIC MEDIA

BOOKS

- *Introduction to Marine Biology*. George Karleskint, Richard Turner, James Small. (2006) Brooks/Cole, USA.

JOURNALS

- Kuta, KG and LL Richardson (2002) *Ecological Aspects of black band disease of corals: relationships between disease incidence and environmental factors*. Coral Reefs 21: 393 – 398.

ARTICLES

- "Major Reef Building Coral Diseases 2010" http://coris.noaa.gov/about/diseases/

POPULAR MEDIA

BOOKS

- *Coral Reefs in the Microbial Seas* (Forest Rohwert).
- *Corals of the World* (Chalie Veron)

FILMS

- *Coral Reef Adventure* (coralfilm.com)
- *The Blue Planet* (BBC)

PROJECT RELATED LINKS

- ORPHEUS ISLAND RESEARCH STATION: public.jcu.edu.au/oirs/
- TOWNSVILLE: townsville.qld.gov.au/Pages/default.aspx
- AIMS: aims.gov.au/

SOCIAL MEDIA: EARTHWATCH AUSTRALIA

- FACEBOOK: facebook.com/EarthwatchAustralia
- TWITTER: twitter.com/Earthwatch_Aus
- YOUTUBE: youtube.com/user/EarthWebBoy
- INSTAGRAM: instawebgram.com/i/earthwatch_aus
- PINTEREST: pinterest.com/earthwatchaus/
- GOOGLE+: plus.google.com/+EarthwatchSouthMelbourne/posts
- FLICKR: flickr.com/photos/earthwatchaustralia/

SOCIAL MEDIA: EARTHWATCH INTERNATIONAL

- FACEBOOK: facebook.com/Earthwatch
- TWITTER: twitter.com/earthwatch_org
- YOUTUBE: youtube.com/earthwatchinstitute

PARTICIPANT RIGHTS AND RESPONSIBILITIES

This document contains important information concerning Earthwatch Institute policies and participant rights and responsibilities for inclusion in 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. You will not be permitted to participate 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. Co-opting or plagiarism of data, images, or information gathered during an expedition for use in a scientific thesis, master's, or PhD work, or for profit or for the academic or business use of a third party without the permission of the Earthwatch scientist is strictly prohibited. Please be aware that data gathered during the interviewing of local people become the intellectual property of the Earthwatch scientist. 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 the 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 antidiscriminatory and that the possibility exists that local residents may not have an awareness of preferred practice regarding discrimination.

Discrimination on the basis of race, religion, ethnicity, national origin, gender, 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 nondiscrimination 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 prohibited 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 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, or Earthwatch field staff.

Any individual who feels subjected to sexual harassment or has any knowledge of such behavior should report it at once to the Earthwatch scientist, Field Team Leader, or other Earthwatch staff member. The Earthwatch scientist or Field Team Leader will notify Earthwatch when an accusation of sexual harassment or abuse is made or when such conduct is 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 removed from the expedition at his or her own expense. If a minor is involved in allegations of sexual harassment, his or her parents or guardians will be contacted.

DRUGS

Laws on drug use in most countries are severe and may impose lengthy prison terms or the death penalty. The manufacture, possession, use, purchase, 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 on 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 on-site 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 less than 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 fifteen (15). Guardians accompanying minors on standard teams must be 21 years of age or over. Minors on standard teams do not receive additional guidance or supervision from Earthwatch beyond what is offered to the adult participants. The total number of minors on standard teams may be limited on a project by project basis; this will be noted in the expedition briefing. A maximum of two minors may accompany each parent or guardian on a standard or Family Team. Earthwatch has developed teams specifically for 15-, 16- and 17-year-olds ("Teen Teams") as well as teams specifically for families ("Family Teams") with children as young as 10 years. 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 may be 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 15-, 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 (including motorcycles or all terrain 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 predetermined 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 vehicles during recreational time, but project staff will brief them on any 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 in an Earthwatch project at any time and to terminate any work being done by a participant and require the participant to vacate the project site if the Earthwatch scientist, Field Team Leader, or other Earthwatch staff member in his or her absolute discretion considers it appropriate. In this event, the participant (and his or her parents or guardians, 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 will not be eligible for a refund.

Earthwatch may not refuse an applicant's participation in a project for discriminatory reasons (race, religion, ethnicity, national origin, gender, sexual orientation, or any other reason prohibited by applicable law). However, an application may be denied in the interest of team compatibility or due to logistical limitations. Earthwatch will make reasonable efforts to accommodate participants with disabilities, and the organization endeavors to find appropriate expeditions for those participants who have physical limitations. Refusal of an applicant is an unusual event and is generally done either because of 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 visits by media (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 ("Participant Rights and Responsibilities") is subject to removal from the team at his or her own expense. By signing the Liability Release section of your Earthwatch Participation Form, you are indicating that you have read and understand the policies in this document. Removal of a participant from a team is at the discretion of the Earthwatch scientist, Field Team Leader, or other Earthwatch staff. In addition, Earthwatch will support the right of the Earthwatch scientist, Field Team Leader, or other Earthwatch staff to send a participant away from a project once in the field should his or her 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 guardians prior to his or her dismissal. Should a participant be removed from a team, he or she is responsible for any and all costs associated with departure from the team and will receive neither refund of the minimum contribution for the expedition nor any expenses incurred by participation on the expedition.

(November 2012)

COMMUNICATIONS

CONTACT INFORMATION

EMERGENCY COMMUNICATIONS

Mobile phone reception at the accommodation site is poor but is generally accessible on the beach (except for Vodafone). The Project staff will have mobile phones with them and will also use UHF radios to communicate on the island and to emergency services if needed. A project satellite phone will be also carried in the field. Additionally, there is also a land line and a pay phone at Orpheus Island Research Station which can be used in an emergency if needed.

EMERGENCY NUMBERS:

POLICE: 000

FIRE AND AMBULANCE: 000

JOYCE PALMER HEALTH SERVICES: +61 (0) 7 4752 5291

INGHAM HEALTH SERVICES: +61 (0) 7 7420 3000

THE TOWNSVILLE HOSPITAL: +61 (0) 7 4796 1111

THE EARTHWATCH AUSTRALIA OFFICE CAN BE CONTACTED ON THE FOLLOWING NUMBERS:

DURING OFFICE HOURS: +61 (0) 3 9016 7590

AFTER HOURS: +61 (0) 3 8508 5537
(see next page for calling instructions).

PERSONAL COMMUNICATIONS

Mobile phone reception is generally available at the beach near the research station (except for Vodafone). Orpheus Island Research Station offers a wireless Internet access, but participants must supply their own laptop.

Participants will only be able to contact family and friends in case of emergency. If your family or friends need to get in contact with you we ask that they call the Earthwatch Australia office on the following numbers. The message will then be passed on to the team in the field.

Earthwatch during office hours: +61 (0) 3 9016 7590

Earthwatch after hours email earth@earthwatch.org.au or in emergency call +61 (0) 3 8508 5537.

Orpheus Island Research Station has a land line telephone and fax. There is no regular post; however stamps are for sale at the station office. The Earthwatch team will have limited access to these facilities as they are used by the station's management:

OIRS: +61 (0) 7 4777 7336

ADDRESS: OIRS, Po Box 4, Halifax, QLD, 4850 Australia.

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 mobile phone use with respect for fellow volunteers and staff accordingly.

EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE (OUTSIDE AUSTRALIA)

Call Earthwatch's 24-hour on-call duty officer in the U.S.:

+1 (978) 461-0081
+1 (800) 776-0188 (toll-free for calls placed from within the US)

HEALIX INTERNATIONAL:

+44 (20) 3667-8991 (collect calls/ reverse charges accepted)
US TOLL FREE: 1 (877) 759 3917
UK FREE PHONE: 0(800) 197 5180
EMAIL: earthwatch@healix.com

EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE (WITHIN AUSTRALIA):

+61 (0) 3-8508-5537

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

MESSAGE FROM EARTHWATCH

DEAR EARTHWATCHER,

Thank you for joining our expedition! We do appreciate your decision to be involved in hands-on environmental science and conservation, as a significant personal contribution to a sustainable planet.

As an Earthwatch volunteer, you have the opportunity to create positive change.

While you're out in the field working toward that change, we are committed to caring for your safety. Although risk is an inherent part of the environments in which we work, we've been providing volunteer field experiences with careful risk management and diligent planning for over 40 years. You're in good hands.

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 our Earthwatch office. Thank you for your support, and enjoy your expedition!

Best regards,

Professor David McInnes
Chief Executive Officer, Earthwatch Australia

CONNECT

WITH OTHER EARTHWATCHERS! FIND US ON FACEBOOK AT FACEBOOK.COM/EARTHWATCH AUSTRALIA

OR ON TWITTER @EARTHWATCH_ORG_AUS, AND ON YOUTUBE AT YOUTUBE.COM/EARTHWATCHINSTITUTE

EARTHWATCH® INSTITUTE

Earthwatch U.S.
114 Western Ave.
Boston, MA 02134
United States

info@earthwatch.org
earthwatch.org

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

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

info@earthwatch.org.uk
earthwatch.org

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

Earthwatch Australia
126 Bank St.
South Melbourne,
VIC 3205
Australia

earth@earthwatch.org.au
earthwatch.org

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

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

info@earthwatch.jp
earthwatch.org

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