

Timeline and Checklist

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

Immediately

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

At least 90 days prior to your expedition start date

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

- | | |
|--|--|
| <input type="checkbox"/> Earthwatch Participation Form for SCUBA Divers | <input type="checkbox"/> DAN Card |
| <input type="checkbox"/> Travel Form | <input type="checkbox"/> Dive Certification Card |
| <input type="checkbox"/> Privacy Release Form (Australian participants only) | <input type="checkbox"/> Dive Log |

European volunteers can download forms on: earthwatch.org/europe/volunteerforms

US/North American volunteers can download forms at: earthwatch.org/volunteerforms

Australian volunteers can download forms on: earthwatch.org/australia/expeditions/volunteer_forms/

Japanese volunteers can download forms on: www.earthwatch.jp/getinvolved/condition/formdownload-i.html

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

At least 60 days prior to your expedition start date

- Review the packing list to make sure you have all the clothing and any special equipment needed.
- Obtain any necessary prescription medications that will be needed for your travels **Note:** They must be accompanied by a doctor's note to enter Australia.

Up to 30 days before you leave for the expedition

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

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

Project Manta

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General Information

Project title	Project Manta	
Earthwatch scientists	Dr. Kathy Townsend	
Research site	Lady Elliot Island	
Expedition length:	8 days	Minimum age of participation: 18 years of age*
Team size max:	8 participants	

***Note:** It may be possible for 16- and 17-year-olds to participate on standard teams if accompanied by a parent or guardian. Contact Earthwatch for more information and see *Volunteers Under 18 Years of Age* in the *Passports and Visas* section for traveling advice for minors.

Emergency Contacts

Emergency contact number at Earthwatch headquarters in Australia:

+61 (3) 9625-0822

Someone is always on call to assist you or respond to your message 24 hours a day, 7 days a week. After business hours, leave your message with our live answering service. State that you have an emergency communication and leave a clear message with the name of the field program, your name, location from which you are calling, and, if possible, a phone number where you can be reached. An Earthwatch staff person will be contacted and will respond to your call within one hour.

Emergency medical and evacuation assistance provider:

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

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

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

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



Dear Earthwatcher,

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

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

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

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

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

Sincerely,

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

Ed Wilson
President and CEO

The Research

Project Manta

Research rationale and goals

Manta rays are the world's largest ray with a disc width reaching up to nine metres. The Australian species, *Manta alfredi*, has a worldwide distribution and occurs in relatively shallow waters along the east coast of Australia. Although manta rays are commonly seen and dived with along the coast, there is relatively little known about their biology and ecology and no scientific data available on the eastern Australian population. For example, there is little or no data on:

- population size (is it a single population or several separate populations?).
- whether individuals move up and down the coast or remain in specific regions.
- why they show particular affinities for certain sites.
- individual growth rates.
- size at maturity.
- reproductive biology.
- longevity and age at maturity.

Project Manta aims to rectify this disturbing lack of data through a comprehensive study that will simultaneously enhance our knowledge of *Manta alfredi* and generate economic and social benefits. The manta ray's global distribution and easily identifiable shape makes it an excellent indicator species through which to monitor the effects of environmental change on our oceans and reefs. As the effects of climate change cause marked changes to global oceanic conditions, including changes in water temperature, current patterns and ocean acidification, we need to understand potentially dramatic consequences on the distribution, movements and behaviours of manta rays and the reefs on which they depend. Correlating manta distribution and movements with large-scale oceanographic changes will help scientists to identify and monitor global oceanic health.

An individual manta ray can be identified by the pattern found on its underside. This pattern is as unique as a fingerprint, providing a non-intrusive method of identifying individuals. A database, called the Manta Identification Database, will allow divers and snorkelers to upload their photographs. During the project volunteers will take identification photos of manta rays and assist in observing and gathering data to contribute to filling the knowledge gap on population status, behaviours and distributions fundamental to conservation of the species. The Manta Identification Database will become the best available source of data on which to base decisions about species and habitat management plans. Findings from the database could be utilised to inform government, conservation agencies and commercial operators about how best to protect manta populations while increasing the opportunities for sustainable ecotourism, which provides an economic alternative to hunting.

Project objectives

1. Population Estimates

- **Genetic analysis of manta rays:** Collecting small (5-mm diameter) biopsy samples from individual manta rays using biopsy corers on SCUBA. Samples will be examined to explore the genetic diversity within the East Australia population and will be compared, collaboratively, with manta ray samples from other regions of the globe. Associate Professor Bennett's lab has already obtained samples for genetic analysis from Mexico, southern Africa, Hawaii, Indonesia and Japan. This activity will be done by research staff, not volunteers.

- **Photographic identification of individual manta rays:** Create a photographic database containing images of all manta rays from along the east coast of Australia. This will be web based, allowing divers to submit their images electronically in digital format. We anticipate that this photographic identification portion of the project will run indefinitely, and will allow us to:
 - Calculate the population size.
 - Determine the sex ratio and any spatial/temporal variations.
 - Determine how animals move along the coast through time.
 - Determine the size-frequency pattern for this population.
 - Explore growth rates.
 - Determine recruitment rates (pregnant females and pup numbers).
 - Determine mortality rates (loss of individuals from the population).

2. Movement

Fine Scale

- **Acoustic Tracking:** We plan to use two types of acoustic tags to monitor movements of individuals on local and coast-wide scales. A number of individual animals have been tagged using special acoustic tags, each of which has a unique identification code (R64k ID code) that allows the presence of that tag (= animal) to be logged if it is within about 800 metres of an underwater listening station (VR2). Listening stations have been deployed all around Lady Elliot Island. This is providing valuable data on then presence/absence of animals within a particular area or movements of animals between VR2 monitored areas over long periods of time (months – years). Existing deployments of VR2s by various research groups (Bruce, Tasmania; Otway, New South Wales; and Bennett, Queensland) for other projects will be able to record the tags presence. These listening stations form part of an Australia-wide network shared by marine researchers the Australian Acoustic Tagging and Monitoring System (AATMOS). This means that other tagged fish, including tuna and a number of shark species, may be picked up by the stations. The stations around Lady Elliott require maintenance and are regularly brought in to download data.

Acoustic tagging methodologies will allow us to:

- Explore how individual rays move during 24-hour periods, in relation to tidal and light conditions.
- Determine whether manta rays exhibit repetitive behaviour/movement patterns over extended periods of time.
- Determine the degree to which manta rays exhibit site fidelity.
- Gain diver-independent data on both small and large-scale movements of individual manta rays.

Large Scale

- **Satellite Tags:** To understand the large scale (greater than a half degree of arc) movement patterns of individual manta rays, Argos satellite tags will be attached to the dorsal surface. Data on the animal's behaviour and environment are collected by the tag, summarised and transmitted back to the Argos satellite system. As mantas are wholly pelagic animals, the Pop-up Archival Transmitting (Mk10-PAT) Tag will be utilised. During the deployment the PAT collects detailed depth, temperature, light-level data. From these data large scale movement/migration can be determined. It releases itself from the animal and floats to the surface on a user-specified date. Data are then transmitted to the Argos system.

The PAT tags will allow us to:

- Explore the migration path of individual rays for extended periods (up to several months).
- Determine the depth and temperature ranges thatm's inhabit.
- Gain diver-independent data on large-scale movements of individual manta rays.

3. Interpretation of Movement

Fine Scale

A. Behaviours: Knowing where an animal moves is extremely important. It is in the interpretation of these movements that gives us a greater understanding of the animal and its place within the ecosystem. Direct (diver dependent) and remote (Critttercam) behaviour observations will provide an interpretation of site fidelity of individual manta rays. For example, many manta ray aggregations around the world have been attributed to the presence of cleaner fish stations, food availability and mating aggregations. Through understanding the behaviour of the animals on a fine temporal scale (hours) interpretation of the larger movement patterns can be unravelled.

B. Disturbance: Presence or absence from a site may possibly be attributed to anthropogenic and/or natural disturbances of manta rays. In some areas of the world, boat traffic, coastal development and diver interactions have been attributed to a decrease in numbers of manta rays from popular dive sites. Additionally, predation by large sharks has been attributed to low survivorship of manta rays in some regions. This project aims to quantify the presence and absence of manta rays from a known site through recording boat strike marks, attempted predation (shark bites) and direct recreational diver/boat/manta interactions. From this, best practice guidelines for sustaining a local manta population can be created. This research sub-project will be of particular value to numerous potential stakeholders, particularly dive/ecotourism/island resort operators, the Great Barrier Reef Marine Park and other marine park/protected area management agencies.

C. Food resources: Plankton is essential food for manta rays and there is relative little information on the abundance, composition and nutritional quality of plankton within the areas that manta rays frequent. Many areas that manta rays occur are seasonal, with animals present during certain times of the year. For example, there is some speculation that the manta ray aggregations at Ningaloo Reef in Western Australia are triggered by the mass coral spawning event (it could be expected to also occur in the GBR region), while manta rays around North Stradbroke Island in Queensland are observed only during the summer months. Can this movement be attributed to the availability of food resources? This is currently a gap in the knowledge base required for effective management.

To address this question, boat based plankton tows will be conducted during and outside of “manta season” in those locations in which mantas are known to frequent. Lab-based microscopic analysis of plankton composition and density will follow. A subset of these samples will be dried and analysed for nutritional and energetic content including nitrogen, protein, fatty and amino acids. Differences in quantity and nutritional quality of plankton during and outside of manta seasons will be compared.

Large Scale

A. Remote Sensing: Remote sensing has evolved over the past ten years to represent a true multi-scale sampling tool in both spatial and temporal domains. If the presence and absence of manta rays is found to change relative to the plankton composition, then broad-scale changes may be picked up through remote sensing techniques. This mapped information could help us to predict previously unidentified manta ray aggregations and help to explain some of the movement patterns observed during the large scale tracking.

B. Oceanographic Variable: A longer-term goal of the study is to use manta rays as an indicator species to assist in monitoring environmental change. Global warming has caused marked changes to the global oceanic conditions. Increase in water temperature, changes to large scale current patterns, and ocean acidification are all effects of global warming that may have dramatic consequences on the distribution, movements and behaviours of manta rays. By correlating large scale oceanographic variables with manta distribution and movement may make them a suitable candidate as an easily spotted bio-indicator of global oceanic health.

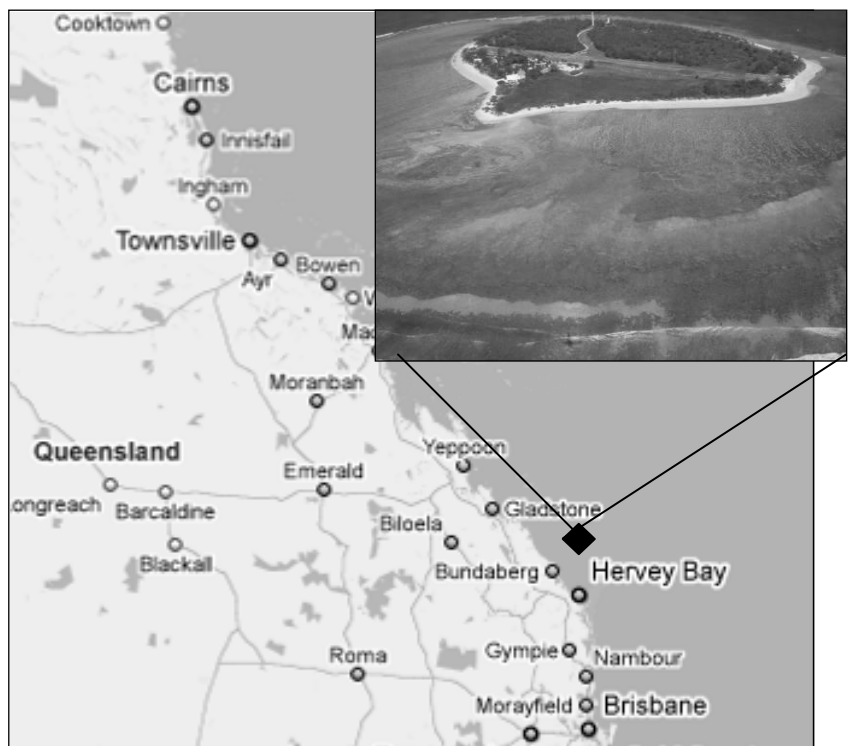
Research area

Lady Elliot Island is situated within the Great Barrier Reef Marine Park in the highest possible classification of Marine National Park Zone by the Great Barrier Reef Marine Park Authority (GBRMPA). The island is a coral atoll and first appeared above sea level 3500 years ago. Sea birds depositing vital guano and necessary seeds helped establish vegetation on the island. The island was first mined for guano in 1863, and continued to be mined for a decade. Apart from eight *Pisonia* trees that still remain standing, all other vegetation and three feet of surface soil was stripped off the island as a result of mining. In an attempt to help stranded sailors, the Queensland Government decided to place goats on each of the Great Barrier Reef Islands, which resulted in no re-growth of vegetation on the island until the late 1960s. It was not until 1969 that re-vegetation began, when Mr. Don Adams, a keen aviator, arrived on Lady Elliot Island and started a re-vegetation program using seeds of native plants collected from nearby Great Barrier Reef Islands and the mainland, which transformed the island into the beautiful wildlife sanctuary that it is today.

Lady Elliot Island is only one of six island resorts on the Great Barrier Reef, and is teeming with life. From sea turtles, to dolphins, to a large variety of coral and fish, you are guaranteed to have a different underwater visual experience every day. There are plenty of nesting birds on the island, and you may even be lucky to see turtles hatching, or humpbacks migrating depending on the season. Learn more about Lady Elliot Island at ladyelliott.com.au/.

The total population of manta rays around Lady Elliot Island is unknown. However, to date more than 400 individuals have been identified and recorded. These beautiful creatures attract divers worldwide to the resort, and swimming near these gentle animals provides a breathtaking experience.

Map: © 2011 Google. Map data: © 2011 GBRMPA, Google, Whereis(R), Sensis Pty Ltd.



Research achievements

To date we have successfully created a database of over 600 individuals, confirmed the movement of animals between LEI and NSI and now even further to Byron Bay in NSW (Australian manta rays are the current distance record holders at 550km). We have deployed listening stations, acoustic tags and satellite tags to understand their broad scale and small scale movement patterns and have started to untangling the relationship between feeding behaviour and food availability. Excitingly we have even captured on film, the late stage courtship behaviour of manta rays at LEI, something that has only been done a handful of times before.

Highlights of the past year include multiple scientific publications, a full length documentary on the ABC and National Geographic, conference presentations, invited speaker sessions and the recruitment of 2 honours and 2 PhD students. Additionally, through the support of Earthwatch and other industry sponsors, we have successfully leveraged additional funding from the Australian Research Council's Linkage grant. Securing funding for the project for the next three years.

PROJECT STAFF

Earthwatch Scientists:

Dr Kathy Townsend, University of Queensland

Born in Calgary, Alberta, Canada, Dr Kathy Townsend did a year of undergraduate study at the University of Calgary before immigrating to Australia to complete her undergraduate, honours and Ph.D. at The University of Queensland in Brisbane. Dr Townsend is a marine ecologist with eclectic professional interests, which include manta ray biology, mudskipper ecology, coral reef ecology, shark reproduction, impact of ingested rubbish on sea turtles and human impacts on the marine environment. She is a lecturer and manager of research and education at the Moreton Bay Research Station on North Stradbroke Island off Brisbane. Dr Townsend has been working and living on tropical research stations for over 10 years. One of the many roles she plays within the station is as a carer to injured marine wildlife. She regularly attends to injured turtles, dugongs and stranded marine mammals.

Kathy is the principal investigator on Project Manta and will be present on all teams.

Dr Anthony Richardson, CSIRO

Dr Anthony Richardson holds an honours degree in zoology from the University of Queensland and a Ph.D. degree in marine ecology from the University of Cape Town. Since 2005, Anthony has a joint position between the Department of Mathematics at UQ where he is a senior lecturer and CSIRO marine research. He has previously held positions at the University of Cape Town and the University of the Western Cape and the Sir Alister Hardy Foundation of Ocean Science in the UK, where he remains an honorary fellow.

His research is recognised internationally for significant contributions in the fields of climate impacts on marine species, plankton ecology and fish population dynamics. He has had experience working in marine systems in the North and South Atlantic, Indian and Pacific Oceans. Anthony Richardson is currently an associate editor for Journal of Animal Ecology. He is the author of more than 45 peer-reviewed papers. He has a strong record of innovation in undergraduate teaching, and has guided the development of many postgraduate students.

Anthony will be present on some teams for 2011.

Associate Professor Mike Bennett, Queensland Shark and Ray Research Group

Associate Professor Mike Bennett obtained his B.Sc. (hons) degree in zoology from the University of Leeds, UK (1980) and his PhD from the University of Wales, Bangor, UK (1984). He conducted five years of postdoctoral research in animal mechanics at the University of Leeds before lecturing there and, subsequently, at the University of Queensland (1990 to present). His research focuses on primarily on animal locomotion, shark and ray biology, and the mechanical properties of biological materials.

Mike will be present on some teams for 2012.

Dr Scarla Weeks, Centre for Marine Studies

Dr Scarla Weeks obtained a B.Sc. (hons) in medical radiation biology as well as a B.Sc. (hons) in ocean and atmospheric science before completing a M.Sc. and a Ph.D. (2004) in satellite oceanography, all from the University of Cape Town, South Africa. Her particular expertise lies in ecosystem-scale specific applications of satellite data to the oceanographic environment, including the impact of climate change on higher trophic levels in Great Barrier Reef (GBR) regional waters, and current research interests include "The movement and migration patterns of manta rays of the GBR in relation to oceanographic conditions & food availability."

Scarla will be present on some teams for 2012.

Field Staff

Lydie Couturier, The University of Queensland

Lydie was born in Grenoble, France where she lived until she started her undergraduate training in Nice, in the South of France. After completing two years of undergraduate studies, she transferred her course to the University of Queensland in 2006 where she finished her final year and graduated with a bachelor of science degree in zoology. Lydie has been SCUBA diving since her childhood and has over 13 years of experience. She is dedicated to increasing the public awareness about the marine environment and what danger it faces.

Lydie joined Project Manta in 2007 when she started her honours on zooplankton and the seasonal occurrence of manta rays at North Stradbroke Island. After graduating, she worked as research assistant for the project until she started her Ph.D. in June 2009, looking at the conservative biology and ecology of manta rays in eastern Australia. Her main research interests include behavioural studies, human impacts, conservation and protection of the marine environment. She lives at North Stradbroke Island and is based at the Moreton Bay Research Station.

Lydie is a Ph.D. researcher and will be present on some of the teams.

Mr Fabrice Jaine, PhD Candidate, University of Queensland

Born in the South of France, Fabrice grew up on the Mediterranean coastline, spending most of his time in the water. In 2006, he transferred to the University of Queensland, Australia, where he completed his bachelor of science degree in marine biology and ecology, as well as his honours degree. In 2008 Fabrice volunteered for great white shark research in South Africa, where he acquired knowledge and experience on the study of large marine vertebrate animals (e.g. monitoring of populations via photographic identification, tagging and tracking of animals, sampling of DNA). In January 2009, Fabrice returned to Australia with an aim to apply and develop his newly acquired skills with Project Manta.

Fabrice's contribution to Project Manta focuses on the broad-scale movements of manta rays in east Australia and their relation to ocean dynamics and productivity. His research investigates the pattern, timing, magnitude and reasons for the seasonal migration of mantas. Fabrice uses acoustic and satellite tracking methodologies to monitor the movements of the manta population in east Australia, satellite oceanography to monitor the large scale oceanic phenomena linked to the seasonal movement of mantas, zooplankton analyses to determine food resource dynamics at aggregation sites. He also uses ecological modelling to combine all these data and create a model that could be applied to other planktivorous species that share similar life history traits.

Fabrice is a Ph.D. researcher on Project Manta and will be present on some teams.

Earthwatch Team Leader

Richard Cheseldene-Culley, Queensland

Richard is a former Tornado GR4 Navigator of the Royal Air Force, achieving the rank of Squadron Leader before retiring in 2006. He is a qualified Silver Medallion Surf Lifesaver and works regularly as a RYA Yacht master Offshore Instructor. He also has a Maritime Safety Queensland Master 5 for sailing vessels. Richard is PADI Open Water certified, and will be responsible for supervising snorkelers and divers for safety as required.

Chris Gillies, Research Officer, Earthwatch Australia

Chris Gillies graduated with honours from University of Technology, Sydney in 2004 and has since worked consistently in the environmental industry for the NSW EPA, Biotrack Australia, Institute of Water and Environmental Resource Management and the Australian Antarctic Division before joining Earthwatch in May 2011. Chris has a diverse expertise in freshwater invertebrate diversity and monitoring, terrestrial landscape assessment and Antarctic coastal ecology.

Chris has recently spent three seasons living and working as an Australian Antarctic expeditioner in Antarctica and on Macquarie Island as part of the Human Impacts Division, where he was a member of the of the 2009 Davis dive team. Chris is now in the final stages of completing his PhD with Southern Cross University where he has been studying shallow water food webs of coastal Antarctica. Chris has travelled extensively in south and Central America, holds an ADAS commercial dive licence and private pilot's licence.

As research officer, Chris coordinates the science and development of new Earthwatch projects, liaises with the scientific community and is part of the Climate Watch development team.

Staffing Schedule (Subject to Change)

Staff Member Present	Team 1	Team 2	Team 3
Kathy Townsend	x	x	x
Mike Bennett	x		
Anthony Richardson		x	
Scarla Weeks			x
Lydie Couturier	x	x	tba
Fabrice Jaïne	x		
Richard Cheseldene-Culley	x		x
Chris Gillies		x	

Daily Life in the Field

VOLUNTEER TRAINING AND ASSIGNMENTS

Training

Participants will receive a safety briefing on Day 1 of the project. All Earthwatch dive participants will receive training on Day 1 of the project by the Dive Master on Lady Elliot Island.

All research methodologies and participant activities will be outlined and explained at the start of the project, and participants will be able to practice the use of research equipment in the saltwater swimming pool located in front of the research lab, before research activities begin.

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

Assignments

Divers will be expected to take part in snorkel and boat-based research during the week in addition to diving activities. This is due to a restriction on the number of divers permitted per day to reduce the influence of divers on manta ray behaviour on and around the cleaning stations, and the snorkel research being a key component of the project objectives. Your time will be split **equally** amongst:

- (1) Diver activities: Photograph manta rays and observe and record manta ray behaviour.
- (2) Snorkel- and boat-based activities: Act as spotters for manta rays, photograph manta rays and observe and record manta ray behaviour (from the boat or duck-diving,) help measure oceanographic processes such as water currents, conductivity, temperature and depth, take water samples and conduct plankton tows.
- (3) Lab-based activities: Photo identification and collating database information from various ongoing studies, entering manta ray log book data into the manta ray electronic database.

After each dive/snorkel images are downloaded onto laptop computers and details are entered in the database. Each manta ray photographed will be compared to previously identified manta rays to determine if the animal is new. If a new animal is found, participants will use the photographs and video taken to draw the identifying marks and spots of the manta ray and add it to the collective database. There may even be the opportunity to name your own manta ray!

Diving with manta rays is an incredibly rewarding experience but it is important that participants remember that there is an objective and a job to do whilst in the water. Research diving differs from recreational diving in that one must keep the research in the forefront of their minds throughout the dive. The Earthwatch Team Leader and the science team will provide further details on site.

TEAM ITINERARY AND DAILY SCHEDULE

Day 1: Rendezvous Day. Orientation of site, safety briefing, test swim and/or Dive Rescue training

Day 2-7: Two to three activities (diving, snorkelling, oceanography) per day depending on weather conditions and sea state. There will be afternoon and evening sessions doing photo-id work in the lab. On some evenings presentations will be given by the project team to participants and Lady Elliot Island's visitors and staff.

Day 8: Departure

Be aware that schedules can and do fluctuate as weather and work conditions can affect the daily schedule. Should this situation arise, your cooperation and understanding are appreciated.

Dive Team, Day 2-7

Time of Day	Activity
0600-0730	Breakfast
0800	Get wetsuits on and leave from Dive shop area to head out for the first dive
1000	Photo ID work
1200-1300	Lunch
1300	Head out for second dive
1600	Head out for third dive
1630	Photo ID work
1800	Dinner
2000	Presentations on selected nights / Photo ID work / Data entry

Snorkel Team, Day 2-7

Time	Activity
0600-0730	Breakfast
0730	Collect gear and transfer to plankton boat
0800	Plankton sampling and feeding observations
1230-1400	Lunch, Changeover of teams
1400	Plankton Towing and feeding observations
1630	Data entry
1800	Dinner
2000	Presentations on selected nights / Data entry

Earthwatch Recreational Time Policy

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

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

ACCOMMODATIONS

As soon as passengers disembark the Seair plane they are welcomed by the warm and friendly staff of Lady Elliot Island. Those who haven't visited the island before are given an orientation of the eco-resort and are shown to their accommodation.

Sleeping

Volunteers will stay in permanent tents, with wooden floors. Each tent consists of two sets of bunk beds, a bedside table, a wooden wardrobe, a wall mounted fan, mirror, and ceiling light. Volunteers will share cabins with a maximum of four per room, and will be split by gender. If possible couples will try to be accommodated, but this will depend on availability and will be at an additional cost to the volunteers. Linen is provided, consisting of sheets, and pillow with pillow slip. Blankets are available in the wardrobes if required. Towels are provided.

Windows are meshed to prevent insects entering and can also be zipped closed for privacy and protection from the sun. No accommodations on the island are capable of being locked, but if participants are worried about their valuables they can keep them locked up at reception.

Lady Elliot Island is also home to hundreds of seabirds, which are beautiful and lovely to watch. However, participants need to be warned that these birds can be very noisy at all hours of the day and night, and can

sometimes fly very close to you. This can cause frustration, especially when trying to sleep. Free earplugs are available at reception. Anyone who has a phobia of birds should reconsider if this project is suitable for them.

Bathrooms

There are many male and female toilet and shower blocks on the island, with each block having at least two conventional toilets and two showers. Hot and cold water is accessible all day, however, as natural flowing freshwater does not exist on the island, participants should be conservative with their water use. Participants will be provided with a bath towel. However, as participants will spend a lot of their time in the ocean they may also wish to bring a beach towel for drying off after coming out of the sea.

Electricity

Electric sockets for the ceiling light and fan are present inside each tent and can be used in the day to charge camera batteries etc.

Internet and Communications

You can purchase Internet access at reception. The cost is \$15 per hour and will be at the participant's own expense. There is one terminal in reception or if participants wish to bring their own laptops they can purchase wireless access at the same cost.

Facilities and Amenities

A covered drying area is located behind the volunteers' quarters, where wetsuits or swimwear can be hung out to dry. Communal laundry facilities are also available at the resort if required, at the participants own cost.

A small outdoor swimming pool, table tennis equipment, volleyball net, pool table, games room, and TV room is all available at the resort and can be used during recreational time.

FOOD

Upon arrival participants will be required to register at reception, and will be given an island card which allows them access to the buffet three times a day for meals.

If participants want to use their island card as a charge card for additional expenses, then they will be asked for an imprint of their credit card and can reconcile their purchases upon departure.

Breakfast, lunch and dinner are all buffet style, the choice is vast and food delicious. Breakfast provides continental or hot breakfast options. Lunch provides salads, pasta, chicken or fish, and fresh fruit. Dinner provides items such as steak, fish, chicken, pasta, vegetarian quiche, there is often soup, and at least three different dessert options.

Filtered water, tea and coffee are available all day. Additional drinks or snacks can be purchased at the bar at the volunteer's own expense. Participants can use cash or their island charge card (as described above).

Special Dietary Requirements

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

Special note to vegans and strict vegetarians: Please be aware that it is often difficult to accommodate strict vegetarians and vegans. It may be possible to get meatless meals but vegans and strict vegetarians may have a problem avoiding animal products altogether. If this poses a problem, then participation on this Earthwatch expedition should be seriously reconsidered.

Travel Planning

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

You are encouraged to register your travel itinerary with your embassy. For information on embassies around the world, see www.embassyworld.com.

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

RENDEZVOUS

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

PASSPORTS AND VISAS

Visa Information

Citizens of the US, EU, Australia, Canada and Japan **do** need a tourist visa for entry. Citizens of other countries should check with their travel agent or a visa agency for specific visa and entry requirements. Travellers are advised to check visa regulations well in advance of travelling.

Passport Information

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

For Volunteers Requiring Visas ONLY: Essential Information

Type of Visa	Volunteers requiring a visa must get a TOURIST VISA .
Where to Get a Visa	Contact the nearest Australian embassy or consulate to find out how to apply for your visa. Please note that this process can take weeks or more. We strongly recommend using a visa agency , which can both expedite and simplify the process. See below for a list of visa agencies.

Required Information	You will need to send your passport (valid for at least six months beyond your stay), a Visa Application and Immigration Form, 2-4 passport-size photos, and payment to the embassy or visa agency (if applicable). Please be sure that your passport is valid for at least six months beyond your stay.
Contact Information	You may be required to list the following contact information on your Visa Application and Immigration Form: Cassandra Nichols Director, Field Management 126 Bank Street South Melbourne VIC 3205
Cost of a Visa	Generally between US\$40-100, but varies from country to country and can potentially cost up to US\$180 . A visa agency will charge an additional fee.

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

Visa Agencies

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

Volunteers Under 18 Years of Age

Entry to Foreign Countries

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

Airline Documentation Requirements

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

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

Additional Passport and Visa Resources

- For Japanese citizens: rainbowt.jp/travel/visa_top.html
- For Australian citizens: passports.gov.au and dfat.gov.au/visas/index.html
- For US citizens: passportvisasexpress.com
- Travel Document Systems: traveldocs.com/index.htm

INSURANCE

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

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

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

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

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

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

If you signed up through Earthwatch US:

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

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

Emergency Medical and Evacuation Assistance (for all volunteers)

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

ADDITIONAL TRAVEL INFORMATION

Luggage

- *General considerations:* Do not bring more luggage than you can carry and handle on your own. If traveling by air and checking your luggage, you are advised to pack an extra set of field clothing and personal essentials in your carry-on bag in case your luggage is lost and/or takes several days to catch up with you. Many airlines have strict baggage policies. Please check with your airline(s) on baggage weight limits, liquid restrictions, fees for checked baggage, etc.
- **The flight from Hervey Bay to Lady Elliot Island has a weight limit of 10kg per person.** If you want to take more than 10kg you will have to pay and additoni \$20 excess baggage fee to the personnel of Seari when you check in, this will allow you up to 20kg. If participants have paid the excess and are slightly over the limit then they should explain that they are with Project Manta and there shouldn't be any issues.
- It is recommended that participants carry their items in a soft sided rucksack or case, as storage space is limited inside the tented accommodation.
- Please take weather conditions into consideration when packing for your expedition. Climate information can be found in the *Project Conditions* section.
- *Checking luggage:* Please note that if you will be taking an international flight that has one or more connections within the country of your destination, it will be necessary to collect any checked bags at the airport where you first arrive in the destination country. After proceeding through Customs, you will have to recheck your luggage before flying on to your final destination.

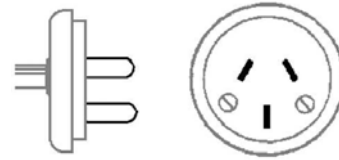
Money Matters

- *Personal funds:* may be desired for souvenirs as well snacks and drinks on the island that are not included in your stay (see the *Accommodation* and *Food* sections, above). These items can be charged to your "Island Resort" card, which requires a credit card imprint as security, and you can settle your account with cash or credit card before departure. If you intend to hire any of your required equipment on the island (where available), you will use your "Island Resort" card. A variety of ATM's are located in most town centres, but there is no ATM access on Lady Elliot Island, so if you will require cash during your stay on the island, you will need to bring it with you. Please check with your bank in regards to accessing your money within Australia. You may also require additional funds while travelling before / after your expedition – MasterCard and Visa are widely accepted throughout Australia, however cash is preferred for small purchases.
- *Local currency:* Australian Dollar. See the International SOS website and www.xe.com/ucc for currency information and exchange rates.
- *Airport fees and/or departure taxes:* Included in fares.

Your Destination

- *Language:* English

- *Cultural/Environmental considerations:* As Lady Elliot Island is a designated Marine Park, visitors are not permitted to collect or take away anything from the island. This includes, shells, corals (dead or alive), or other items that may catch your eye.
- *Time zone:* GMT/UTC +10 For time worldwide with GMT/UTC, see www.worldtimeserver.com .
- *Electricity:* Type I, 240V (see image at right). For additional information, see kropla.com/electric2.htm.
- *Time zone:* GMT/UTC +10 For time worldwide with GMT/UTC see: www.worldtimeserver.com
- *Telephone Dialing 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. **PLEASE 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](http://kropla.com/dialcode.htm)
- *Additional information:* The Seair planes are small caravan passenger planes. Anyone who is nervous of flying may have a problem with flying in propeller planes, although the view of the island as you approach is outstanding.



Country Information

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

Project Conditions

Please show this section to your doctor when he/she is completing the Health section of your Earthwatch Participation Form. Be sure to discuss inoculation requirements with your doctor well in advance of your departure date. See the Health Information section for vaccination information. Your dive doctor must be registered with South Pacific Underwater Medicine Society site: www.spums.org.au.

To the doctor:

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

General Conditions

The climate on Lady Elliot Island in February can be hot but usually is quite comfortable due to the breeze on the island with temperatures averaging at 28 °C. June is cooler, with an average mean temperature of 18°C and 90mm of rainfall. In November the climate is hot and dry with an average temperature of 25°C and 33mm of rain. Water temperatures can range between 18°C and 27°C.

The island is a coral atoll and mostly flat. Broken coral and shells cover the island, so participants should not walk around without proper footwear.

The weather is expected to vary within the limits below.

February	June
Humidity: 78%	Humidity: 75%
Temperature range: 24-30°C (75-86°F)	Temperature range: 17-22°C (63-72°F)
Rainfall: avg. 135mm (5.3in)	Rainfall: avg. 80mm (3.1in)
Surface Water Temp: avg. 25°C (77°F)	Surface Water Temp: avg. 18°C (64°F)

September
Humidity: 70%
Temperature range: 18-24°C (64-75°F)
Rainfall: avg. 30mm (1.2in)
Surface Water Temp: avg. 20°C (68°F)

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.

Snorkelling Requirements

In order to participate in the project you must have had some dive experience, even if you are joining as a snorkeler. 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.

Boating Requirements

In order to assist on the research boat you will need to be relatively fit and agile. Duties will include manta spotting, plankton tow sampling as well as lowering and raising the water column sampler.

Diving Requirements

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 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.

Below are the expected demands of the project, but please keep in mind that conditions may change and the project could potentially be more or less strenuous than the chart indicates.

Activity	Workload/Intensity
Sitting	Whilst travelling by boat, and doing lab work (2 hrs per day)
Bending	Whilst doing plankton sampling (2 hrs per day)
Walking	Participants may at times need to walk to the beach on the other side of the island, if there isn't room in the golf carts (Up to 30 minutes per day)
Carrying	Participants will have to carry their dive equipment across the reef flat to the boat if the tide is low, some project equipment such as cameras and hydrophone equipment will also have to be carried by research staff and participants
Dive / Swim / Snorkel	Participants will dive/swim/snorkel 3 times per day for up to 1hr and 30 minutes each time
Working on boat	Participants and staff will travel to the research areas by boat, which should not be more than 40 minutes away. Snorkellers will spend up to 5 hours on board the boat in the morning, and up to 3 hours on board the boat in the afternoons conducting oceanography tasks. Divers will also rotate to tasks on board the boat, as required.

Earthwatch Australia Diving Requirements:

- Hold at least an Open-Water diver certification from a recognised diver training agency;
- Have a working familiarity with the short form DCIEM Air Decompression Tables;
- 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; and
- 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).
- If intending to use your own SCUBA diving equipment, it must be inspected by the divemaster or dive Coordinator prior to diving, and the diver must supply evidence to show that it is in current test and/or service.

Additional Documentation required from Earthwatch Australia Registered Divers:

All participants who are joining as Earthwatch Australia registered divers must provide copies of the following to Earthwatch and bring originals with them on the expedition:

- **Dive Certification Card**
- **Occupational dive medical within 12 months** prior to diving by a medical practitioner appropriately trained in underwater medicine and registered with SPUMS. You can find a doctor nearest to you at the South Pacific Underwater Medicine Society site: www.spums.org.au by clicking the diving doctor list. 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 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 before your arrival and will need to bring your chest x-ray and doctor's x-ray report from your country of residence with you in order for the Occupational Dive Medical to be completed within Australia.

- **DAN Dive Insurance Card or equivalent** <http://www.danasiapacific.org/index.php>
- **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.

Snorkelers and divers will be buddied up before each snorkel/dive. Individuals will be assessed on day one for fitness and comfort levels and then paired up by the Dive Master or Team Leader.

The project team will have their own boat during the expedition. Participants will sometimes have to walk a short distance out on the reef flat to board the boat if the tide is out. Participants should take care entering the boat as it will be easy to lose your footing and slip. Participants will be expected to jump off the boat once it has reached its designated research area, but should always wait and follow the Team Leader's and/or Dive Master's instruction.

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 snorkelers 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 Andy Donnelly, Earthwatch Australia Diving Officer: +61 (0) 2 8966 9800.

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 physician (preferably by one familiar with diving). An individual with heart trouble, current cold or congestion, ear infection, epilepsy, asthma, a severe medical problem, or who is under the influence of alcohol or drugs, should not dive without a physician's explicit approval.

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

Water Conditions

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

Typical water temperature at working depths	64°F/18°C	to	81°F/27°C
Typical water visibility	15ft/5m	to	90ft/30m
Typical maximum water depth in area	9ft/3m	to	69ft/23m
Site diving type	open ocean		
Anticipated depth of dives	15ft/5m	to	54ft/20m
Anticipated number of dives per day	1	to	3
Dives initiated from	Boats		
Timing of dives	day		
Egress into water	Enter: step off, Exit: ladder		
Diving bottom limit (20m/65ft is max under EW policy)			65ft/20m

Project Manta: General dive procedures

Dive plans on Lady Elliot Island will usually be similar for each dive throughout the week. Divers are completely kitted on land and must walk with all dive gear on over sand and across the beach (approx. 100m) to the boat. The main dive site known as Lighthouse Bommie, is a short boat trip from the shore,. All ascents/decents are conducted on the permanent mooring line. A safety stop is mandatory at five metres for three minutes. Lady Elliot Island and Earthwatch dive protocols require that participants surface with a minimum of 50 bar of air. Bottom times are usually 50 mins to one hour. The number of dives per day varies from one to three depending on conditions and the need for surface and laboratory work.

Marine Information

- Divers Alert Network: diversalertnetwork.org
- Dive Master Insurance Consultants Ltd.: dive-master.net
- South Pacific Underwater Medicine Society: spums.org.au

POTENTIAL HAZARDS

Hazard Type	Associated Risks and Precautions
Transportation	Participants fly to Lady Elliot island in small Seair planes. The runway divides the island, and participants should be cautious when crossing the airstrip. Participants must look both ways and up in the air before crossing and to never cross when the red light is on and flashing. Planes are well maintained and only flown by certified pilots in favourable conditions.
Working in water	Boats are well maintained, and include, radio, life preservers, emergency flares, fire extinguisher, and first aid kit. Life jackets are available for all passengers, and passengers will be instructed to wear them when required. 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. There is always a back up skipper in the boat in the event of an emergency. Boat trips are always logged at Lady Elliot island resort. Boats do not travel very far from the shoreline around Lady Elliot.
Slips and Trips	Participants will need to board the boat by walking out on to the reef 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. Also, when walking in the Project Manta lab, participants should be careful when to avoid tripping over cords or other equipment.
Snorkelling	Only participants with appropriate swimming abilities and fitness are allowed to participate in the research. A swimming/snorkelling assessment is carried out as soon as participants enter the water and participants are paired up so that a strong snorkeler is matched with a weaker snorkeler. An experienced project staff member is always present, in order to supervise snorkelers. 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	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

	<p>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.</p>
Animals	<p>Cone shells, stinging hydroids, stone fish, sea snakes, stingrays, fire coral, sea urchins, lionfish, and blue bottles, may be present in the research area. There is potential for participants or staff to be stung or bitten by some species of marine life present. 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 wash area with water, and use a cold pack to relieve the pain.</p> <p>Sharks such as tiger and hammerheads may be present near the research area. 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 Lady Elliot then research activities will be cancelled in that location. These sharks are rare and 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.</p> <p>Low flying birds on island. There are many nesting birds on the island, which can fly erratically. Keep a watch overhead.</p> <p>Bird ticks are present on the island. Participants should check themselves for ticks in the evening and to alert a project staff member if the area becomes infected.</p>
Terrain	<p>Coral rubble and sharp shells underfoot can cause cuts and grazes. Participants should not go barefoot when walking around base camp. Participants must wear dive booties when walking out on the reef, and long wetsuits.</p>
Low hanging branches	<p>These can cause head or eye injury. Participants should be careful when walking around the island, and to not walk with heads down.</p>
Heat related illnesses, dehydration	<p>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.</p>
Traveler's diarrhea	<p>Traveler's diarrhea affects 20-50% of all international travelers. Always wash your hands with soap and water or a hand sanitizer before eating and drink only filtered or bottled water. You should also carry an over-the-counter anti-diarrheal medication in your personal first aid kit. Speak to your doctor about other options for treating traveler's diarrhea and see the ISOS or CDC websites for advice on avoiding this condition.</p>

HEALTH INFORMATION

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

Routine Immunizations

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

Project Inoculations

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

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

	Required for Entry	Recommended for Health Reasons
Yellow fever	If traveling from countries or region where it is endemic, a Certificate of Vaccination is required.	

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
Limited Mobility	Participants need to be fit and agile in order to participate on this project. Agility is important for getting in and out of the boats and also swimming under difficult conditions
Phobia of birds	There are plenty of nesting birds on Lady Elliot Island. Participants who have a fear of birds should reconsider participation in this project

Additional Health Information Resources

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

EMERGENCIES IN THE FIELD

There is an Emergency Response Plan for the project which will be posted in the Project Manta headquarters and held by the Team Leader. In the event of an emergency there are qualified first aid trained staff at Lady Elliot Island and amongst the Research team. If a participant needs to be evacuated from the island either a plane or helicopter will be used to take them to the most appropriate facility on the mainland.

If a participant has to depart early unexpectedly, for example in case of a family emergency, the Research Team will try and assist as best they can. In these circumstances additional costs will have to be at the participant's expense. **Note that volunteers may leave early ONLY in cases of emergency.**

Proximity to Medical Care

Doctor, nurse, or EMT on staff	There isn't a doctor, nurse or EMT on the island or amongst the project staff
Staff certified in safety training	Lady Elliot Island Staff are trained in advanced first aid by the Royal Flying Doctors Service. Kathy Townsend, Lydie Couturier, and Richard Cheseldene-Culley are all Dive Masters and all team members are trained in first aid
Nearest hospital and/or clinic	Hervey Bay Hospital Cnr Nissen Street & Urraween Road PIALBA Qld 4655 (07) 4120 6666
Distance	2 hour evacuation time

COMMUNICATIONS

Emergency Communications in the Field

PLEASE NOTE: you should check with your cell phone provider to obtain any carrier-specific dialling codes you may need while on your expedition or en route there or home; many providers have dialling procedures that may differ in whole or in part from directions listed in this Briefing. There is no mobile reception on Lady Elliot Island, which will provide you with a rare chance to “unplug” from hearing ringing phones.

There is no mobile network coverage on the island. Satellite phones are used for emergency communications, and the project staff will have one with them at all times. Lady Elliot Island also has land lines and satellite phones for emergencies. There are radios aboard the vessels which can be used if there is an incident at sea.

The emergency contact number at Earthwatch in Australia is: +61 3 9625 0822. After business hours, leave your message with the live answering service. State that you have an emergency communication and leave a clear message with the name of the expedition, your name, location from which you are calling, and if possible, a phone number where you can be reached. An Earthwatch staff person will be contacted and will respond to your call within one hour.

Personal Communications

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

There is a landline that participants can use located in the Departure Lounge across from reception. Phone cards must be used, and the phone can only be used to dial out. Telstra phone cards are available to purchase at reception for \$10.

Participants can purchase internet access for \$15 per hour. There is one computer terminal available for use in reception. Wireless is available for the same cost if participants wish to take their own laptops.

Contact Information

This information is available in the printed version of this briefing. Please contact your Earthwatch office for assistance.

Earthwatch Institute Policies & Participant Rights and Responsibilities

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

Intellectual Property Rights

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

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

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

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

Discrimination

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

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

Intimate relationships

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

Sexual Harassment

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

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

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

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

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

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

Drugs

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

Alcohol

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

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

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

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

Minors

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

Participants and Driving

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

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

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

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

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

In the Event of an Emergency

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

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

Right of Refusal

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

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

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

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

(November 2010)

Expedition Packing Checklist

Required Items

- This Expedition Briefing
- Photocopies of your passport, flight itinerary and credit cards in case the originals are lost or stolen; the copies should be packed separately from the original documents (if necessary)
- 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.

Clothing/Footwear for Fieldwork

- Lightweight, quick-drying, long-sleeved shirts
- Lightweight, quick-drying pants/trousers
- Shorts
- T-shirts
- Long-sleeved shirt or rash guard for sun protection on the boat, and to wear under wetsuit
- Sweatshirt, sweater and/or fleece jacket
- Warm wind/waterproof jacket
- Swimsuit(s)
- One set of clothing to keep clean for recreational time, end of expedition, etc.
- Footwear for walking around island (thongs, sandals, or sneakers)
- Wide-brimmed hat for sun protection

Field Supplies

Divers and Snorkelers

- Small daypack/rucksack
- Drybag or plastic sealable bags (e.g. Ziploc) for protecting equipment such as camera from dust, humidity and water
- Waterproof Sunscreen lotion with SPF 30 or higher
- Insect repellent spray
- Water bottle(s) able to hold at least one litre
- Dive booties, thick soled for walking across the reef
- Mask (limited sizes and shapes are available on the island if you don't have your own)
- Snorkel (limited sizes and shapes are available on the island if you don't have your own)
- Fins (limited sizes and shapes are available to hire on island if you don't have your own)
- Sunglasses (polarized lenses are best) - neck strap recommended
- Full wetsuit (can be hired on island if you don't have your own). For June and September trips, 5mm or above is recommended. For February trips, 3-5mm is recommended.
- Gloves
- Hood (for June and September trips)

Divers Only

- Dive Log (originals, compulsory to be allowed to dive on the island)
- Dive qualifications (originals, compulsory to be allowed to dive on the island)
- Dive medical (originals, compulsory to be allowed to dive on the island)

Personal Supplies

- Personal toiletries (biodegradable soaps and shampoos are recommended)
- 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 (including seasickness medication if necessary)

Miscellaneous

- Spending money (see *Additional Travel Information* section in this briefing)
- Camera, film or digital memory card(s), extra camera battery.
- Flashlight or headlamp with extra batteries and extra bulb (for walking around resort at night)

Optional Items

STRONGLY RECOMMENDED:

- Underwater camera, memory card(s) and batteries/recharging equipment
- Lap-top, which can be used for project data entry
- USB stick, larger than 1GB

OTHER:

- Earplugs for light sleepers
- Water-resistant wristwatch
- Binoculars
- Field notebook/journal
- Books, games, etc. for use during recreational time

Optional for Divers (these items will be provided but you may prefer to use your own):

- Safety sausage
- Dive knife (preferably small, BCD mounted)
- BCD
- Regs
- Dive Computer or tables