IMMEDIATELY

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

6 MONTHS PRIOR TO EXPEDITION

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

90 DAYS PRIOR TO EXPEDITION

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

60 DAYS PRIOR TO EXPEDITION

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

30 DAYS PRIOR TO EXPEDITION

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

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

NOTE FROM THE PI ........................................ 2
THE RESEARCH .............................................. 4
DAILY LIFE IN THE FIELD ................................ 6
ACCOMMODATIONS AND FOOD ....................... 8
PROJECT CONDITIONS ..................................... 10
POTENTIAL HAZARDS .................................... 11
HEALTH & SAFETY ....................................... 12
TRAVEL TIPS ................................................ 14
TRAVEL PLANNING ...................................... 16
EXPEDITION PACKING CHECKLIST .................. 18
PROJECT STAFF .......................................... 19
RECOMMENDED READING ............................. 20
EMERGENCY NUMBERS ................................. 24
Welcome to the Project Manta Ningaloo Reef expedition! Your journey will begin in Coral Bay at the heart of the Ningaloo Reef in Western Australia. Ningaloo Reef was inscribed on the UNESCO World Heritage register in 2011, acknowledging its place as a globally significant natural wonder and cementing it as an iconic tourism destination. The expedition you are joining will support our ongoing research exploring the ecology of the Ningaloo lagoon, focusing on the food webs that support the iconic megafauna for which the region is renowned (including manta rays, whale sharks and migrating humpback whales). While studying the organisms and their interactions in the Coral Bay area, you will gain an insight into the complex natural history of the Ningaloo lagoon, and gain an appreciation of the threats this amazing ecosystem faces in light of climate change as well as the unique natural safeguards currently keeping these threats at bay.

Manta rays, stingrays and sharks play a key role in any habitat they interact with, regulating recruitment of organisms by actively predating larvae, benthic invertebrates and fish in a methodical manner. The exact influence they have, and the repercussions of their absence are far from known though and comprise some of the main gaps in our understanding of the marine ecology of Ningaloo. Globally manta rays and sharks are under threat from both direct fishing pressure and the changing state of the planktonic and fish assemblages through overfishing and climate change. Ningaloo Reef, with its healthy reef ecosystem and protection from fishing pressures provides a perfect environment to study these iconic animals and how they should be interacting with their environment, in a safe accessible lagoonal system.

As a participant on this expedition, you will help gather information vital to our understanding of the Ningaloo Reef ecosystem. During your time as a member of our field team you will immerse yourself daily in the aqua blue of Ningaloo, collecting data at all levels of the food chain. From sampling the microalgae of the seafloor, capturing planktonic prey to assess its availability and quality, to recording sightings of rays and sharks (reef and tiger sharks), and observing and photographing manta rays. Your daily activities will help us further protect key habitats within the Ningaloo Coast World Heritage Area, and further afield along the Western Australian coast.

We look forward to meeting you where the desert meets the sea, sharing our knowledge, sharing new discoveries, and welcoming you to our Ningaloo family!

Best wishes

Frazer McGregor and Dr. Mike Van Keulen
Earthwatch Scientists
THE RESEARCH
PROJECT MANTA NINGALOO REEF

THE STORY
Ningaloo Reef is one of the world’s least disturbed coral reef ecosystems and boasts very high biodiversity and iconic megafauna that support an important wildlife interaction tourism industry. While past research has focused on megafauna, little is known about the organisms and ecosystems that support them. Whale sharks and manta rays feed largely on plankton, yet little is known about the food webs that drive plankton blooms. Turtles feed on benthic plants and animals, but these components of the food web are poorly understood. Top order reef predators such as reef sharks aggregate adjacent to key manta ray aggregation sites off Coral Bay, both dependent on the ongoing health of the surrounding coral reef and its benthic inhabitants. The understanding of the habitat on which these top predators rely and the species, which coexist within it is crucial in protecting this pristine reef. Thus, there is clearly a need to investigate the ecological processes that drive the diverse Ningaloo lagoon.

The tourist settlement of Coral Bay is located near the middle of the 280 km-long Ningaloo Reef and is adjacent to Bateman Bay, which is the location of a manta ray wildlife interaction industry. Bateman Bay is a unique ecosystem, consisting of a large sandy lagoon with good connectivity to oceanic waters that supply nutrients and plankton that support manta ray aggregations. It has extensive shallow sand flats where dugongs, turtles and tiger sharks are frequently found, as well as critical habitats for the health of megafauna, such as cleaning stations. The diversity of habitats and megafauna, the availability of the local research station, and proximity to the settlement of Coral Bay, makes this an ideal site for studying the complex ecological systems of Ningaloo Reef.

The Coral Bay Research Station has been operating since 2004 and is the only research facility on the Ningaloo Reef. The Research Station has supported researchers and students from many institutions from around the world working on a range of topics. It has been the base for several large-scale research programs, including habitat mapping and biodiversity studies funded by the CSIRO Wealth from Oceans Flagship; an internationally-funded coral restoration program; and several manta ray projects, most recently the industry- and government-supported Project Manta. With year-round accessibility and supported by Murdoch University, the Research Station makes an ideal base for long-term studies on ecosystem functioning and health.
**RESEARCH AIMS**

This research program is taking an ecosystem approach, examining the dynamics of lagoon organisms and food webs, as well as the physical environment. High priority habitats that are being targeted at present include the shallow sand flats and megalafauna cleaning stations. This provides an essential baseline for monitoring the health of the Ningaloo lagoon, and examining the impacts of climate change and the impacts of human presence, pollution (i.e. plastics) and tourism. Key components, which participants will be involved in, include:

- Surveying stingrays and small sharks in intertidal and shallow lagoon ecosystems
- Sampling and determining zooplankton diversity and abundance in areas frequented by manta rays and microplastics concentrations in the water
- Monitoring human numbers and activity, including tourism, recreational fishing and pollution impacts
- Surveying fish diversity and abundance at cleaning stations frequented by key marine wildlife
- Contributing to manta ray ID database image processing

**HOW YOU WILL HELP**

Your time will be split equally amongst 4 key activities:

1. **SNORKEL ACTIVITIES FROM A SMALL BOAT:**
   - **Benthic surveys:** Record presence of benthic rays, sharks, and record the densities of benthic invertebrates such as echinoderms across shallow lagoon sand flats. Sample the substrate to investigate seasonal presence of microphytobenthos.
   - **Cleaning stations surveys:** Act as a spotter for manta rays, photograph manta rays, observe and record manta ray behavior, and help download and deploy acoustic listening stations.

2. **TOWS FROM A SMALL BOAT:**
   - **Foraging area surveys:** Participate in the collection of plankton to determine the productivity at locations within and external to sanctuary zones by conducting plankton tows.
   - **Microplastics surveys:** Conduct surface tows to examine microplastic concentrations in the local environment.

3. **LAND/INSHORE ACTIVITIES:**
   - **Shark surveys:** Walk about a kilometre to conduct visual surveys of a shallow lagoon where blacktip and grey reef sharks as well as several ray species aggregate. Enter survey data into the database that forms part of a larger Department of Parks and Wildlife monitoring program.
   - **Ray surveys:** A team will undertake snorkel surveys of stingray diversity and abundance along the shore, whilst collecting evidence of stingray feeding activity on the sand flats at low tide.
   - **Macro and microplastics surveys:** Conduct macro- and microplastic surveys adjacent to beaches where manta rays aggregate, complementing boat-based sampling.

4. **LABORATORY BASED ACTIVITIES:**
   - **Photo-identification:** Participate in the photo identification and collation of database information from various sources. Enter manta ray log book and photo data into the manta ray electronic database, download images from each snorkeler onto laptop computers, compare each new manta ray record to previously identified manta rays to determine if the animal is new, use the photographs and video taken for new animals 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!).
   - **Plankton Processing:** Identify and count plankton collected in the tows, using a microscope.

**WHY FIELD RESEARCH?**

As an Earthwatch participant, you will spend a significant amount of time each day assisting scientists with data collection. Some of this work will be repetitive, but it is fundamental to our scientific understanding of nature. Ecosystems are incredibly complex. The only way to begin to unravel this complexity is by designing good experiments, and carefully collecting as much data as possible. Without the work of thousands of dedicated scientists, we would know nothing about climate change, the effects of pollution, the thinning of the ozone layer, the extinction of species, or how to find cures for diseases or improve crops. This is your chance to be part of the scientific effort, to find solutions to pressing environmental and cultural problems, and to enjoy the beauty and diversity of nature as you work.
TRAINING: Participants will receive a safety briefing on Day 1 of the project. 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 where appropriate in the inshore lagoon adjacent the Coral Bay settlement before research activities begin.

The Earthwatch scientists will give the team a more detailed on-site project briefing when you arrive.

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

Since Coral Bay is a remote location it is important to highlight potential dangers and hazards and any procedures to be followed in the unlikely event of an emergency.

TRANSPORT AND DRIVING POLICY: Transport from the airport to Coral Bay will be provided in a small people mover. The transfer takes approximately two hours.

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

SAFETY BRIEFING: Once participants have received facility inductions and settled into the accommodation at Coral Bay, a further project and safety briefing will be conducted. This briefing will specifically highlight any safety issues and sort out basic operating procedures including timetables for breakfast, lunch and dinner, cleaning and planned field activities.

GENERAL SNORKEL PROCEDURES: The boat team will be under the general supervision of the vessel master, observing vessel and snorkeling safety regulations as set out by Earthwatch Policies. In water snorkeling research activities including key species counts and manta ID photographic collection will have training prior and be conducted within safe distances of the vessel.

Land based activities will involve lab-based training prior to and during activities. Shark and ray surveys will include in field training in the first instance and continue with minimal supervision on subsequent occasions. Log on/off procedures will be explained during initial training.

Any potential hazards or dangers will be discussed daily especially in relation to updated weather conditions.

All participants and project staff will wear wetsuits, fins, snorkel and masks. There will be sun exposure risks for all participants whilst travelling on the boat, therefore snorkelers should be extra cautious. High factored waterproof reef safe sunblock should be worn on exposed areas, and hats should be worn whilst on the boat.

For further information on Earthwatch Snorkeling operations please contact the Earthwatch Australia office: +61 (0) 3 9016 7590. During each evening a summary of activities from that day will be undertaken and any problems or issues raised and discussed.
DAILY ACTIVITIES
Weather and research needs can lead to changes in the daily schedule. We appreciate your cooperation and understanding.

ITINERARY

DAY 1: ARRIVAL DAY

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:45 p.m.</td>
<td>Arrive at Learmonth Airport and meet the team. Drive to Coral Bay</td>
</tr>
<tr>
<td>4:30 p.m.</td>
<td>Arrive at Coral Bay—Settle into accommodation</td>
</tr>
<tr>
<td>4:45 p.m.–6:15 p.m.</td>
<td>Orientation of site and safety briefing</td>
</tr>
<tr>
<td>6:15 p.m.–7:00 p.m.</td>
<td>Free time until dinner</td>
</tr>
<tr>
<td>7:00 p.m.–8:00 p.m.</td>
<td>Dinner</td>
</tr>
</tbody>
</table>

DAY 2: TRAINING DAY

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 a.m.–8:00 a.m.</td>
<td>Breakfast</td>
</tr>
<tr>
<td>8:00 a.m.–8:30 a.m.</td>
<td>Depart accommodation</td>
</tr>
<tr>
<td>8:30 a.m.–11:00 a.m.</td>
<td>Introduction to the research and the project</td>
</tr>
<tr>
<td>11:00 a.m.–12:30 p.m.</td>
<td>Training and swim/snorkel test</td>
</tr>
<tr>
<td>12:30 p.m.–2:00 p.m.</td>
<td>Lunch</td>
</tr>
<tr>
<td>2:00 p.m.–6:00 p.m.</td>
<td>Shark/Ray/Macro- and microplastic surveys</td>
</tr>
<tr>
<td>6:00 p.m.–7:00 p.m.</td>
<td>Free time for showers, personal activities</td>
</tr>
<tr>
<td>6:30 p.m.–7:30 p.m.</td>
<td>Dinner</td>
</tr>
</tbody>
</table>

Teams will be on a rotating daily roster whereby each team participates in all activities as below. Morning and afternoon activities will switch when additional team members are present, whereby the am land based team will do afternoon boat based activities and the am boat based team will switch and do lab based activities in the afternoon. Below is simply a guide.

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00 a.m.–7:30 a.m.</td>
<td>Breakfast</td>
</tr>
<tr>
<td>7:45 a.m.–8:15 a.m.</td>
<td>Depart accommodation</td>
</tr>
<tr>
<td>8:30 a.m.–12:00 p.m.</td>
<td>Snorkeling activities and tows</td>
</tr>
<tr>
<td>~12:00 p.m.–12:30 p.m.</td>
<td>Lunch on the water or back at the accommodation</td>
</tr>
<tr>
<td>12:30 p.m.–2:30 p.m.</td>
<td>Snorkeling activities and tows</td>
</tr>
<tr>
<td>2:30 p.m.–3:00 p.m.</td>
<td>Travel back to the research station</td>
</tr>
<tr>
<td>3:00 p.m.–4:00 p.m.</td>
<td>Free time for showers, personal activities</td>
</tr>
<tr>
<td>4:00 p.m.–6:30 p.m.</td>
<td>Laboratory work</td>
</tr>
<tr>
<td>6:30 p.m.–7:30 p.m.</td>
<td>Dinner</td>
</tr>
<tr>
<td>7:30 p.m.–9:00 p.m.</td>
<td>Presentations on selected nights or other activities such as photo ID work and data processing</td>
</tr>
</tbody>
</table>

DAY 3–7: FIELDWORK DAYS: SNORKEL TEAM

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00 a.m.–7:30 a.m.</td>
<td>Breakfast</td>
</tr>
<tr>
<td>7:45 a.m.–8:15 a.m.</td>
<td>Depart accommodation</td>
</tr>
<tr>
<td>8:30 a.m.–12:00 p.m.</td>
<td>Snorkeling activities and tows</td>
</tr>
<tr>
<td>~12:00 p.m.–12:30 p.m.</td>
<td>Lunch on the water or back at the accommodation</td>
</tr>
<tr>
<td>12:30 p.m.–2:30 p.m.</td>
<td>Snorkeling activities and tows</td>
</tr>
<tr>
<td>2:30 p.m.–3:00 p.m.</td>
<td>Travel back to the research station</td>
</tr>
<tr>
<td>3:00 p.m.–4:00 p.m.</td>
<td>Free time for showers, personal activities</td>
</tr>
<tr>
<td>4:00 p.m.–6:30 p.m.</td>
<td>Laboratory work</td>
</tr>
<tr>
<td>6:30 p.m.–7:30 p.m.</td>
<td>Dinner</td>
</tr>
<tr>
<td>7:30 p.m.–9:00 p.m.</td>
<td>Presentations on selected nights or other activities such as photo ID work and data processing</td>
</tr>
</tbody>
</table>

DAY 3–7: FIELDWORK DAYS: LAND TEAM

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00 a.m.–7:30 a.m.</td>
<td>Breakfast</td>
</tr>
<tr>
<td>7:45 a.m.–8:15 a.m.</td>
<td>Depart accommodation</td>
</tr>
<tr>
<td>8:30 a.m.–12:00 p.m.</td>
<td>Shark/Ray/Macro- and microplastic surveys</td>
</tr>
<tr>
<td>~12:00 p.m.–1:00 p.m.</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:00 p.m.–3:00 p.m.</td>
<td>Photo ID work</td>
</tr>
<tr>
<td>3:00 p.m.–5:00 p.m.</td>
<td>Shark/Ray/Macro- and microplastic surveys</td>
</tr>
<tr>
<td>5:00 p.m.–5:30 p.m.</td>
<td>Photo ID work</td>
</tr>
<tr>
<td>5:30 p.m.–6:30 p.m.</td>
<td>Free time for showers, personal activities</td>
</tr>
<tr>
<td>6:30 p.m.–7:30 p.m.</td>
<td>Dinner</td>
</tr>
<tr>
<td>7:30 p.m.–9:00 p.m.</td>
<td>Presentations on selected nights or other activities such as photo ID work and data processing</td>
</tr>
</tbody>
</table>

DAY 8: DEPARTURE DAY

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>Breakfast, pack and tidy up, depart and return to Learmonth Airport</td>
</tr>
</tbody>
</table>
Teams will be staying in a holiday home on the edge of Coral Bay settlement. The holiday home is less than 5 minutes’ walk to the Coral Bay Research Station, where some activities are conducted.

The home is equipped with basic facilities and sleeps up to eight guests. The teams will have access to the laboratory and office facilities at the research station, including computer and Internet.

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

**SLEEPING**

There are three bedrooms in the house, with a total number of eight beds. Most of the beds are comfortable bunk bed style. There may be the possibility of a private room with double bed for a couple, so please contact Earthwatch to find out if this is available. Linen is provided.

**BATHROOMS**

There is one bathroom with shower and a separate toilet in the house. This will be shared between all participants. Showers must be kept to a minimum time [three minutes] as Western Australia is a very dry area and the drinking water supply comes from rainwater tanks. The shower room has laundry facilities.

**ELECTRICITY**

Participants are asked to conserve energy wherever possible to help conserve power consumption. Additionally, due to changes in load demand, this may result in low level surges in the power supply. It is recommended that if visitors are using sensitive electronic equipment to bring surge protection boards.
PERSONAL COMMUNICATIONS
Coral Bay Research Station offers the use of internet free of charge on your personal laptops. Mobile phone reception is good for Telstra and Optus.

Communication between teams of participants on-site will be via UHF radio.

DISTANCE TO THE FIELD SITE
Travel to field locations will vary depending on activities each day. Travel will be via boat or on foot with a maximum travel time by boat of one hour to field location.

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

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

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

Participants will have dinner together at a local restaurant. Meals will be pre ordered. Please be aware that guests will not have the option to choose from the menu. Please indicate any dietary requirements on your participation form and we will try to cater to these.

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

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

TYPICAL MEALS

<table>
<thead>
<tr>
<th></th>
<th>Breakfast</th>
<th>LUNCH</th>
<th>DINNER</th>
<th>SNACKS</th>
<th>WATER</th>
<th>BEVERAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREAKFAST</td>
<td>Cereal, toast and spreads.</td>
<td>Sandwich meats, spreads and salads, cheese, fresh fruit, muesli bars.</td>
<td>Pastas, fish and chips, steak sandwiches, burgers, salads.</td>
<td>Crackers, fruits, sweet biscuits, and muesli bars.</td>
<td>Fresh drinking water will always be available at the accommodation quarters. Water should not be wasted.</td>
<td>Coffee, tea, milk, fruit juices / cordial, water.</td>
</tr>
</tbody>
</table>

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

Accommodating special diets is not guaranteed and can be very difficult due to availability of food, location of field sites, and other local conditions.
The climate in Coral Bay is warm and dry throughout the year. Summer months (December to February) can be hot with temperatures reaching the early 40° Celsius. During May the average temperature is from 16° Celsius to 29° Celsius with a small amount of rainfall. At this time of year the water temperature is around 20–24° Celsius. During October the average temperature is from 16° Celsius to 33° Celsius and usually there is very little rainfall. At this time of year the water temperature is around 20–24° Celsius.

**GENERAL CONDITIONS**

The following are averages. Please check weather resources for your team dates for more accurate weather predictions. Projects have experienced unseasonable weather at all times of year.

<table>
<thead>
<tr>
<th></th>
<th>MAR.–MAY</th>
<th>OCT.–NOV.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>16–28° C / 61–82° F</td>
<td>16–33° C / 61–91° F</td>
</tr>
<tr>
<td>Rainfall Monthly average</td>
<td>44.0 mm / 1.73 in</td>
<td>1.6 mm / 0.06 in</td>
</tr>
<tr>
<td>Average Humidity</td>
<td>49%</td>
<td>34%</td>
</tr>
<tr>
<td>Altitude</td>
<td>Sea level</td>
<td>Sea level</td>
</tr>
</tbody>
</table>

**WATER CONDITIONS**

<table>
<thead>
<tr>
<th></th>
<th>MAY</th>
<th>OCT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical water temperature</td>
<td>19–22°C / 66–72°F</td>
<td>20–24°C / 68–75°F</td>
</tr>
<tr>
<td>Typical water visibility</td>
<td>2–10m / 6.6–33ft</td>
<td>2–10m / 6.6–33ft</td>
</tr>
<tr>
<td>Typical maximum water depth</td>
<td>3–30m / 9.8–98.4ft</td>
<td>3–30m / 9.8–98.4ft</td>
</tr>
<tr>
<td>Site type</td>
<td>Fringing Reef</td>
<td>Fringing Reef</td>
</tr>
<tr>
<td>Snorkels Initiated from</td>
<td>Boats</td>
<td>Boats</td>
</tr>
<tr>
<td>Timing of snorkels</td>
<td>During the day</td>
<td>During the day</td>
</tr>
</tbody>
</table>

**ESSENTIAL ELIGIBILITY REQUIREMENTS:**

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

**EXPECTED DEMANDS OF THE PROJECT:** Please keep in mind that conditions may change and the project could potentially be more or less strenuous than these points indicate. All participants must be able to:

- Follow verbal and/or visual instructions independently or with the assistance of a companion.
- Enjoy being outdoors all day in all types of weather, in the presence of wild animals and insects.
- Sit for 2–5 hours per day (travel via boat, working in the lab, evening lectures).
- Walk for up to 5 km a day to and from land based research sites.
- Help carry research equipment
- Swim/Snorkel 2–3 times a day for 90 minutes each.
- Work on a boat for 2–6 hours a day.
- Adhere to the briefing guidelines, be aware of your own limitations and apply common sense while participating.

**BOATING REQUIREMENTS**

In order to assist on the research boat you will need to be relatively fit and agile. Although research boats may have a canopy for shading, sun protection is required for this and other field activities. Depending on winds, the trip may be bumpy and participants may feel cold on the return trip after being in the water all day. An all-weatherproof or windbreaker jacket may be advisable.

**SNORKELLING REQUIREMENTS**

In order to participate in the project you should have had some snorkelling experience. Snorkelling experience is important as it teaches you important fin technique, and how to clear your mask under difficult conditions. Having this experience should also mean that one is likely to feel more comfortable in open water with strong currents. The risks involved with snorkeling and duck diving are similar to those experienced when diving. Therefore, we do require that participants visit a General Practitioner and get their approval for their suitability on this project. The doctor’s form to be signed will be provided at the time of booking.
<table>
<thead>
<tr>
<th>HAZARD TYPE</th>
<th>ASSOCIATED RISKS AND PRECAUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>Vehicles will be driven on sealed roads to Coral Bay Research Station. All vehicles are equipped with airbags, seatbelts, spare tires, first aid kit with Emergency Response Plan and mobile phone. Only experienced project staff will drive vehicles and they will obey all road rules. Passengers and driver will be instructed to wear seat belts at all times whilst the vehicle is in motion. Participants are not allowed to drive [including their own vehicles] whilst on an Earthwatch team.</td>
</tr>
<tr>
<td>Working in boats</td>
<td>Boats are well maintained, and include, UHF radio, life preservers, emergency flares, fire extinguisher, and a first aid kit. Life jackets are available for all passengers. All participants and project staff will be wearing wetsuits, which assist with buoyancy. All participants must be able to swim. The boat is only used in daylight hours and only when sea state is acceptable to the skipper. The skipper is certified and experienced in driving boats in the area. Boat communications include EPIRB, flares, UHF radio and mobile phones. There is a communications plan with the research station outlining boat return time, destination and people manifest.</td>
</tr>
<tr>
<td>Slips and Trips</td>
<td>Participants are instructed to be careful when embarking and disembarking the vessel and should hold onto the handrail or sides of boat. Participants should always wear dive booties or thick soled shoes when walking out on the reef and boarding the boat.</td>
</tr>
<tr>
<td>Snorkeling</td>
<td>Only participants with appropriate swimming abilities and fitness are allowed to participate in the research. 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 snorkeling safety signals, and are advised how to use them if they run into trouble.</td>
</tr>
<tr>
<td>Poisonous and stinging marine animals</td>
<td>There is potential for participants or staff to be stung or bitten by some species of marine life present. For e.g. stone fish, cone shells, sea snakes, stingrays, and various jellyfish. Participants should wear wetsuits, flippers and mask, which will provide protection from most stinging wildlife. Participants are instructed not to pick anything up or touch dangerous creatures. If participants are stung they should alert project staff and apply first aid according to what has caused the sting. Participants should wear booties or some closed footwear when walking in the water and shallow reefs in the bay.</td>
</tr>
<tr>
<td>Sharks</td>
<td>There is a risk of encountering a dangerous shark on the project. Sharks will most likely demonstrate aggressive behavior before they strike. If a shark is spotted and displaying aggressive behavior, all participants will evacuate the water as quickly as possible.</td>
</tr>
<tr>
<td>Heat related illnesses, dehydration</td>
<td>Participants should bring waterproof 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.</td>
</tr>
<tr>
<td>Coral rubble and sharp shells</td>
<td>Participants should not go barefoot when walking around base camp or when walking out on the reef.</td>
</tr>
<tr>
<td>Gas stove</td>
<td>Participants may be cooking on gas stoves and the risk of burns is possible. Participants will be briefed about the cooking facilities and warned to take care when using any gas elements.</td>
</tr>
<tr>
<td>Snakes</td>
<td>Venomous snakes are found around Coral Bay. If participants come across a snake, they should not try to catch it or kill it. Participants should back away from the snake and let it be. Participants will be briefed on snakes on arrival and advised to wear closed in shoes when walking around the island.</td>
</tr>
</tbody>
</table>
EMERGENCIES IN THE FIELD
The nearest medical care is the Coral Bay Nursing Post. The service operates 24 hours on call and is open Monday to Friday. For more serious injuries participants would be transferred to Exmouth Hospital Emergency department. This would take approximately 2 hours driving from Coral Bay. For life threatening injuries, Royal Flying Doctors will be called and participants will be airlifted from the Coral Bay directly to Exmouth or Carnarvon hospital.

PHYSICIAN, NURSE, OR EMT ON STAFF
Project staff are not medical professionals.

STAFF CERTIFIED IN SAFETY TRAINING
All scientists and research assistants are qualified in CPR and hold a First Aid / oxygen provider certificate. All Earthwatch Team Leaders are qualified in CPR and hold a First Aid certificate.

NEAREST MEDICAL CENTERS

CORAL BAY NURSING POST
Robinson Street,
Coral Bay, WA 6701
TELEPHONE: (within Australia) (08) 9942 6100
(International) +61 8 9942 6100
(Satellite Phone) 0147 148 121
FAX: (08) 9942 6100
TRAVEL TIME FROM PROJECT: < 5 minutes

EXMOUTH HOSPITAL
Lyon Street,
Exmouth, WA 6707
TELEPHONE: (within Australia) (08) 9949 3666
(International) +61 8 9949 3666
FAX: (08) 9949 3611
TRAVEL TIME FROM PROJECT: 2 hours drive or ambulance.

CARNARVON MULTI PURPOSE SERVICE
Cleaver Street,
Carnarvon, WA 6701
TELEPHONE: (within Australia) (08) 9941 0555
(International) +61 8 9941 0555
FAX: (08) 9941 0310
TRAVEL TIME FROM PROJECT: 3 hours drive or ambulance.
For emergency assistance in the field, please contact Earthwatch’s 24-hour emergency hotline number on the last page of this briefing. Earthwatch is available to assist you 24 hours a day, 7 days a week; someone is always on call to respond to messages that come into our live answering service.

**IMMUNIZATIONS & TRAVEL VACCINATIONS**

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

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

---

**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 with or limits a participant’s swimming or breathing should be considered carefully. If you are pregnant, you should inform your doctor prior to snorkeling. 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.

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

LANGUAGE: English

TIME ZONE: AWST [UTC/GMT +8 hours].

LUGGAGE: Do not bring more luggage than you can carry and handle on your own. If travelling by air and checking your luggage, you are advised to pack an extra set of field clothing and personal essentials in your carry-on bag in case your luggage is lost and/or takes several days to catch up with you. Many airlines have strict baggage policies. Please check with your airline(s) on baggage weight limits, liquid restrictions, fees for checked baggage, etc.

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

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

TELEPHONE DIALING CODES: When calling Australia from another country, dial the country’s international dialing code, followed by 61 and the number. When calling within Australia, omit the 61. When calling another country from Australia dial 0011, followed by the other country’s country code and the number. NOTE: you should check with your cell phone provider to obtain any carrier-specific dialing codes you may need; many providers have dialing procedures that may differ in whole or in part from these directions.

MONEY MATTERS

LOCAL CURRENCY: Australian Dollar

PERSONAL FUNDS: No funds are required during the expedition (unless you will be renting snorkel equipment which you will need to arrange directly with a dive shop before arriving), however participants may wish to bring some cash (AUD$) to buy snacks and beverages during the expedition. Coral Bay has a small shopping arcade including a supermarket, bakery, newsagent & post office.

For those travelling from overseas, airports and major cities such as Perth will offer banks and/or exchange bureaus during business hours, as well as ATMs for cash withdrawals (please check with your bank beforehand to see if yours cards are compatible with Australian ATMs). Coral Bay has one ATM machine and it will charge a small fee for cash withdrawals. In most locations you can use EFTPOS or credit card for large purchases but smaller purchases are paid for with cash.

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

COUNTRY AND PROJECT ENTRY REQUIREMENTS

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

www.travisa.com

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

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

CONTACT INFORMATION

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

Andrea Haas, Head of Operations
Suite G-07
60 Leicester Street
Carlton VIC 3053, Australia
Email: ahaas@earthwatch.org.au
Tel.: +61 (0) 3 9016 7590
TRAVEL PLANNING
RENDEZVOUS AND DEPARTURE INFORMATION

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

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

## WHAT TO BRING

### EXPEDITION PACKING CHECKLIST

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

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

**SNORKEL GEAR**
**NOTE:** Mask, snorkel, fins and wetsuits provided by project, as this is generic equipment BYO if you have your own preferred gear.
- Dive booties/appropriate footwear, thick soled for walking in shallows

**CLOTHING/FOOTWEAR FOR FIELDWORK**
- Long-sleeved shirt or rash guard for sun protection on the boat, and to wear under wetsuit
- Warm wind/waterproof jacket as the night can get cool
- Wide-brimmed hat
- Swimsuit(s)
- Sunglasses (polarized lenses are best)—neck strap recommended
- Lightweight hiking boots or runners for land/inshore surveys

**CLOTHING/FOOTWEAR FOR LEISURE**
- Shorts
- T-shirts
- Footwear for walking around Coral Bay (thongs, sandals or sneakers)
- A sweater or jumper for the evenings

**FIELD SUPPLIES**
- Small daypack (large enough to hold below listed items)
- Dry-bag or plastic sealable bags (good for protecting equipment such as camera from dust, humidity, and water)
- Insect repellent spray
- Water bottle(s)
- Lunch box
- Waterproof sunscreen with SPF 30 or higher (Zinc based sunscreens are very effective around the water)
- Beach Towel

**BEDDING AND BATHING**
**NOTE:** Blankets, pillows and linen will be provided by the project
- Towel (please note two towels are recommended, one for showering, one for in the field—as under “Field Supplies”)

**PERSONAL SUPPLIES**
- Personal toiletries (biodegradable soaps and shampoos are encouraged)
- Antibacterial wipes or lotion (good for cleaning hands while in the field)
- Personal first aid kit (e.g., anti-diarrhea pills, antibiotics, antiseptic, itch-relief, pain reliever, bandages, blister covers, etc.) and medications
- Spending money

**OPTIONAL ITEMS**
- Underwater camera, film/memory card(s), extra camera battery (if you bring a digital camera, bring your interface cables for downloading)
- Hardware for sharing digital photographs at the end of the expedition
- Books, games, art supplies, etc. for free time
- Earplugs for light sleepers
- Flashlight or headlamp with extra batteries and extra bulb
- Travel guidebook
- Water-resistant wristwatch
- Binoculars
- Pencil, pen, notebook

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

EARTHWATCH SCIENTIST FRAZER MCGREGOR has been a tour guide and skipper for 14 of his 19 years in Coral Bay, and has been working on a PhD in marine ecology at Murdoch University. Frazer’s research has been instrumental in the implementation of the Manta Ray Identification catalogue. His research has collected data on almost 800 different manta rays that visitors have the opportunity to interact with. His studies have provided key baseline information on all aspects of manta ray ecology within Ningaloo reef including population ecology, foraging ecology and localized movements. Frazer will be present on all teams.

EARTHWATCH SCIENTIST MIKE VAN KEULEN is Senior Lecturer in Marine Biology at Murdoch University and Director of the Coral Bay Research Station. Mike undertook undergraduate studies at James Cook University, the University of Western Australia and Murdoch University, obtaining a BSc with Honors and PhD from Murdoch University in Perth. He worked as a researcher with CSIRO Marine Research and as a postdoctoral fellow on marine restoration before taking up his current post as lecturer in Marine Biology at Murdoch University in 1998. Mike has diverse research interests, including the biology and ecology of marine plants, coral reef ecology, environmental restoration and marine wildlife ecology. Mike will be present on teams in October.

NOTE: In addition, there may be various Research Assistants and/or Team Leaders joining the expedition. A staffing schedule is still to be announced.
ARTICLES


BOOKS & JOURNALS


WEBSITES

- PROJECT MANTA WA VIDEO: youtube.com/watch?v=iNHn10_hlaQU&feature=youtu.be
- MANTA RAY, AUSTRALIAN MUSEUM: australianmuseum.net.au/manta-ray-manta-birostris
- CORAL BAY RESEARCH STATION FACEBOOK: facebook.com/CoralBayResearch
- PROJECT MANTA WA FACEBOOK: facebook.com/Project-Manta-WA

FILMS & TV

- The Blue Planet (BBC)

PROJECT RELATED LINKS

- CORAL BAY: coralbay.org

SOCIAL MEDIA: EARTHWATCH AUSTRALIA

- FACEBOOK: facebook.com/EarthwatchAustralia
- TWITTER: twitter.com/Earthwatch_Aus
- YOUTUBE: youtube.com/user/EarthwatchAus
- INSTAGRAM: instagram.com/earthwatch_aus

SOCIAL MEDIA: EARTHWATCH INTERNATIONAL

- FACEBOOK: facebook.com/Earthwatch
- TWITTER: twitter.com/earthwatch_org
- INSTAGRAM: instagram.com/earthwatch
- BLOG: blog.earthwatch.org
- YOUTUBE: youtube.com/earthwatchinstitute
EMERGENCY NUMBERS
AROUND-THE-CLOCK SUPPORT

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

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

DEAR EARTHWATCHER,

Hello and welcome to the team!

You will soon be embarking on an exciting and meaningful adventure to some of the most spectacular regions of our planet. It’s a special place here on Earth, and with your help we are working hard to keep it that way for all life that exists.

We unfortunately face a variety of environmental pressures today and by joining this Earthwatch expedition you are not only saying you care, but more significantly, that you are prepared to do something about it. The work you will undertake will help contribute to solving critical environmental issues, help shape policies and behaviours and enhance protection of culture, wildlife and ecosystems. Without your help scientists would need to spend weeks, months or even years collecting the same amount of data you and your team will collect in just a few days!

We can’t thank you enough for your choice to take a slightly different holiday this year, and we hope you get out of the experience as much as we do by bringing researchers and participants together to work towards a better future.

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

Best regards,

Cassandra Nichols
Earthwatch Australia CEO

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

OR ON TWITTER @EARTHWATCH_AUS, AND ON INSTAGRAM AT INSTAGRAM.COM/EARTHWATCH_AUS