



# SOUTH AFRICAN PENGUINS



2018 briefing begins on page 23.

## DEAR EARTHWATCHER,

We look forward to welcoming you to South Africa, the Cape Peninsula, and to Robben Island.

As a member of the 2017 Earthwatch teams, you'll be in the exciting position of continuing the monitoring of birds returning to breed at Robben Island from March to August (the main breeding period here). We need to understand how the breeding success of the birds is affected by external factors such as the weather, the availability of prey in the local area, fishing and long-term climate change. We have been carrying out nest monitoring for the past 16 years. Your work on the island will add to this ever growing and increasingly valuable data set. Not only will you help with the regular nest monitoring activities, you will help to measure the condition of chicks at nests and may be involved with other projects as well.

Please make sure to read this entire briefing for all of the essential information to prepare you for your expedition. We look forward to seeing you and believe you will have a wonderful time.

Sincerely,

Richard Sherley, Peter Barham, Les Underhill, Nola Parsons, and Newi Makhado.



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# GENERAL INFORMATION

## SOUTH AFRICAN PENGUINS



### EARTHWATCH SCIENTISTS

Dr. Richard Sherley, Dr. Peter Barham, Dr. Les Underhill,  
Dr. Nola Parsons, And Dr. Newi Makhado

### RESEARCH SITE

Robben Island, South Africa

### EXPEDITION DATES

**Team 1:** Mar. 6-Mar.17, 2017

**Team 2:** Apr. 3-Apr. 14, 2017

**Team 3:** May 8-May 19, 2017

**Team 4:** Jun. 5-Jun. 16, 2017

**Team 5:** Jun. 26-Jul. 7, 2017

**Team 6:** Jul. 17-Jul. 28, 2017

**Team 7:** Aug. 7-Aug. 18, 2017

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

**Please contact Earthwatch  
with any questions.**



# TRIP PLANNER

## SOUTH AFRICAN PENGUINS

### TRIP PLANNER

#### 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 when your expedition is booked.

#### 90 DAYS PRIOR TO EXPEDITION

- Log in at [earthwatch.org](http://earthwatch.org) to complete your volunteer forms.
- Pay any outstanding balance for your expedition.
- Book travel arrangements (see the Travel Planning section for details).
- If traveling internationally, make sure your passport is current and, if necessary, obtain a visa for your destination country.

#### 60 DAYS PRIOR TO EXPEDITION

- Make sure you have all the necessary vaccinations for your project site.
- Review the Packing Checklist 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 relative or friend.
- Leave copies of your passport, visa, and airline tickets with a 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.



# THE RESEARCH

## SOUTH AFRICAN PENGUINS



### THE STORY

African penguins, according to reports from the 1600's, were once abundant on Robben Island. But by 1800, they had faced so much exploitation and disturbance—primarily by the early European settlers at the Cape—for food, clothing, and oil, which they no longer bred there. Not until 1983 did African penguins begin to recolonize Robben Island, and after that, the colony grew spectacularly reaching over 8,000 breeding pairs in 2004 and becoming the second largest African penguin colony in the world in 2007.

Unfortunately the story doesn't end with the penguins' recovery: since then, the population has declined once again. Human activity, such as oil spills and overfishing, continues to disturb their habitat. Not only that, changes in ocean currents, which some biologists attribute to the effects of climate change, have shifted fish populations (notably, sardines and anchovies - penguins' primary food resources) to the southeast of the nesting colonies (Crawford et al. 2014; Weller et al. 2014;

Trathan et al. 2015). No one fully understands why the fish have moved, but the population of penguins has plummeted to 1,200 breeding pairs on the island. The birds must now compete with local fishermen over a rapidly diminishing food supply. And because of their attachment to their nesting colonies—relocating the penguins to be closer to the fish would require a massive effort, which may or may not actually work. As a result of these collective threats and the continued decline of the penguin populations, the International Union for Conservation of Nature (IUCN) recently classified the species as Endangered.

The data collected by Earthwatch teams is critical in order to conserve these seabirds and bring them back from the brink of extinction. Scientists need to understand how they're breeding, where they're hunting for food, whether chicks are surviving, and if methods to help protect these penguins—from setting up nest boxes to hand rearing malnourished chicks to potentially relocating entire breeding colonies—were, are, or will be, effective. This research is essential to preventing the further decline of this species—and it takes time.



## RESEARCH AIMS

Through our research on this project, we aim to better understand the dynamics of the penguin population on Robben Island. This will help us determine the causes of the population's rapid decline, and to develop well-informed strategies to increase their chances of survival. We already know a few important facts: African penguins are monogamous, and they return to the same nesting colonies year after year. Since 1989—and with the help of Earthwatch volunteers since 2001—we have collected data on the breeding success rates of the Robben Island penguins, the growth rate and overall conditions of the chicks, annual survival rates of the birds, and other features of the population (Sherley et al. 2014). We relate changes in these population features from year to year to changes in environmental conditions, such as the amount of prey available, water temperatures, etc. Thus, we hope to determine which factors contribute to the decline of the penguins, and then develop targeted conservation measures to protect them, and possibly other species of seabird as well (Sherley et al. 2013). Effectively teasing out factors related to a changing climate versus fishery harvest patterns requires robust data, drawing upon external datasets (sea temperature and fish harvest metrics) as well as careful observations of the penguins.

We are also developing research techniques that can benefit penguins and other birds, some of which researchers at other South African breeding colonies have already adopted. For example, we redesigned the wing bands used to identify the penguins to make them easier to read in the field and to lower the risk of harmful effects on the penguins (Barham et al. 2008) and have recently carried out pilot studies using microchips (PIT tags) and camera traps to monitor the birds automatically (Sherley et al. 2010).

## HOW YOU WILL HELP

As a member of our 2017 teams, you'll help us monitor the birds that come to breed at Robben Island from March to August. We'll submit the data you help collect to the Animal Demography Unit at the University of Cape Town and the Department of Environmental Affairs for detailed analysis. Your work will involve some or all of the following activities:

**MONITORING PENGUIN CHICKS:** This involves weighing chicks and taking measurements to determine their body condition.

**MONITORING NESTS:** You'll make regular visits (every five to six days) to the nests in our study to document the resident penguins' behavior; note the nest's contents and the identity of adult birds present (either by band numbers, PIT tags or using photographic identification from spot patterns); and enter data into the nest-monitoring database on the project computer.

**NOTING THE NUMBERS OF PENGUINS ARRIVING AT AND LEAVING THE COLONY:** You'll keep track of penguins from observation spots tucked away in bird hides (also known as bird blinds) on the beaches.

**TAKING DIGITAL PHOTOGRAPHS:** You'll record the spot patterns on penguins' chests to help us develop our system of band-less individual recognition.

**READING TRANSPONDERS:** You will use a hand-held wand to check whether penguins at nests have been fitted with a PIT tag and if so, to read and record the unique number. You may also help set up and monitor our moveable ground antenna to record PIT tag numbers from birds moving in and out of the colony on "penguin highways".

**READING THE NUMBERS ON BANDED PENGUINS:** You'll read numbers on all banded penguins in the colony. This includes both casual observations you might make while involved in other activities, and also specifically focusing on reading bands with telescopes and binoculars as birds travel along the "penguin highways" to and from the sea (you'll do this for a few hours each day). You'll also help enter data in the resighting database on the project computer. Resightings of banded birds have already proved invaluable. For example, they show that, although birds that were oiled, cleaned, rehabilitated, and released after the oil spill have similar survival rates to that of other birds, their breeding success has not been as good.

**LONG-TERM POPULATION MONITORING OF THE ISLAND'S WILDLIFE:** In addition to counting the number of molting penguins and penguin nests in a small area of the colony, you'll research other shorebirds, game animals, and rabbits that call Robben Island "home".

**CLEARING ACCUMULATED GARBAGE:** You'll help clear garbage, especially fishing line, from the shoreline (likely, for parts of one or two days). Birds entangled in this material can become trapped and die of starvation.

# DAILY LIFE IN THE FIELD

## PLANS FOR YOUR TEAM

At the beginning of your expedition, you'll receive an orientation of the island, meet the environmental officers at the Robben Island Museum, and visit the penguin colony to learn about research aims, methods, and data collection. You'll also receive a thorough safety briefing on how to protect both yourself and the penguins you'll work with.

Because of our scientists' demanding schedules, you may receive training and guidance from different researchers for different parts of your expedition. In most cases there will be one lead researcher for each team, assisted by a fellow researcher for the first week of your stay, and a different assistant researcher for the second week. The actual daily program will vary during the season as the chicks develop and the parents leave the breeding site. March and April mark the beginning of the breeding season; you'll likely see many nests with eggs and a few with small chicks during this time. Usually teams during these months spend much of their time assisting in selecting nests for the study group, monitoring some of these nests, and helping with the data entry associated with setting up the nests for monitoring by later teams. In May and June, when chicks start to fledge, you'll mostly monitor nests. These months are also when we deploy most of the GPS tracking devices on penguins. In July and August, birds complete their breeding season, and many abandon their nests. During this time, we generally find the greatest number of birds that need attention because of injury or oiling (winter storms mean that oiling seems to happen most in July and August). Volunteers may get the most hands-on experiences with penguins during these months, although nothing is certain when working with wild animals. Team 7 in August generally finds fewer breeding birds and is involved in closing down the project for the year and deals with ensuring all data entry is up to date and accurate.

**SCUBA POLICY:** Please note that scuba diving is not permitted on the recreational day(s); if you would like to dive during your visit to Cape Town, please do so before or after your Earthwatch expedition.

## ITINERARY & DAILY SCHEDULE

### DAY 1: RENDEZVOUS

The team will meet at 3:00 p.m. on day 1. The team will eat a late lunch with some of the project staff and there will be a short briefing on the schedule, etc. for the team. The team will then take a ferry to Robben Island at around 5:00 p.m.

### DAYS 2-11: FIELD WORK

6:00-7:00 a.m.	Wake up and eat breakfast
Sunrise	Begin morning fieldwork (monitoring nests, etc.)
12:30 p.m.	return to house for lunch
3:00 p.m.	Afternoon fieldwork (afternoon activities tend to be fairly diverse)
6:00 p.m.	Prepare dinner
7:00 p.m.	Dinner
8:00 p.m.	Recap of day's observations and briefing for following day's work; assist with data entry
9:00 p.m.	Occasional evening fieldwork
10:00 p.m.	Suggested bedtime

### DAY 12: DEPARTURE

Volunteers will leave the island sometime on the last day, normally during the morning, depending on the ferry schedules and weather. If time allows, volunteers will clean up the house before departing. **PLEASE NOTE:** if you intend to spend the night in Cape Town, you will need to arrange and pay for accommodations for this night separately. The team may meet up at a restaurant in the evening; however the meal and the night's lodging are not included in the cost of your expedition.





# ACCOMMODATIONS AND FOOD

## ABOUT YOUR HOME IN THE FIELD

### SLEEPING

The house contains one large bedroom and two smaller bedrooms, with a total of six single beds. There is also a lounge, which can be used as another bedroom, and an outside room with one single bed. Volunteers may be asked to share rooms depending on the number of people working on the island at any given time. The maximum number of people in any one room is normally three. Private accommodations for couples are not always possible, as rooms may be divided by gender. The house is not centrally heated, and nights can sometimes be cool, so bring an extra sleeping layer if you tend to get chilly at night.

### BATHROOMS

The house has one bathroom with one flush toilet and hot and cold running water. Laundry facilities (a washing machine and a small dryer) are available at the house for free. Bedding is provided and there is a small supply of towels.

### ELECTRICITY

Robben Island has a fairly reliable electricity supply of 240 volts and uses South African sockets (three-pin plug required). Adaptors are necessary for North American, Australian, British and European plugs. Adaptors can be purchased at stores in Cape Town and there may be a spare one at the house for general use. North American electronics (excluding laptop computers) may also require a transformer to protect the equipment from the higher voltage in South Africa.

### PERSONAL COMMUNICATIONS

The house does not have a broadband connection. However, volunteers may send and receive limited emails via the team leader and/or the assistant, if needed (see the Communications section). South Africa has 3G cellular Internet (4G in major cities). Local 'pay as you go' SIM cards, phones (which can work as a portable hotspot) and '3G dongles' can be purchased or rented on arrival in Cape Town at the airport and at some outlets at the Waterfront. You will need to show your passport to register a SIM card and phone number. If you have a quad-band phone, which can work as a portable hotspot, you may be able to use it in South Africa. To avoid roaming charges, you should buy a local SIM card and a 'data bundle' (SIM cards should not cost more than R10, data packages are extra). Some North American phones may not work. There is reasonable cell phone reception (including 3G coverage) on Robben Island.

### FACILITIES AND AMENITIES

There is a small shop on the island that carries a very basic selection of foodstuffs; there is another small shop selling curios and a few cold drinks. There are no restaurants or other services on Robben Island.

Smoking is not allowed in the field or in the team house; smoking is permitted only in designated areas outside of the house.

### DISTANCE TO THE FIELD SITE

The house is located about a 15-minute walk from the edge of the penguin colony and about 30 minutes from the main study site.

### TYPICAL MEALS

<b>BREAKFAST</b>	This is usually do-it-yourself and includes toast, cereal, yogurt, and fruit.
<b>LUNCH</b>	Cold meats, cheese, quiche, bread, salads, and fruit.
<b>DINNER</b>	Each team normally has at least one braai (South African for barbecue) with traditional meats. Other dinners include fish, stews, and pasta dishes. Enough fresh vegetables to last a week are sent out with the team and the supply is replenished when possible.
<b>SNACKS</b>	A good range of biscuits (cookies) and savory snacks are provided.
<b>BEVERAGES</b>	Tea (leaf tea, tea bags, herbal teas, and rooibos, a South African specialty), coffee, hot chocolate, fruit juices, and other beverages will be provided. Drinking water from a desalination plant on the island will be provided.

### 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.

# PROJECT CONDITIONS

## THE FIELD ENVIRONMENT



You can generally expect heat in March and April, and cool wet weather from May to August. In winter (June through August), Cape Town can be very wet, and teams during this period should expect at least one day of heavy rain. You may also be caught out in light rain during fieldwork.

Temperatures may vary significantly between day and night, and weather in general can be highly variable. You may find yourself working in hot conditions during the day and in cool conditions in the morning or late afternoons/evenings. The house can get chilly (e.g. 10°C, 50°F) inside during the winter months (June to August), particularly after several days of rain.

Keep in mind the seasons are reversed relative to the Northern Hemisphere.

### GENERAL CONDITIONS

#### MARCH—AUGUST CONDITIONS

**TEMPERATURE RANGE:** 7°C/45°F (July avg. daily min.) to 25°C/77°F (March avg. daily max.)

**RAINFALL:** 20mm/0.8 in (March average) to 93mm/ 3.7 in (June average)

### ESSENTIAL ELIGIBILITY REQUIREMENTS:

All participants must be able to:

- Follow verbal and/or visual instructions independently or with the assistance of a companion.
- Enjoy being outdoors most of the day in variable weather (see General Conditions), in the potential presence of wild animals and insects.
- Tolerate moderate to very hot conditions in direct sun (especially March through May teams) for long hours each day.
- Walk between 4 km/2.5 miles and 8 km/5 miles a day on rough dirt tracks and through dense woodland to carry out nest monitoring, etc. Some volunteers also choose to walk to and from the research house to the field site a distance of 2.5 km /1.5 miles per trip.
- Bend up and down, crouch and crawl comfortably for 2 hours per day while performing nest work.
- Sit for up to 6 hours during the day for several days in a row while recording data.
- Have strong eyesight to use binoculars and spotting scopes to read band numbers (contacts and glasses are OK).
- Carry personal daily supplies such as water, notebook, and binoculars, and occasionally some field equipment, such as a spotting scope or tripod.



# POTENTIAL HAZARDS

## SOUTH AFRICAN PENGUINS

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	<p>The ferry ride to the island takes about an hour each way. Bring appropriate medication if you are prone to seasickness. Travel to and from the island by ferry is highly dependent on weather; poor weather conditions can delay arrival on the island, or can require us to leave the island a day or more early. This is a particular risk during winter months (June—August).</p> <p>On the island, you'll ride in a bakkie (small pickup); often in the back of the truck without safety restraints. Stay seated on the floor of the truck bed and hold on to the sides at all times. Participants are not permitted to drive.</p>
Hiking	<p>You will usually walk on dirt roads and tracks with reasonably flat surfaces. However, in other places you may have to navigate penguin burrows or loose stones. Please walk slowly and carefully over uneven terrain. If you have unsure footing, we advise you to use a walking stick or hiking pole to avoid slipping and injury.</p> <p>You'll find rusty barbed wire (remnants from the prison) throughout parts of the colony. Please pay attention to your surroundings and be sure your tetanus vaccination is up to date before you arrive. Wear long pants and appropriate footwear (e.g., hiking boots) when walking through long brush and grass to avoid scratches.</p>
Animals	<p>Project staff will instruct you on proper handling techniques to avoid injury to you or animals. Penguins can inflict painful bites, so we will provide protective gloves. Always take care and wear goggles when handling penguins; if frightened, penguins may attempt to peck your hand, arms, face, or eyes.</p> <p>Mole snakes inhabit some parts of the island—while they are non-venomous and generally docile, they may bite painfully. They are large snakes, and may startle some volunteers. Under no circumstances should you disturb or attempt to handle them.</p> <p>Wild African bees also live on the island. If you are allergic to stings, you must note this on your Earthwatch Participation Form and inform project staff in the field. Please also carry necessary medications and inform staff of their location.</p>
Climate/ Weather	<p>Most project work happens outdoors, so sunburn, dehydration, and other heat-related illnesses are risks. Please wear high-factor sunscreen, dress appropriately, and wear a wide-brimmed hat, and sunglasses. Carry and drink plenty of water throughout the day. Take rest breaks as needed, and inform a staff member if feeling tired or ill.</p>
Bush Fire	<p>Vegetation on the island is very dry, especially March to May so there is a high risk of bush fire due to careless behavior, such as smoking in the veldt (open areas covered with scrub and grasses). Project staff will instruct you on how to avoid this risk. Smoking is not allowed in the field or in the team house; smoking is permitted only in designated areas outside of the house.</p>
Personal Security	<p>If you will be traveling in urban areas in South Africa before and/or after the expedition, we advise you to stay alert and use sensible precautions. Avoid dark areas, don't walk alone at night, and do not obviously display cash, cameras, or jewelry. It is always good practice to leave any unnecessary valuables at home.</p>
Distance from Medical Care	<p>As the ferry to and from Robben Island is highly dependent on weather, poor weather conditions can lead to delays in access to medical care. If you have a chronic condition which may require immediate medical care (e.g. heart conditions, kidney problems, severe asthma, etc.), or if you are pregnant, please discuss your participation on this expedition with your physician.</p>

# SAFETY

## HEALTH INFORMATION

Disease	<p>Traveler's diarrhea affects many international travelers.</p> <p>Diseases found in tropical regions may include malaria, dengue fever, rabies, schistosomiasis, filariasis, chikungunya, tick bite fever, West Nile Virus, HIV/AIDS, hepatitis, cholera, and typhoid fever. Please see the U.S. Centers for Disease Control and Prevention (<a href="http://cdc.gov">cdc.gov</a>) or the World Health Organization (<a href="http://who.int/">who.int/</a>) websites for more information on these conditions and how to avoid them.</p> <p>You can decrease your risk of most diseases above by avoiding mosquito bites, practicing good hygiene, and drinking only bottled or filtered water when appropriate.</p> <p>A few notes on vaccinations and treatment:</p> <ul style="list-style-type: none"> <li>• <b>MALARIA:</b> Malaria: Malaria is not present at the research site or in the Western Cape. Chloroquine-resistant malaria is found elsewhere in South Africa, generally in the north and east of the country. Speak to your doctor about malarial prophylaxis if you plan to travel elsewhere in South Africa.</li> <li>• <b>TUBERCULOSIS:</b> Volunteers returning from developing countries may wish to have a (PPD)-tuberculin skin-test to screen for potential infection.</li> <li>• <b>YELLOW FEVER:</b> A vaccination protecting against yellow fever is available, although pregnant women and immune-compromised individuals cannot be vaccinated. Your home country may require a certificate of vaccination for re-entry if you travel to an area where yellow fever is endemic. South Africa is not a Yellow fever region.</li> </ul>
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### EMERGENCIES IN THE FIELD

#### PHYSICIAN, NURSE, OR EMT ON STAFF:

Project staff members are not medical professionals.

**STAFF CERTIFIED IN SAFETY TRAINING:** None.

#### Robben Island Clinic (limited resources)

Main Road  
Robben Island

**Tel:** +27 (0) 21-409-5126 and +27(0) 82-414-8408

Approximately 200 m from team accommodations;  
2 km from research site.

#### Christiaan Barnard Memorial Hospital

(24-hour emergency)  
181 Longmarket Street, Cape Town

**Tel:** +27 (0) 21-480-6111

**Trauma:** +27 (0) 21-423-4835

**Free Call Within South Africa:** 0801222222

Approximately 10 km away; 25 minutes by helicopter (may not always be available), longer by boat (approx. 90 minutes once onboard). Both may take some time to arrange.

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

Please be sure your routine immunizations are up-to-date (for example: diphtheria, pertussis, tetanus, polio, measles, mumps, rubella and varicella). Medical decisions are the responsibility of each volunteer and his or her doctor, and the following are recommendations only. Visit the Healix Travel Oracle website through the "Travel Assistance and Advice" page in your Earthwatch portal, [cdc.gov](http://cdc.gov) or [who.int](http://who.int) for guidance on immunizations.

### PROJECT VACCINATIONS

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

**RECOMMENDED FOR HEALTH REASONS:** Typhoid, Hepatitis A, Hepatitis B



# TRAVEL TIPS

## SUGGESTIONS FOR THE ROAD

### YOUR DESTINATION

**LANGUAGE:** There are 11 official languages in South Africa. The project will be conducted in English and most people you encounter will speak fluent English.

**TIME ZONE:** South African Standard Time (SAST) - UTC+2.

**CULTURAL CONSIDERATIONS:** South Africa is one of the most multicultural countries in the world. In urban areas many different ethnic groups will make up the population. As such it is difficult to generalize at all on South African etiquettes and culture. More information can be found at the following links: <http://www.kwintessential.co.uk/resources/global-etiquette/south-africa-country-profile.html> <http://www.everyculture.com/Sa-Th/South-Africa.html>

**ELECTRICITY:** 240 volts, 50 Hz, three-pin Type M plug. Adaptors can be purchased in South Africa's international airports and at the Waterfront in Cape Town if you arrive in time to buy one before the rendezvous. There may also be spare ones at the house for U.K. and North American-style plugs; there are adapters available for European-style two prongs at the house.

### MONEY MATTERS

**LOCAL CURRENCY:** South African rand.

**PERSONAL FUNDS:** You can change money at the airport or at a bank in Cape Town, which has ATMs throughout. Most businesses in Cape Town accept credit and debit cards. Robben Island has no banks or ATMs so we suggest that you take a small amount of South African rand from the mainland for purchasing small items or souvenirs.

You'll likely need about US \$200 in spending money. When budgeting, it is a good idea to plan at least one extra night in Cape Town at the end of the expedition. There is also a range of souvenirs available on the island and in Cape Town. Prices are generally reasonable. Wait staff and specialist guides are generally tipped 10% of the cost of service. It is also commonplace (but not usually mandatory) to pay small tips (R5 to R10) to those who assist you such as people minding cars on the street, petrol pump attendants, airport porters etc.

### PASSPORTS AND VISAS

Passport and visa requirements are subject to change. Check with your travel advisor, embassy or consulate in your home country for requirements specific to your circumstances. Generally, passports must be valid for at least six months from the date of entry and a return ticket is required.

CITIZENSHIP	PASSPORT REQUIRED?	VISA REQUIRED?
United States	Yes	No
United Kingdom	Yes	No
Europe	Yes	Yes, with some exceptions
Australia	Yes	No
Japan	Yes	No

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.

### 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:

**Sue Kuyper**  
John Day Building  
University of Cape Town  
+27 (21) 650 2423



# EXPEDITION PACKING LIST

## WHAT TO BRING

### EXPEDITION PACKING CHECKLIST

#### GENERAL

- This expedition briefing; an electronic version if possible to save paper waste
- 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)

#### CLOTHING/FOOTWEAR FOR FIELDWORK

- Earthwatch T-shirt
- Lightweight, quick-drying, long-sleeved shirts and pants/trousers that you don't mind getting dirty and/or torn from thorns
- T-shirts and shorts for warm days
- Clothes that can be layered for warmth (wool or polypropylene are recommended—not cotton), especially for April–August teams
- Rain gear (poncho or jacket and trousers are strongly recommended, especially for winter teams)
- Well worn-in, thick-soled, closed toed walking shoes and/or hiking boots, preferably waterproof (especially in wetter months: May–September).
- Hat with wide brim to protect your head and neck from sun

#### CLOTHING/FOOTWEAR FOR LEISURE

- One set of clothing to keep clean for end of expedition and/or recreational day(s) in Cape Town
- Comfortable clothes for relaxing at the research house
- Sandals or flip-flops to wear in the house

#### FIELD SUPPLIES

- GOOD binoculars are highly recommended—7x35 or 8x40, field and vacuum sealed (larger models, such as 10 x, are difficult for beginners but would work for experienced birders)
- Pair of glasses (either your own prescription glasses or sunglasses) to be worn when handling the penguins as a guard against any risk of the birds pecking at eyes; there are also safety goggles available on site
- Small daypack/rucksack

- Water bottle(s) able to hold at least 2 liters (two 1 liter bottles are often better than one)
- Notebook and pen/pencils, preferably small enough to fit in your pocket

#### BEDDING AND BATHING

- Towel(s) (there are some towels onsite left by previous volunteers and you are welcome to use these to save yourself the luggage space)

**NOTE:** Bedding and pillows will be provided by the project.

#### 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

- Insect repellent
- Flashlight or headlamp with extra batteries and extra bulb
- Travel guide
- Favorite snack foods
- Transformer and/or adaptor for electronics and electrical equipment (see Additional Travel Information in the Travel Planning section for details)
- Knee pads (like those used for gardening)
- Camera, film or memory card(s), extra camera battery
- Hardware for sharing digital photographs at the end of the expedition
- Dry bag or plastic sealable bags (e.g. Ziploc) to protect equipment like cameras from dust, humidity, and water
- Books, games, art supplies, etc. for free time
- Earplugs for light sleepers

**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.



# PROJECT STAFF

## YOUR RESOURCES IN THE FIELD



**DR. RICHARD SHERLEY** is a Research Fellow at the University of Exeter, U.K. His doctoral degree from the University of Bristol focused on the ecology and conservation of two endangered seabirds on Robben Island and he was a Postdoctoral Research Fellow at the University of Cape Town from 2011 to 2014. **He is involved in a series of seabird conservation projects, many based on Robben Island, so may spend time in the field with several teams. He took over running the overall project in 2016.**



**DR. PETER BARHAM** is an Emeritus Professor of physics at the University of Bristol, U.K., and an Honorary Research Associate at the University of Cape Town. Peter was responsible for the overall running of the project from 2001 to 2015. He continues to lead teams and have significant input into the biological aspects of the project. **At the time of printing, it was not determined which teams Peter will be leading; this will be confirmed closer to the expedition date.**



**DR. LESLIE "LES" UNDERHILL** is director of the Animal Demography Unit and an Emeritus Professor in the Department of Biological Sciences at the University of Cape Town (UCT). He received his doctorate degree from the Department of Statistical Sciences at UCT and is in charge of statistical aspects and responsible for local co-ordination of the project. **Les tries to join each team in the field for one or two days as his schedule allows.**



**DR. NEWI MAKHADO** is a Specialist Scientist with the Oceans and Coasts branch of South Africa's Department of Environmental Affairs (DEA). He holds a doctorate from UCT and his department has overall responsibility for seabird conservation and research in South Africa. **His schedule with the teams has yet to be determined, but he, or other DEA staff, may spend short periods on Robben Island with teams as part of South Africa's seabird monitoring program.**

**DR NOLA PARSONS** heads up research at Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) and she has published extensively on penguin rehabilitation, disease and conservation. She holds a veterinary degree from the University of Pretoria and obtained a doctoral degree from UCT for research on the endemic African Black Oystercatcher. **Nola will usually lead one team each year and may spend short periods on Robben Island with other teams as part of other research projects.**



**TECHNICAL COORDINATOR: SUE KUYPER** is Executive Assistant at the Animal Demography Unit. Sue is responsible for administrative, logistical and technical oversight as well as the day-to-day running of the project in South Africa. **Sue will meet all the teams at the rendezvous and will try to spend some time on the island with teams when her schedule allows.**

Team leaders will be in charge of the daily field activities during the project; staffing schedules will vary by team. The schedule of which project staff will lead which team has not yet been fully determined at the time of printing. It is possible that you will work with one team leader or Earthwatch scientist and one assistant for the first half of the expedition, and with another assistant for the second half.

**NOTE:** Staff schedules are subject to change.



# RECOMMENDED READING

## YOUR RESOURCES AT HOME

### RESOURCES

#### RESEARCH ARTICLES

- Sherley RB et al. 2015. Bottom-up effects of a no-take zone on endangered penguin demographics. *Biology Letters* 11: 20150237. <http://rsbl.royalsocietypublishing.org/content/11/7/20150237>.
- Trathan PN et al. 2015. Pollution, habitat loss, fishing, and climate change as critical threats to penguins. *Conservation Biology* 29: 31–41. <http://onlinelibrary.wiley.com/doi/10.1111/cobi.12349/full>
- Cury PM et al. 2011. Global seabird response to forage fish depletion—One-third for the birds. *Science* 334: 1703–1706.

#### POPULAR ARTICLES

- Sherley RB. 2014. Adult survival declines as African Penguin population plummets. BOU Blog: <http://www.bou.org.uk/african-penguin/>
- Bergman C 2012. Make way for the African Penguins. *Smithsonian Magazine*. <http://www.smithsonianmag.com/travel/make-way-for-the-african-penguins-62475743/?no-ist=>
- Sherley RB et al. 2011. Birds occurring or breeding at Robben Island, South Africa, since 2000. *Ornithological Observations* 2: 69–100. [http://oo.adu.org.za/pdf/00\\_2011\\_02\\_069-100.pdf](http://oo.adu.org.za/pdf/00_2011_02_069-100.pdf)

#### BOOKS

- Mandela, Nelson. *Long Walk to Freedom*. New York: Little Brown and Co., 1995.
- Garcia Borboroglu, Pablo and Boersma, P Dee. *Penguins: Natural History and Conservation*; University of Washington Press, 2013
- Whittington, Phil. *Peter the Penguin*. Cape Town: Animal Demography Unit, 2001.
- Spencer David, Lloyd. *Penguins: The Ultimate Question and Answer Book*. New York: Harper Collins, 2007.

#### FIELD GUIDES

- Sinclair, Ian, Phil Hockey, Warwick Tarboton, and Ryan, Peter. *Sasol Birds of Southern Africa*. Cape Town: Struik Publishers, 2011.
- *Oceans of Life off Southern Africa*. Edited by A.I.L. Payne and R.J.M. Crawford. Cape Town: Vlaeberg, 1989.

#### FILM

- *Penguins: Spy in the Huddle*. BBC Home Entertainment, 2014. **NOTE:** a documentary using 50 'spycams' to capture unique footage of emperor, rockhopper and Humboldt penguins; available at [Amazon.com](http://Amazon.com).

- *City Slickers*. **NOTE:** This is not the Billy Crystal movie, but "a wonderful wildlife film with a very humorous twist"; available at [sancocob.co.za/](http://sancocob.co.za/).
- *Mandela: Long Walk to Freedom* (Director: Justin Chadwick). Anchor Bay, 2014. **NOTE:** Based on Nelson Mandela's 1995 autobiography of the same name. Includes some scenes filmed on Robben Island; available at [Amazon.com](http://Amazon.com)
- *Goodbye Bafana* (Director: Billie August). Image Entertainment, 2008. **NOTE:** Based on a book of the same name, it tells the story of an unlikely friendship that developed between a former prison guard at Robben Island and Pollsmoor Prison—James Gregory—and one of his prisoners, Nelson Mandela; available at [Amazon.com](http://Amazon.com) and renamed *The Color of Freedom* in the U.S.A.
- *Invictus* (Director: Clint Eastwood). Warner Home Video, 2010. **NOTE:** Based on newly post-Apartied South Africa's famous victory on home soil in the 1995 Rugby World Cup and the interactions between then Springbok captain Francois Pienaar and Nelson Mandela. Includes some scenes filmed on Robben Island; available at [Amazon.com](http://Amazon.com).

#### PROJECT FIELD REPORT

- Each Earthwatch-supported project submits a report on past research and results. The most recent field report for this project is available online at [earthwatch.org/scientific-research/reports-from-the-field](http://earthwatch.org/scientific-research/reports-from-the-field). Note that reports are not available for all projects.

#### PROJECT-RELATED WEBSITE

- Robben Island Penguin Tracks: A blog by penguin researcher and PhD Student Kate Robinson about research on Robben Island and journey through her PhD thesis: [penguin-tracks.blogspot.co.uk/](http://penguin-tracks.blogspot.co.uk/)
- SANCCOB: [sancocob.co.za/](http://sancocob.co.za/)
- The Animal Demography Unit's Facebook page: [facebook.com/animal.demography.unit/](https://facebook.com/animal.demography.unit/)
- Richard Sherley's research website: [richardsherley.com](http://richardsherley.com)

#### EARTHWATCH SOCIAL MEDIA

FACEBOOK: [facebook.com/Earthwatch](https://facebook.com/Earthwatch)

TWITTER: [twitter.com/earthwatch\\_org](https://twitter.com/earthwatch_org)

INSTAGRAM: [instagram.com/earthwatch](https://instagram.com/earthwatch)

BLOG: [earthwatchunlocked.wordpress.com](http://earthwatchunlocked.wordpress.com)

YOUTUBE: [youtube.com/earthwatchinstitute](https://youtube.com/earthwatchinstitute)





# LITERATURE CITED

## LITERATURE

- Barham PJ, Underhill LG, Crawford RJM, Leshoro TM, and Bolton DA. 2008. Impact of flipper-banding on breeding success of African penguins *Spheniscus demersus* at Robben Island: comparisons among silicone rubber bands, stainless-steel bands and no bands. *African Journal of Marine Science*. Vol. 30, Issue 3.
- Crawford RJM, Altwegg R, Barham BJ, Barham PJ, Durant JM, Dyer BM, Geldenhuys D, Makhado AB, Pichegru L, Ryan PG, Underhill LG, Upfold L, Visagie J, Waller LJ, Whittington PA. 2011. Collapse of South Africa's penguins in the early 21st century. *Afr J Mar Sci* 33:139–156.
- Crawford RJM, Makhado AB, Waller LJ and Whittington PA. 2014. Winners and losers -responses to recent environmental change by South African seabirds that compete with purse-seine fisheries for food. *Ostrich* 85: 111-117.
- Sherley RB, Burghardt T, Barham PJ, Campbell N, and Cuthill IC. 2010. Spotting the difference: towards fully-automated population monitoring of African penguins *Spheniscus demersus*. *Endangered Species Research* 11: 101-111.
- Sherley RB, Ludynia K, Lamont T, Roux JP, Crawford RJM and Underhill LG. 2013. The initial journey of an endangered penguin: implications for seabird conservation. *Endangered Species Research* 21: 89–95.
- Sherley RB, Barham PJ, Barham BJ, Crawford RJM, Dyer BM, Leshoro TM, Makhado AB, Upfold L and Underhill LG. 2014. Growth and decline of a penguin colony and the influence on nesting density and reproductive success. *Population Ecology* 56: 119–128.
- Trathan PN, Garcia-Borboroglu P, Boersma D, Bost C-A, Crawford RJM, Crossin GT, Cuthbert RJ, Dann P, Davis LS, de la Puente S, Ellenberg U, Lynch HJ, Mattern T, Pütz K, Seddon PJ, Trivelpiece W and Wienecke B. 2015. Pollution, habitat loss, fishing, and climate change as critical threats to penguins. *Conservation Biology* 29: 31–41.
- Weller F, Cecchini L-A, Shannon L, Sherley RB, Crawford RJM, Altwegg R, Scott L, Stewart T and Jarre A. 2014. A system dynamics approach to modelling multiple drivers of the African penguin population on Robben Island, South Africa. *Ecological Modelling* 277: 38–56.



# EMERGENCY NUMBERS

## AROUND-THE-CLOCK SUPPORT



### EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE

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

+1 (978) 461.0081

+1 (800) 776.0188 (toll-free for calls placed from within the U.S.)

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

### TRAVEL ASSISTANCE PROVIDER: HEALIX INTERNATIONAL

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+44.20.3667.8991 (collect calls and reverse charges accepted)

**U.S. TOLL FREE:** +1.877.759.3917

**U.K. FREE PHONE:** 0.800.19.5180

**E-MAIL:** [earthwatch@healix.com](mailto:earthwatch@healix.com)

You may contact Healix International at any time. They can assist in the event of a medical or evacuation emergency or for routine medical and travel advice, such as advice on visas and vaccine requirements.

### FOR VOLUNTEERS BOOKED THROUGH THE EARTHWATCH AUSTRALIA OFFICE:

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### Earthwatch Australia 24-Hour Emergency Helpline

+61.0.3.8508.5537







# MESSAGE FROM EARTHWATCH

DEAR EARTHWATCHER,

Thank you for joining this expedition! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. It is volunteers like you who fuel our mission and inspire our work.

While at Earthwatch, I've had the opportunity to field on a few expeditions, most recently in Kenya with one of my daughters. Each expedition has touched me deeply, and made me proud to be able to roll up my sleeves alongside my fellow volunteers and contribute to such meaningful work.

As an Earthwatch volunteer, you have the opportunity to create positive change. And while you're out in the field working toward that change, we are committed to caring for your safety. Although risk is an inherent part of the environments in which we work, we've been providing volunteer field experiences with careful risk management and diligent planning for nearly 45 years. You're in good hands.

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

Sincerely,

A handwritten signature in black ink that reads "Scott Kania". The signature is written in a cursive, flowing style.

Scott Kania  
President and CEO, Earthwatch

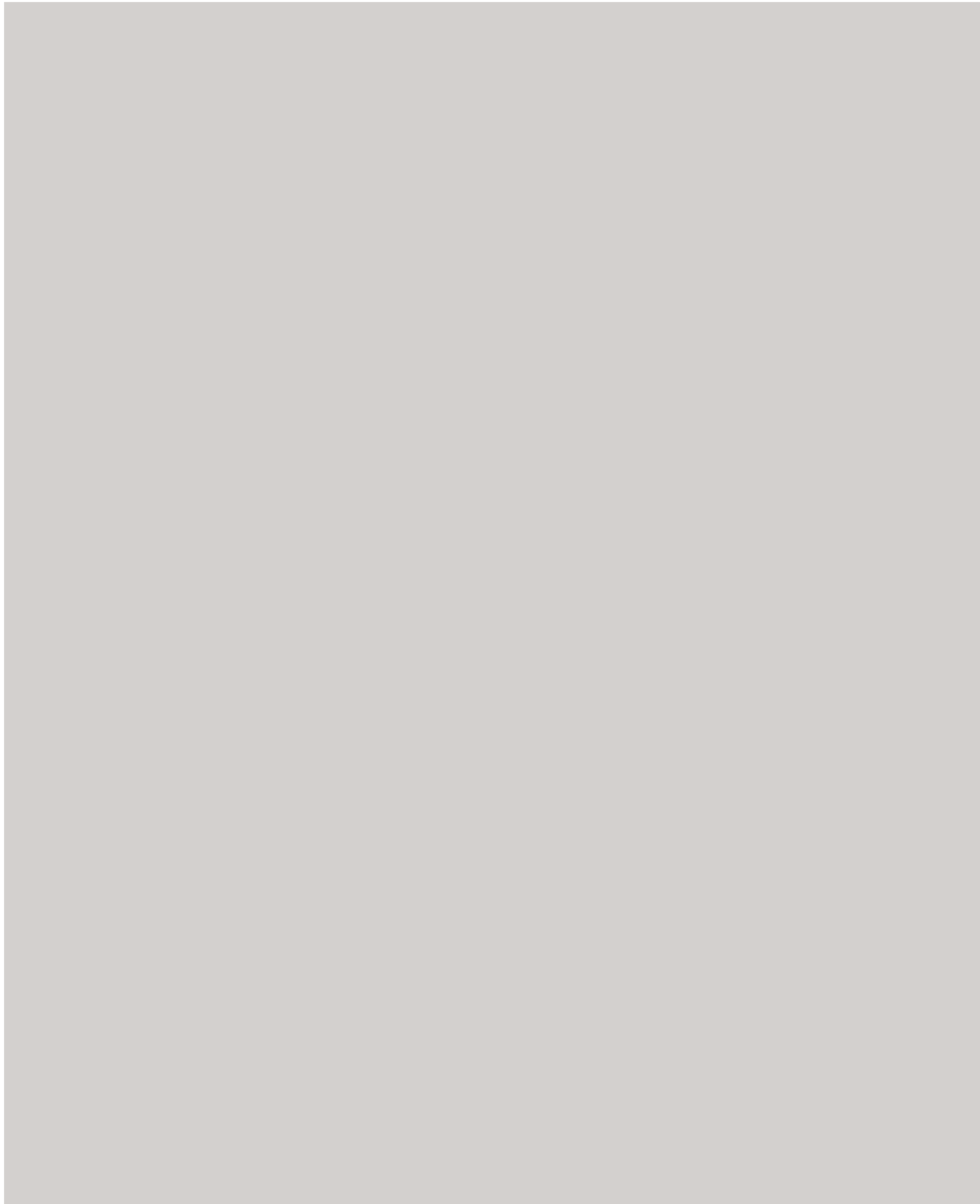












# THE RESEARCH

## SOUTH AFRICAN PENQUINS



### THE STORY

African penguins, according to reports from the 1600's, were once abundant on Robben Island. But by 1800, they had faced so much exploitation and disturbance—primarily by the early European settlers at the Cape—for food, clothing, and oil, that they no longer bred there. Not until 1983 did African penguins begin to recolonize Robben Island, and after that, the colony grew spectacularly reaching over 8,000 breeding pairs in 2004 and becoming the second largest African penguin colony in the world in 2007.

Unfortunately the story doesn't end with the penguins' recovery: since then, the population has declined once again. Human activity, such as oil spills and overfishing, continues to disturb their habitat. Not only that, changes in ocean conditions, which may be attributed to the effects of climate change, have shifted the populations of sardine and anchovy (the penguins' primary food resources) to the southeast of the nesting colonies (Crawford et al. 2014; Weller et al. 2014; Trathan et al. 2015).

No one fully understands why the fish have moved, but the population of penguins on Robben Island has plummeted to ~1,200 breeding pairs. The birds must now compete with local fishermen over a rapidly diminishing food supply. And, because of their attachment to their nesting colonies, relocating the penguins to be closer to the fish would require a massive effort, which may or may not actually work. As a result of these collective threats and the continued decline of the penguin populations, the International Union for Conservation of Nature (IUCN) now classifies the species as Endangered.

The data collected by Earthwatch teams is critical in order to conserve these seabirds and bring them back from the brink of extinction. Scientists need to understand how they're breeding, where they're hunting for food, whether chicks are surviving, and if methods to help protect these penguins—such as setting up nest boxes, hand rearing malnourished chicks, setting up marine protected areas and potentially relocating entire breeding colonies—were, are, or will be, effective. This research is essential to preventing the further decline of this species—and it takes time.



## RESEARCH AIMS

Through our research on this project, we aim to better understand the dynamics of the penguin population on Robben Island. This will help us determine the causes of the population's rapid decline, and to develop well-informed strategies to increase their chances of survival. We already know a few important facts: African penguins are monogamous, and they return to the same nesting colonies year after year. Since 1989—and with the help of Earthwatch volunteers since 2001—we have collected data on the breeding success rates of the Robben Island penguins, the growth rate and overall conditions of the chicks, annual survival rates of the birds, and other features of the population (Sherley et al. 2014). We relate changes in these population features from year to year to changes in environmental conditions, such as the amount of prey available, water temperatures, etc. Thus, we hope to determine which factors contribute to the decline of the penguins, and then develop targeted conservation measures to protect them, and possibly other species of seabird as well (Sherley et al. 2013). Effectively teasing out factors related to a changing climate versus fishery harvest patterns requires robust data, drawing upon external datasets (sea temperature and fish harvest metrics) as well as careful observations of the penguins.

We are also developing research techniques that can benefit penguins and other birds, some of which researchers at other South African breeding colonies have already adopted. For example, we redesigned the wing bands used to identify the penguins to make them easier to read in the field and to lower the risk of harmful effects on the penguins (Barham et al. 2008) and have recently carried out pilot studies using microchips (PIT tags) and camera traps to monitor the birds automatically (Sherley et al. 2010).

## HOW YOU WILL HELP

As a member of our 2018 teams, you'll help us monitor the birds that come to breed at Robben Island from March to August. We'll submit the data you help collect to the Animal Demography Unit at the University of Cape Town and the Department of Environmental Affairs for detailed analysis. Your work will involve some or all of the following activities:

**MONITORING PENGUIN CHICKS:** This involves weighing chicks and taking measurements to determine their body condition.

**MONITORING NESTS:** You'll make regular visits (every five to six days) to the nests in our study to document the resident penguins' behavior; note the nest's contents and the identity of adult birds present (either by band numbers, or PIT tags); and enter data into the nest-monitoring database on the project computer.

**NOTING THE NUMBERS OF PENGUINS ARRIVING AT AND LEAVING THE COLONY:** You'll keep track of penguins from observation spots tucked away in bird hides (also known as bird blinds) on the beaches.

**TAKING DIGITAL PHOTOGRAPHS:** You'll record the spot patterns on penguins' chests to help us develop our system of band-less individual recognition.

**READING TRANSPONDERS:** You will use a hand-held wand to check whether penguins at nests have been fitted with a PIT tag and if so, to read and record the unique number. You may also help set up and monitor our moveable ground antenna to record PIT tag numbers from birds moving in and out of the colony on "penguin highways".

**READING THE NUMBERS ON BANDED PENGUINS:** You'll read numbers on all banded penguins in the colony. This includes both casual observations you might make while involved in other activities, and also specifically focusing on reading bands with telescopes and binoculars as birds travel along the "penguin highways" to and from the sea. You'll also help enter data in the resighting database on the project computer. Re-sightings of banded birds have already proved invaluable. For example, they show that, although birds that were oiled, cleaned, rehabilitated, and released after the oil spill have similar survival rates to that of other birds, their breeding success has not been as good.

**LONG-TERM POPULATION MONITORING OF THE ISLAND'S WILDLIFE:** In addition to counting the number of molting penguins and penguin nests in a small area of the colony, you'll research other shorebirds, game animals, and rabbits that call Robben Island "home".

**CLEARING ACCUMULATED GARBAGE:** You'll help clear garbage, especially fishing line, from the shoreline (likely, for parts of one or two days). Animals entangled in this material can become trapped and die of starvation.

# DAILY LIFE IN THE FIELD

## PLANS FOR YOUR TEAM

At the beginning of your expedition, you'll receive an orientation of the island, meet the environmental officers at the Robben Island Museum, and visit the penguin colony to learn about research aims, methods, and data collection. You'll also receive a thorough safety briefing on how to protect both yourself and the penguins you'll work with.

Because of our scientists' demanding schedules, you may receive training and guidance from different researchers for different parts of your expedition. In most cases there will be one lead researcher for each team, assisted by a fellow researcher for the first week of your stay, and a different assistant researcher for the second week. The actual daily program will vary during the season as the chicks develop and the parents leave the breeding site. March and April mark the beginning of the breeding season; you'll likely see many nests with eggs and a few with small chicks during this time. Usually teams during these months spend much of their time assisting in selecting nests for the study group, monitoring some of these nests, and helping with the data entry associated with setting up the nests for monitoring by later teams. In May and June, when chicks start to fledge, you'll mostly monitor nests. These months are also when we deploy most of the GPS tracking devices on penguins. In July and August, birds complete their breeding season, and many abandon their nests. During this time, we generally find the greatest number of birds that need attention because of injury or oiling (winter storms mean that oiling seems to happen most in July and August). Volunteers may get the most hands-on experiences with penguins during these months, although nothing is certain when working with wild animals. Team 7 in August generally finds fewer breeding birds and is involved in closing down the project for the year and deals with ensuring all data entry is up to date and accurate.

**SCUBA POLICY:** Please note that scuba diving is not permitted on the recreational day(s); if you would like to dive during your visit to Cape Town, please do so before or after your Earthwatch expedition.

## ITINERARY & DAILY SCHEDULE

### DAY 1: RENDEZVOUS

The team will meet at 3:00 p.m. on day 1. The team will eat a late lunch with some of the project staff and there will be a short briefing on the schedule, etc. for the team. The team will then take a ferry to Robben Island at around 5:00 p.m.

### DAYS 2-5 AND 8-11: FIELDWORK

6:00-7:00 a.m.	Wake up and eat breakfast
8:00-9:00 a.m.	Begin morning fieldwork (monitoring nests, etc.)
12:30 p.m.	return to house for lunch
3:00 p.m.	Afternoon fieldwork (afternoon activities tend to be fairly diverse)
6:00 p.m.	Prepare dinner
7:00 p.m.	Dinner
8:00 p.m.	Recap of day's observations and briefing for following day's work; assist with data entry
9:00 p.m.	Occasional evening fieldwork
10:00 p.m.	Suggested bedtime

### DAYS 6 AND 7: RECREATIONAL DAYS

Volunteers may leave the island to spend time in Cape Town (weather permitting) and participate in recommended tours and activities if they wish. Volunteers may also remain on the island to rest or explore the island's natural and cultural heritage sites.

**PLEASE NOTE:** if you intend to spend the night in Cape Town, you will need to arrange and pay for accommodations for this night separately and sign out of the project for this time period. The exact days given as recreational days may vary depending on the work requirements at the time and the weather.

### DAY 12: DEPARTURE

Volunteers will leave the island sometime on the last day, normally during the morning, depending on the ferry schedules and weather. If time allows, volunteers will clean up the house before departing. **PLEASE NOTE:** if you intend to spend the night in Cape Town, you will need to arrange and pay for accommodations for this night separately. The team may meet up at a restaurant in the evening; however the meal and the night's lodging are not included in the cost of your expedition.



# ACCOMMODATIONS AND FOOD

## ABOUT YOUR HOME IN THE FIELD

### SLEEPING

The house is a small, very basic field center that contains one large bedroom and two smaller bedrooms, with a total of six single beds. There is also a lounge, which can be used as another bedroom, and an outside room with one single bed. Volunteers may be asked to share rooms depending on the number of people working on the island at any given time. The maximum number of people in any one room is normally three. Private accommodations for couples are not always possible, as rooms may be divided by gender. The house is old, not centrally heated, and nights can sometimes be cold, so bring an extra sleeping layer if you tend to get chilly at night.

### BATHROOMS

The house has one bathroom with one flush toilet and hot and cold running water from a large-scale desalination system. Laundry facilities (a washing machine and a small dryer) are available at the house for free. Bedding is provided and there is a small supply of towels.

### ELECTRICITY

Robben Island has a fairly reliable electricity supply of 240 volts and uses South African sockets (three-pin plug required). Adaptors are necessary for North American, Australian, British and European plugs. Adaptors can be purchased at stores in Cape Town and there may be a spare one at the house for general use. North American electronics (excluding laptop computers) may also require a transformer to protect the equipment from the higher voltage in South Africa.

### PERSONAL COMMUNICATIONS

The house does not have a broadband connection. However, volunteers may send and receive limited emails via the team leader and/or the assistant, if needed (see the Communications section). South Africa has 3G cellular Internet (4G in major cities). Local 'pay as you go' SIM cards, phones (which can work as a portable hotspot) and '3G dongles' can be purchased or rented on arrival in Cape Town at the airport and at some outlets at the Waterfront. You will need to show your passport to register a SIM card and phone number. If you have a quad-band phone, which can work as a portable hotspot, you may be able to use it in South Africa. To avoid roaming charges, you should buy a local SIM card and a 'data bundle' (SIM cards should not cost more than R10, data packages are extra). Some North American phones may not work. There is reasonable, but somewhat patchy, cell phone reception (including 3G coverage) on Robben Island.

### FACILITIES AND AMENITIES

There is a small shop on the island that carries a very basic selection of foodstuffs; there is another small shop selling curios and a few cold drinks. There are no restaurants or other services on Robben Island.

Smoking is not allowed in the field or in the team house; smoking is permitted only in designated areas outside of the house.

### DISTANCE TO THE FIELD SITE

The house is located about a 15 minute walk from the edge of the penguin colony and about 30 minutes from the main study site.

### TYPICAL MEALS

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

<b>BREAKFAST</b>	This is usually do-it-yourself and includes toast, cereal, yogurt, and fruit.
<b>LUNCH</b>	Cold meats, cheese, quiche, bread, salads, and fruit.
<b>DINNER</b>	Each team normally has at least one braai (South African for barbecue) with traditional meats. Other dinners include fish, stews, and pasta dishes. Enough fresh vegetables to last a week are sent out with the team and the supply is replenished when possible.
<b>SNACKS</b>	A good range of biscuits (cookies) and savory snacks are provided.
<b>BEVERAGES</b>	Tea (leaf tea, tea bags, herbal teas, and rooibos, a South African specialty), coffee, hot chocolate, fruit juices, and other beverages will be provided. Drinking water from a desalination plant on the island will be provided.

### 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.

# PROJECT CONDITIONS

## THE FIELD ENVIRONMENT



You can generally expect heat in March and April, and cool wet weather from May to August. In winter (June through August), Cape Town can be very wet, and teams during this period should expect at least one day of heavy rain. You may also be caught out in light rain during fieldwork.

Temperatures may vary significantly between day and night, and weather in general can be highly variable. You may find yourself working in hot conditions during the day and in cool conditions in the morning or late afternoons/evenings. The house can get chilly (e.g. 10°C, 50°F) inside during the winter months (June to August), particularly after several days of rain.

Keep in mind the seasons are reversed relative to the Northern Hemisphere.

### 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.

#### MARCH—AUGUST CONDITIONS

**TEMPERATURE RANGE:** 7°C/45°F (July avg. daily min.) to 25°C/77°F (March avg. daily max.)

**RAINFALL:** 20mm/0.8 in (March average) to 93mm/ 3.7 in (June average)

### ESSENTIAL ELIGIBILITY REQUIREMENTS:

All participants must be able to:

- Follow verbal and/or visual instructions independently or with the assistance of a companion.
- Enjoy being outdoors most of the day in variable weather (see General Conditions), in the potential presence of wild animals and insects.
- Tolerate moderate to very hot conditions in direct sun (especially March through May teams) for long hours each day.
- Walk between 4 km/2.5 miles and 8 km/5 miles a day on rough dirt tracks and through dense woodland to carry out nest monitoring, etc. Some volunteers also choose to walk to and from the research house to the field site a distance of 2.5 km /1.5 miles per trip.
- Bend up and down, crouch and crawl comfortably for 2 hours per day while performing nest work.
- Sit for up to 6 hours during the day for several days in a row while recording data.
- Have strong eyesight to use binoculars and spotting scopes to read band numbers (contacts and glasses are OK).
- Carry personal daily supplies such as water, notebook, and binoculars, and occasionally some field equipment, such as a spotting scope or tripod.



# POTENTIAL HAZARDS

## SOUTH AFRICAN PENGUINS

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	<p>The ferry ride to the island takes about an hour each way. Bring appropriate medication if you are prone to seasickness. Travel to and from the island by ferry is highly dependent on weather; poor weather conditions can delay arrival on the island, or can require us to leave the island a day or more early. This is a particular risk during winter months (June–August). On the island, you’ll ride in a bakkie (small pickup); often in the back of the truck without safety restraints. Stay seated on the floor of the truck bed and hold on to the sides at all times. Participants are not permitted to drive.</p>
Hiking	<p>You will usually walk on dirt roads and tracks with reasonably flat surfaces. However, in other places you may have to navigate penguin burrows or loose stones. Please walk slowly and carefully over uneven terrain. If you have unsure footing, we advise you to use a walking stick or hiking pole to avoid slipping and injury.</p> <p>You’ll find rusty barbed wire (remnants from the prison) throughout parts of the colony. Please pay attention to your surroundings and be sure your tetanus vaccination is up to date before you arrive. Wear long pants and appropriate footwear (e.g., hiking boots) when walking through long brush and grass to avoid scratches.</p>
Animals	<p>Project staff will instruct you on proper handling techniques to avoid injury to you or animals. Penguins can inflict painful bites, so we will provide protective gloves. Always take care and wear goggles when handling penguins; if frightened, penguins may attempt to peck your hand, arms, face, or eyes</p> <p>Mole snakes inhabit some parts of the island—while they are non-venomous and generally docile, they may bite painfully. They are large snakes, and may startle some volunteers. Under no circumstances should you disturb or attempt to handle them.</p> <p>Wild African bees also live on the island. If you are allergic to stings, you must note this on your Earthwatch Participation Form and inform project staff in the field. Please also carry necessary medications and inform staff of their location.</p>
Climate/ Weather:	<p>Most project work happens outdoors, so sunburn, dehydration, and other heat-related illnesses are risks. Please wear high-factor sunscreen, dress appropriately, and wear a wide-brimmed hat, and sunglasses. Carry and drink plenty of water throughout the day. Take rest breaks as needed, and inform a staff member if feeling tired or ill.</p>
Bush Fire	<p>Vegetation on the island is very dry, especially March to May so there is a high risk of bush fire due to careless behavior, such as smoking in the veldt (open areas covered with scrub and grasses). Project staff will instruct you on how to avoid this risk. Smoking is not allowed in the field or in the team house; smoking is permitted only in designated areas outside of the house.</p>
Personal Security	<p>If you will be traveling in urban areas in South Africa before and/or after the expedition, we advise you to stay alert and use sensible precautions. Avoid dark areas, don’t walk alone at night, and do not obviously display cash, cameras, or jewelry. It is always good practice to leave any unnecessary valuables at home.</p>
Distance from Medical Care	<p>As the ferry to and from Robben Island is highly dependent on weather, poor weather conditions can lead to delays in access to medical care. If you have a chronic condition which may require immediate medical care (e.g. heart conditions, kidney problems, severe asthma, etc.), or if you are pregnant, please discuss your participation on this expedition with your physician. The hospital on the mainland is approximately 10 km away; 25 minutes by helicopter (may not always be available), longer by boat (approx. 90 minutes once onboard). Both take time to arrange.</p>





# HEALTH & SAFETY

## SOUTH AFRICAN PENQUINS

### Disease

Traveler's diarrhea affects many international travelers.

Diseases found in tropical regions may include malaria, dengue fever, rabies, schistosomiasis, filariasis, chikungunya, tick bite fever, West Nile Virus, HIV/AIDS, hepatitis, cholera, and typhoid fever. Please see the U.S. Centers for Disease Control and Prevention ([cdc.gov](http://cdc.gov)) or the World Health Organization ([who.int/](http://who.int/)) websites for more information on these conditions and how to avoid them.

You can decrease your risk of most diseases above by avoiding mosquito bites, practicing good hygiene, and drinking only bottled or filtered water when appropriate.

A few notes on vaccinations and treatment:

- **MALARIA:** Malaria: Malaria is not present at the research site or in the Western Cape. Chloroquine-resistant malaria is found elsewhere in South Africa, generally in the north and east of the country. Speak to your doctor about malarial prophylaxis if you plan to travel elsewhere in South Africa.
- **TUBERCULOSIS:** Volunteers returning from developing countries may wish to have a (PPD)-tuberculin skin-test to screen for potential infection.
- **YELLOW FEVER:** A vaccination protecting against yellow fever is available, although pregnant women and immune-compromised individuals cannot be vaccinated. Your home country may require a certificate of vaccination for re-entry if you travel to an area where yellow fever is endemic. South Africa is not a Yellow fever endemic area.

### EMERGENCIES IN THE FIELD

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 Healix Travel Oracle website through the "Travel Assistance and Advice" page in your Earthwatch portal, [cdc.gov](http://cdc.gov) or [who.int](http://who.int) for guidance on immunizations.

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



# TRAVEL TRIPS

## SUGGESTIONS FOR THE ROAD

### YOUR DESTINATION

**LANGUAGE:** There are 11 official languages in South Africa. The project will be conducted in English and most people you encounter will speak fluent English.

**TIME ZONE:** South African Standard Time (SAST) – UTC+2.

**CULTURAL CONSIDERATIONS:** South Africa is one of the most multicultural countries in the world. In urban areas many different ethnic groups will make up the population. As such it is difficult to generalize at all on South African etiquettes and culture. More information can be found at the following links:

<http://www.kwintessential.co.uk/resources/global-etiquette/south-africa-country-profile.html> <http://www.everyculture.com/Sa-Th/South-Africa.html>

Wait staff and specialist guides are generally tipped 10% of the cost of service. It is also commonplace (but not usually mandatory) to pay small tips (R5 to R10) to those who assist you such as people minding cars on the street, petrol pump attendants, airport porters etc.

**ELECTRICITY:** 240 volts, 50 Hz, three-pin Type M plug. Adaptors can be purchased in South Africa's international airports and at the Waterfront in Cape Town if you arrive in time to buy one before the rendezvous. There may also be spare ones at the house for U.K. and North American-style plugs; there are adapters available for European-style two prongs at the house.

**LOCAL CURRENCY:** South African rand. You can change money at the airport or at a bank in Cape Town, which has ATMs throughout. Most businesses in Cape Town accept credit and debit cards. Robben Island has no banks or ATMs so we suggest that you take a small amount of South African rand from the mainland for purchasing small items or souvenirs. When budgeting, it is a good idea to plan at least one extra night in Cape Town at the end of the expedition. There is also a range of souvenirs available on the island and in Cape Town.

### 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 one of the following sites:

[www.passportsandvisas.com](http://www.passportsandvisas.com)

<https://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

If you are travelling with a minor, check with the embassy for current entry requirements. A parental affidavit is generally required for minors, even if travelling with an adult.

There is an airport departure tax, but it is usually included in the price of your ticket.

### 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:

**Sue Kuyper**

John Day Building  
University of Cape Town  
+27 (21) 650 2423



# EXPEDITION PACKING CHECKLIST

## WHAT TO BRING

### EXPEDITION PACKING CHECKLIST

#### GENERAL

- This expedition briefing; an electronic version if possible to save paper waste
- 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)

#### CLOTHING/FOOTWEAR FOR FIELDWORK

- Earthwatch T-shirt
- Lightweight, quick-drying, long-sleeved shirts and pants/trousers that you don't mind getting dirty and/or torn from thorns
- T-shirts and shorts for warm days
- Clothes that can be layered for warmth (wool or polypropylene are recommended—not cotton), especially for April–August teams
- Rain gear (poncho or jacket and trousers are strongly recommended, especially for winter teams)
- Well worn-in, thick-soled, closed-toed walking shoes and/or hiking boots, preferably waterproof (especially in wetter months: May–September).
- Hat with wide brim to protect your head and neck from sun

#### CLOTHING/FOOTWEAR FOR LEISURE

- One set of clothing to keep clean for end of expedition and/or recreational day(s) in Cape Town
- Comfortable clothes for relaxing at the research house
- Sandals or flip-flops to wear in the house

#### FIELD SUPPLIES

- GOOD binoculars are recommended—7x35 or 8x40, field and vacuum sealed (larger models, such as 10 x, are difficult for beginners but would work for experienced birders)
- Pair of glasses (either your own prescription glasses or sunglasses) to be worn when handling the penguins as a guard against any risk of the birds pecking at eyes; there are also safety goggles available on site

- Small daypack/rucksack
- Water bottle(s) able to hold at least 2 liters (two 1 liter bottles are often better than one)
- Notebook and pen/pencils, preferably small enough to fit in your pocket

#### BEDDING AND BATHING

- Towel(s) (there are a few towels onsite left by previous volunteers and you are welcome to use these to save yourself the luggage space)

**NOTE:** Bedding and pillows will be provided by the project.

#### 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: about \$200 USD in RAND

#### OPTIONAL ITEMS

- Insect repellent
- Flashlight or headlamp with extra batteries and extra bulb
- Travel guide
- Favorite snack foods
- Transformer and/or adaptor for electronics and electrical equipment (see Additional Travel Information in the Travel Planning section for details)
- Knee pads (like those used for gardening)
- Camera, film or memory card(s), extra camera battery
- Hardware for sharing digital photographs at the end of the expedition
- Dry bag or plastic sealable bags (e.g. Ziploc) to protect equipment like cameras from dust, humidity, and water
- Books, games, art supplies, etc. for free time
- Earplugs for light sleepers

**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.



# PROJECT STAFF

## YOUR RESOURCES IN THE FIELD



**DR. RICHARD SHERLEY** is a Research Fellow at the University of Exeter, U.K. His doctoral degree from the University of Bristol, U.K. focused on the ecology and conservation of two endangered seabirds on Robben Island and he was a Postdoctoral Research Fellow at the University of Cape Town (UCT) from 2011 to 2014. **He is involved in a series of seabird conservation projects, many based on Robben Island, so may spend time in the field with several teams. He took over running the overall project in 2016.**



**DR. PETER BARHAM** is an Emeritus Professor of physics at the University of Bristol and an Honorary Research Associate at the UCT. Peter was responsible for the overall running of the project from 2001 to 2015. He continues to lead teams and have significant input into the biological aspects of the project. **At the time of printing, it was not determined which teams Peter will be leading; this will be confirmed closer to the expedition date.**



**DR. LESLIE "LES" UNDERHILL** is director of the Animal Demography Unit and an Emeritus Professor in the Department of Biological Sciences at UCT. He received his doctorate degree from the Department of Statistical Sciences at UCT and is in charge of statistical aspects and responsible for local co-ordination of the project. **Les tries to join each team in the field for one or two days as his schedule allows.**



**DR. NEWI MAKHADO** is a Specialist Scientist with the Oceans and Coasts branch of South Africa's Department of Environmental Affairs (DEA). He holds a doctorate from UCT and his department has overall responsibility for seabird conservation and research in South Africa. **His schedule with the teams has yet to be determined, but he, or other DEA staff, may spend short periods on Robben Island with teams as part of South Africa's seabird monitoring program.**



**DR NOLA PARSONS** was formerly head of research at the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) and has published extensively on penguin rehabilitation, disease and conservation. She holds a veterinary degree from the University of Pretoria and obtained a doctoral degree from UCT for research on the endemic African Black Oystercatcher. **Nola will usually lead one team each year and may spend short periods on Robben Island with other teams as part of other research projects.**

**TECHNICAL COORDINATOR: SUE KUYPER** is Executive Assistant at the Animal Demography Unit. Sue is responsible for administrative, logistical and technical oversight as well as the day-to-day running of the project in South Africa. **Sue will meet all the teams at the rendezvous and will try to spend some time on the island with teams when her schedule allows.**

Team leaders will be in charge of the daily field activities during the project; staffing schedules will vary by team. The schedule of which project staff will lead which team has not yet been fully determined at the time of printing. It is possible that you will work with one team leader or Earthwatch scientist and one assistant for the first half of the expedition, and with another assistant for the second half.



# RECOMMENDED READING

## YOUR RESOURCES AT HOME

### RESOURCES

#### RESEARCH ARTICLES

- Sherley RB et al. 2015. Bottom-up effects of a no-take zone on endangered penguin demographics. *Biology Letters* 11: 20150237. <http://rsbl.royalsocietypublishing.org/content/11/7/20150237>.
- Trathan PN et al. 2015. Pollution, habitat loss, fishing, and climate change as critical threats to penguins. *Conservation Biology* 29: 31–41. <http://onlinelibrary.wiley.com/doi/10.1111/cobi.12349/full>
- Cury PM et al. 2011. Global seabird response to forage fish depletion—One-third for the birds. *Science* 334: 1703–1706.

#### POPULAR ARTICLES

- Sherley RB. 2014. Adult survival declines as African Penguin population plummets. *BOU Blog*: <http://www.bou.org.uk/african-penguin/>
- Bergman C 2012. Make way for the African Penguins. *Smithsonian Magazine*. <http://www.smithsonianmag.com/travel/make-way-for-the-african-penguins-62475743/?no-ist=>
- Sherley RB et al. 2011. Birds occurring or breeding at Robben Island, South Africa, since 2000. *Ornithological Observations* 2: 69–100. [http://oo.adu.org.za/pdf/OO\\_2011\\_02\\_069-100.pdf](http://oo.adu.org.za/pdf/OO_2011_02_069-100.pdf)

#### BOOKS

- Mandela, Nelson. *Long Walk to Freedom*. New York: Little Brown and Co., 1995.
- Garcia Borboroglu, Pablo and Boersma, P Dee. *Penguins: Natural History and Conservation*; University of Washington Press, 2013
- Whittington, Phil. *Peter the Penguin*. Cape Town: Animal Demography Unit, 2001.
- Spencer David, Lloyd. *Penguins: The Ultimate Question and Answer Book*. New York: Harper Collins, 2007.

#### FIELD GUIDES

- Sinclair, Ian, Phil Hockey, Warwick Tarboton, and Ryan, Peter. *Sasol Birds of Southern Africa*. Cape Town: Struik Publishers, 2011.
- *Oceans of Life off Southern Africa*. Edited by A.I.L. Payne and R.J.M. Crawford. Cape Town: Vlaeberg, 1989.

#### FILM

- *Penguins: Spy in the Huddle*. BBC Home Entertainment, 2014. Note: a documentary using 50 'spy cams' to capture unique footage of emperor, rockhopper and Humboldt penguins; available at [Amazon.com](http://Amazon.com).

- *City Slickers*. **NOTE:** This is not the Billy Crystal movie, but “a wonderful wildlife film with a very humorous twist”; available at [sancob.co.za/](http://sancob.co.za/).
- *Mandela: Long Walk to Freedom* (Director: Justin Chadwick). Anchor Bay, 2014. **NOTE:** Based on Nelson Mandela’s 1995 autobiography of the same name. Includes some scenes filmed on Robben Island; available at [Amazon.com](http://Amazon.com)
- *Goodbye Bafana* (Director: Billie August). Image Entertainment, 2008. **NOTE:** Based on a book of the same name, it tells the story of an unlikely friendship that developed between a former prison guard at Robben Island and Pollsmoor Prison—James Gregory—and one of his prisoners, Nelson Mandela; available at [Amazon.com](http://Amazon.com) and renamed *The Color of Freedom* in the U.S.A.
- *Invictus* (Director: Clint Eastwood). Warner Home Video, 2010. **NOTE:** Based on newly post-Apartied South Africa’s famous victory on home soil in the 1995 Rugby World Cup and the interactions between then Springbok captain Francois Pienaar and Nelson Mandela. Includes some scenes filmed on Robben Island; available at [Amazon.com](http://Amazon.com).

#### PROJECT FIELD REPORT

- Each Earthwatch-supported project submits a report on past research and results. The most recent field report for this project is available online at [Earthwatch.org/scientific-research/reports-from-the-field](http://Earthwatch.org/scientific-research/reports-from-the-field). Note that reports are not available for all projects.

#### PROJECT-RELATED WEBSITE

- Robben Island Penguin Tracks: A blog by penguin researcher and PhD Student Kate Robinson about research on Robben Island and journey through her PhD thesis: <http://penguin-tracks.blogspot.co.uk/>
- SANCCOB: <http://www.sancob.co.za/>
- The Animal Demography Unit’s Facebook page: <https://www.facebook.com/animal.demography.unit/>

Richard Sherley’s research website: <http://richardsherley.com>

#### EARTHWATCH SOCIAL MEDIA

**FACEBOOK:** [facebook.com/Earthwatch](http://facebook.com/Earthwatch)

**TWITTER:** [twitter.com/earthwatch\\_org](http://twitter.com/earthwatch_org)

**INSTAGRAM:** [instagram.com/earthwatch](http://instagram.com/earthwatch)

**BLOG:** [earthwatchunlocked.wordpress.com](http://earthwatchunlocked.wordpress.com)

**YOUTUBE:** [youtube.com/earthwatchinstitute](http://youtube.com/earthwatchinstitute)



# LITERATURE CITED

## YOUR RESOURCES AT HOME

### LITERATURE CITED

#### LITERATURE CITED

- Barham PJ, Underhill LG, Crawford RJM, Leshoro TM, and Bolton DA. 2008. Impact of flipper-banding on breeding success of African penguins *Spheniscus demersus* at Robben Island: comparisons among silicone rubber bands, stainless-steel bands and no bands. *African Journal of Marine Science*. Vol. 30, Issue 3
- Crawford RJM, Altwegg R, Barham BJ, Barham PJ, Durant JM, Dyer BM, Geldenhuys D, Makhado AB, Pichegru L, Ryan PG, Underhill LG, Upfold L, Visagie J, Waller LJ, Whittington PA. 2011. Collapse of South Africa's penguins in the early 21st century. *Afr J Mar Sci* 33:139–156.
- Crawford RJM, Makhado AB, Waller LJ and Whittington PA. 2014. Winners and losers -responses to recent environmental change by South African seabirds that compete with purse-seine fisheries for food. *Ostrich* 85: 111-117.
- Sherley RB, Burghardt T, Barham PJ, Campbell N, and Cuthill IC. 2010. Spotting the difference: towards fully-automated population monitoring of African penguins *Spheniscus demersus*. *Endangered Species Research* 11: 101-111.
- Sherley RB, Ludynia K, Lamont T, Roux JP, Crawford RJM and Underhill LG. 2013. The initial journey of an endangered penguin: implications for seabird conservation. *Endangered Species Research* 21: 89–95.
- Sherley RB, Barham PJ, Barham BJ, Crawford RJM, Dyer BM, Leshoro TM, Makhado AB, Upfold L and Underhill LG. 2014. Growth and decline of a penguin colony and the influence on nesting density and reproductive success. *Population Ecology* 56: 119–128.
- Trathan PN, Garcia-Borboroglu P, Boersma D, Bost C-A, Crawford RJM, Crossin GT, Cuthbert RJ, Dann P, Davis LS, de la Puente S, Ellenberg U, Lynch HJ, Mattern T, Pütz K, Seddon PJ, Trivelpiece W and Wienecke B. 2015. Pollution, habitat loss, fishing, and climate change as critical threats to penguins. *Conservation Biology* 29: 31–41.
- Weller F, Cecchini L-A, Shannon L, Sherley RB, Crawford RJM, Altwegg R, Scott L, Stewart T and Jarre A. 2014. A system dynamics approach to modelling multiple drivers of the African penguin population on Robben Island, South Africa. *Ecological Modelling* 277: 38–56.



# EMERGENCY NUMBERS

## AROUND-THE-CLOCK SUPPORT



### **EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE**

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

+1 (978) 461.0081

+1 (800) 776.0188 (toll-free for calls placed from within the U.S.)

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

### **TRAVEL ASSISTANCE PROVIDER: HEALIX INTERNATIONAL**

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+44.20.3667.8991 (collect calls and reverse charges accepted)

**U.S. TOLL FREE:** +1.877.759.3917

**U.K. FREE PHONE:** 0.800.19.5180

**E-MAIL:** [earthwatch@healix.com](mailto:earthwatch@healix.com)

You may contact Healix International at any time. They can assist in the event of a medical or evacuation emergency or for routine medical and travel advice, such as advice on visas and vaccine requirements.

### **FOR VOLUNTEERS BOOKED THROUGH THE EARTHWATCH AUSTRALIA OFFICE:**

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### **Earthwatch Australia 24-Hour Emergency Helpline**

+61.0.3.8508.5537









# MESSAGE FROM EARTHWATCH

DEAR EARTHWATCHER,

Thank you for joining this expedition! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. It is volunteers like you who fuel our mission and inspire our work.

While at Earthwatch, I've had the opportunity to field on a few expeditions, most recently in Kenya with one of my daughters. Each expedition has touched me deeply, and made me proud to be able to roll up my sleeves alongside my fellow volunteers and contribute to such meaningful work.

As an Earthwatch volunteer, you have the opportunity to create positive change. And while you're out in the field working toward that change, we are committed to caring for your safety. Although risk is an inherent part of the environments in which we work, we've been providing volunteer field experiences with careful risk management and diligent planning for nearly 45 years. You're in good hands.

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

Sincerely,

A handwritten signature in black ink that reads "Scott Kania". The signature is written in a cursive, flowing style.

Scott Kania  
President and CEO, Earthwatch



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