



CONSERVING MARINE LIFE ALONG CATALINA'S COAST



DEAR EARTHWATCHER,

Welcome to the 'Conserving Marine Life Along Catalina's Coast' expedition! You will be traveling to one of the most exceptional and unspoiled coastlines along southern California, a crown jewel of the region and one of the eight Channel Islands off of Southern California. The island features stunning coastal scenery and nine Marine Protected Areas (MPAs). These clear and clean waters support beautiful kelp forests and rocky reefs, important to marine life and visitors who treasure the great snorkeling, fishing, and kayaking. Your time on this project will be an adventure on and around the water focused on exploring, understanding and sustaining our extraordinary marine ecosystems.

On this expedition, you'll help document the health and changing landscape of some of Catalina's MPAs. MPAs function by setting boundaries that exclude extractive activities from occurring in special marine places, much like nature reserves on land. By doing so, they protect more than just one or two species, but all the important organisms and linkages within those ecosystems. Well-managed MPAs benefit commercial fisheries, safeguard sensitive fish nurseries, nurture vulnerable species, and boost activities like ecotourism and research. For this reason, California has set up the largest network of MPAs in the United States, protecting over 120 unique marine regions along our coast.

As you immerse yourself in Catalina Island's stunning waters, you will work side by side with researchers to gather critical long-term data on our local MPAs. You will observe the remarkable marine mammals and intertidal creatures that make these habitats their homes, and the minuscule life inside each drop of ocean water that shapes our water quality. Because humans are part of the ecological equation too, you will also help monitor the complex ways in which visitors use and appreciate these exceptional places throughout the year.

Together, these data allow us to make keen insights about the health of our coasts amidst a changing planet. The information builds important baselines against which we can measure the influence of climate change and reveal trends that help managers adapt our MPAs over time.

We look forward to having you join us on Catalina Island. Your work will reinforce the critical role that MPA's play in coastal conservation, and ensure that our coastlines continue to provide maximum benefit and enjoyment for all. It will be a lot of fun too, so let the adventure begin! Be prepared to work hard, get wet, and take part in astonishing experiences as we delve into Southern California's spectacular marine world.

Sincerely,
Dr. John Heidelberg

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GENERAL INFORMATION

CONSERVING MARINE LIFE ALONG CATALINA'S COAST



EARTHWATCH SCIENTISTS

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USC Wrigley Institute for Environmental Studies

Ann Close, Associate Director,
USC Wrigley Institute for Environmental Studies

Jessica Dutton, Special Projects Director,
USC Wrigley Institute for Environmental Studies

Lei Lani Stelle, Biology Chair, University of Redlands

David Caron, Professor Biological Sciences,
University of Southern California

RESEARCH SITE

Blue Cavern State Marine Conservation Area and Cat Harbor State Marine Conservation Area, Wrigley Marine Science Center, Catalina Island, California

EXPEDITION DATES

Team 1: Mar. 26–Apr. 2, 2017 (GROUP)

Team 2: Aug. 18–Aug. 24, 2017

Team 3: Sept. 15–Sept. 21, 2017

Team 4: Oct. 13–Oct. 19, 2017

Team 5: Nov. 3–Nov. 9, 2017

*Teen Teams are open to 15- to 18-year-olds (18-year-olds may participate if they finished their last year of high school in the previous school year). 16- and 17-year-olds may also participate on standard teams if accompanied by a parent or guardian.

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

Please contact Earthwatch with any questions.



TRIP PLANNER

CONSERVING MARINE LIFE ALONG CATALINA'S COAST

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 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

CONSERVING MARINE LIFE ALONG CATALINA'S COAST



THE STORY

There is mounting evidence that Marine Protected Areas (MPAs)—regions of the ocean set aside for conservation purposes—can increase the health and abundance of key marine species (Dugan and Davis 1993; Lubchenco et al. 2003). More than 100 MPAs span the coast of California in an effort to safeguard marine animals, plants, and their habitats by limiting human activities such as fishing or boating. But how effective are these MPAs in protecting coastal ecosystems? And how are global threats such as climate change impacting marine life in this region?

Catalina Island, located just 22 miles off the coast of Los Angeles, is home to a wide variety of plant and animal species, and surrounded by some of the most vibrant kelp forest habitats in the world. This region is also home to multiple areas of special biological significance and nine MPAs. However, there are numerous threats to the waters surrounding Catalina, including climate change, human activities, and harmful algal blooms.

Catalina is sometimes referred to as a 'living laboratory.' Despite its close proximity to Los Angeles, a major urban landscape, the island is relatively remote and significant efforts have been made to protect its coastal waters. It is therefore an ideal region to study not only the effects of MPAs on the health of marine ecosystems, but how global threats, such as climate change, are impacting these waters.



RESEARCH AIMS

Maintaining MPAs and expanding marine protections to new regions requires dedicated conservation and enforcement efforts. These efforts require a substantial amount of ongoing monitoring and data. The results from this study will feed directly into Catalina's coastal policies and enforcement practices for MPAs, helping to ensure that these protected areas receive the support they need to function effectively. Even more broadly, the research findings will be used to support MPA management in California by establishing a baseline dataset and detailed record of biodiversity—including native and non-native species—in the region.

Research questions will involve four different coastal research programs, all oriented to a common goal of gathering baseline information on our coastal environment that documents natural variability, tracks ecosystem change, and helps gauge the success of resource management strategies.

Specific program goals are as follows:

• HARMFUL ALGAL BLOOM (HAB) WATCH

In HABWatch, volunteers will determine when HAB species are present and abundant in the local waters of Catalina Island, and whether Catalina exhibits different HAB patterns than the mainland, in part due to lower levels of human activity on Catalina, and in part due to the local current regime.

• MARINE PROTECTED AREA (MPA) WATCH

The program goals are: 1. To determine if MPAs are meeting their goal of enhancing recreational activities; 2. To provide contextual information on human use for interpretation of biological and socioeconomic monitoring data; 3. To inform MPA management decisions regarding human activity inside MPAs; and 4. To build MPA stewardship among program volunteers and the public (Murray et al., 2014). Locally, MPA Watch efforts are led by the non-profit Heal the Bay.

• MAMMAL SURVEYS

Tracking cetacean and pinniped abundance and distributions will inform long-term research, and test the hypothesis that environmental perturbations such as sea surface temperatures, El Niño events, and human activities may impact mammal populations.

• INTERTIDAL SURVEYS

Volunteers will conduct intertidal surveys to develop a baseline for a long term monitoring project collecting compatible coastal data and contributing to a centralized database.

HOW YOU WILL HELP

You'll help scientists to record the abundance of marine mammals such as California sea lions, gray whales, and common dolphins; collect water samples; survey the inhabitants of the intertidal zone; and observe the ways in which humans use this delicate habitat. You'll contribute to Pacific coast datasets and help to conserve a valuable marine ecosystem.

Specific tasks include:

- **SURVEYING MARINE PROTECTED AREAS:** You'll walk along shoreline, cliffs, and beach roads to monitor human activities in Marine Protected Areas.
- **OBSERVING MARINE MAMMALS:** You will kayak along Catalina's coast to observe, survey, and photograph marine mammals, such as sea lions, whales and dolphins.
- **SURVEYING ROCKY INTERTIDAL HABITAT:** You will observe, measure and record rocky intertidal species and their abundance during low tides.
- **COLLECTING WATER SAMPLES:** To determine the impacts of harmful algal blooms, you will perform plankton tows and use microscopes to determine phytoplankton and algae species present in your water samples.



DAILY LIFE IN THE FIELD

PLANS FOR YOUR TEAM



You will have plenty of learning opportunities on this expedition. With a wide variety of activities planned, you get to both learn about and experience research related to harmful algal blooms, marine protected areas, marine mammal surveys, and intertidal surveys.

While you'll spend most of your time on research tasks, you'll always have the chance to ask questions, enjoy the scenery, and take in the majesty of this unique marine environment. In this pristine environment, there are endless opportunities to view rarely seen wildlife and plants. Wrigley Marine Science Center was established in 1965 to encourage responsible and creative decisions in society by providing an objective source of marine and environmental science and fostering an understanding of the natural world among people of all ages. It is not uncommon for participants to sit at a dining hall table with scientists and have a conversation directly with them about their studies. These researchers are also likely to give informal lectures during which in-depth discussions can carry on for hours. You will be in the midst of an intellectual environment unique to a center like this.

ITINERARY

DAILY ACTIVITIES

While there is no typical day in the field, our 'typical' day will be:

7:30 a.m.	Breakfast
8:00 a.m.	Briefing & Prepare for daily fieldwork
9:00 a.m.	Fieldwork and data entry
12:00 noon	Lunch
1:00 p.m.	Briefing
2:00 p.m.	Continue Fieldwork
4:00 p.m.	Free Time (may be used for snorkeling/ kayaking/hiking/naps etc.)
6:00 p.m.	Dinner
7:00 p.m.	Data Entry/Science Talks/Movie/Free time

ITINERARY

DAY 1: ARRIVAL

- Arrive at the Southern California Marine Institute where you will be met by research staff
- Take the USC ferry to Catalina Island (approximately a 1.5 hour ride) to the Wrigley Marine Science Center, censusing marine mammals en route
- Settle into the accommodations, group lunch, introduction to the research, training on research tasks, and safety briefing

DAY 2-6: DATA COLLECTION

- Walk along shoreline, cliffs, and beach roads to monitor human activities in Marine Protected Areas.
- Additional training on research studies and protocols.
- Kayak along Catalina's coast to observe, survey, and photograph marine mammals; Identify, measure and record rocky intertidal species and their abundance.
- To determine the impacts of harmful algal blooms, you will collect plankton tows and use microscopes to determine the abundance of phytoplankton species present in your water samples.
- Evening lectures and videos
- Presentations on the research

DAY 7: DEPARTURE

- Depart Wrigley Marine Science Center to meet the ferry.
- Arrive at Southern California Marine Institute (approximately 1.5 hour ferry ride)





ACCOMMODATIONS AND FOOD

ABOUT YOUR HOME IN THE FIELD

Located just 22 miles offshore of Los Angeles, Catalina is one of eight Channel Islands along the coast of California. Catalina Island is the only one of the islands with permanent public residents. The island is 21 miles long—the widest point of the island is Long Point (about 8 miles across), and the narrowest, just a few miles away from the Wrigley Marine Science Center, is the Isthmus at Two Harbors (only ½ mile wide!). The highest elevation is on Mt. Orizaba (2,097 feet).

Since the early 1970s, 88% of Catalina's land has been protected, including 62 miles of coastline. The Catalina Island Conservancy maintains a delicate balance of conservation, education and recreation for the over one million people who visit the island each year. One of the most popular animals visitors will see on Catalina is the American Bison, originally brought over in the 1920's by a Hollywood film crew. They are commonly seen grazing on grass even on campus at the Wrigley Institute! Catalina Island offers a stunning coastline with great scuba diving and snorkeling. It is home to some of the best kelp forest habitats in the world, and along with them their unique marine life communities.

SLEEPING

Your team will stay at the USC Residence Hall, which is set up dormitory style with two or three people per room, separated by gender. Each room contains either twin beds or bunk beds, a desk, chair, closet, and mini-refrigerator. Linens and bath towels are provided. Couples accommodations may be possible upon request—contact your Earthwatch representative about this option.

BATHROOMS

Bathrooms are either private or shared by two dorm rooms. Bathrooms in the residence hall have a sink, shower, and toilet with cold and hot water available. Catalina Island is facing extreme drought conditions. All visitors to Catalina are asked to limit showers (2–3 minutes) during their stay.

ELECTRICITY

You are welcome to bring your own electronic equipment (cell phones, digital cameras, laptops, etc.), but you will be required to limit your use of cellphones or laptops for research work or to recreational time only for personal use.

PERSONAL COMMUNICATIONS

Wireless Internet access is available on campus. Cell phone reception is available on campus, the town of Two Harbors and for most of the island. In more remote locations, service will be limited.

FACILITIES AND AMENITIES

The Wrigley Marine Science Center has a dock and pier, active helipad, dive locker and diver staging area. The research facilities include several laboratories, a computer lab, lecture hall, greenhouse, student lounge, and other amenities. The facility has an on-site dining facility and an on-site laundry room. However due to the extreme drought Catalina is facing, we do ask that all visitors plan for only one laundry load during their visit. We are a limited smoking facility. We operate with a small staff and rely on your cooperation to help ensure a smooth operation.

The local town of Two Harbors (two miles from campus) has one bar, restaurant and general store. The next largest town is on the other side of the island. Should you need to purchase anything, limited basic toiletries, over-the-counter medications, and basic food can be found at the Two Harbors General Store. These items tend to be expensive and are not guaranteed to be in stock, so please pack thoughtfully. (See Expedition Packing Checklist)

DISTANCE TO THE FIELD SITE

Your team will travel to general location of the research sites by walking, van, boat, or kayak depending on the site. The furthest site is approximately seven mile via car.



FOOD AND WATER

Meals will be prepared by a dedicated chef and served cafeteria style in the dining hall. Both indoor and outdoor seating are available. Some days you will take a bag lunch into the field. Meals are designed to be healthy and hearty, with a variety of local cuisine. Participants will eat together with research staff and sometimes with other science groups on campus.

A small selection of snacks (fruit, cereal, drinks), microwave, and refrigerator are available 24 hours/day. There is a soda and snack machine in the lab building. Don't leave any food or drinks in your room unless you want to be visited by an army of ants!

The following are examples of foods you may find in the field. Variety depends on availability. The field center is located in a remote area, so food is ordered and shipped in weekly.

TYPICAL MEALS

BREAKFAST	Bacon, eggs, toast/bagels, yogurt, hash browns, fresh fruit, cereal, and oatmeal
LUNCH	Salad, sandwiches, soups, pasta, tacos, etc.
DINNER	Classic American food. For example: chicken, fish, rice, casseroles, steak, ribs, steamed vegetables, bread rolls, and desserts.
BEVERAGES	Juice, milk, water, soft drinks, tea, coffee, hot chocolate

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 participant forms.

This expedition can easily accommodate vegetarian diets, as well as vegan, gluten-free, and lactose-free diets, with prior notice.

Strict kosher diets can sometimes be accommodated based on space availability for a private kitchen. In such case, the participants would be required to cook for themselves.



PROJECT CONDITIONS

THE FIELD ENVIRONMENT



GENERAL CONDITIONS

The climate is much like that of mainland southern California, with an average high of 75°F in summer and in winter, an average high of 65°F. The average lows are in the 50s in winter and in the mid-60s in summer. Average precipitation is 14 inches, with January traditionally being the wettest month. Water temperatures in the coastal ocean range from a low of 59°F in winter to the mid-70s in summer. We do experience 5 mile per hour average winds in the afternoon on a daily basis. Wind conditions in late winter and early spring can be quite rough with occasional gale force warnings meaning windy conditions rougher than 35 miles per hour.

GENERAL CONDITIONS

HUMIDITY: 20%–60%

TEMPERATURE RANGE: 50°–75° F

ALTITUDE: sea level

RAINFALL: 14 inches per year

ESSENTIAL ELIGIBILITY REQUIREMENTS:

All participants must be able to:

- Follow verbal and/or visual instructions independently or with the assistance of a companion.
- Work on or near shore for about two to three hours per day with limited break options and restroom facilities.
- Traverse wet, slippery, rocky terrain
- Enjoy being outdoors all day in all types of weather.
- Enjoy being outdoors in the potential presence of wild animals, snakes, and insects.
- Enjoy working as a team, and function cohesively within a group.
- Carry personal daily supplies, such as lunch, water, and a camera.
- Get low enough to access and collect samples on the ground and in the brush.
- Lift and carry kayaks to the water and back up for storage
- Sit and ride, with seat belt fastened, in project vehicles.
- Enter and exit the water from shore.
- Recommended comfort in swimming in open water and be comfortable using snorkeling gear (mask, fins, snorkel). (not required)



POTENTIAL HAZARDS

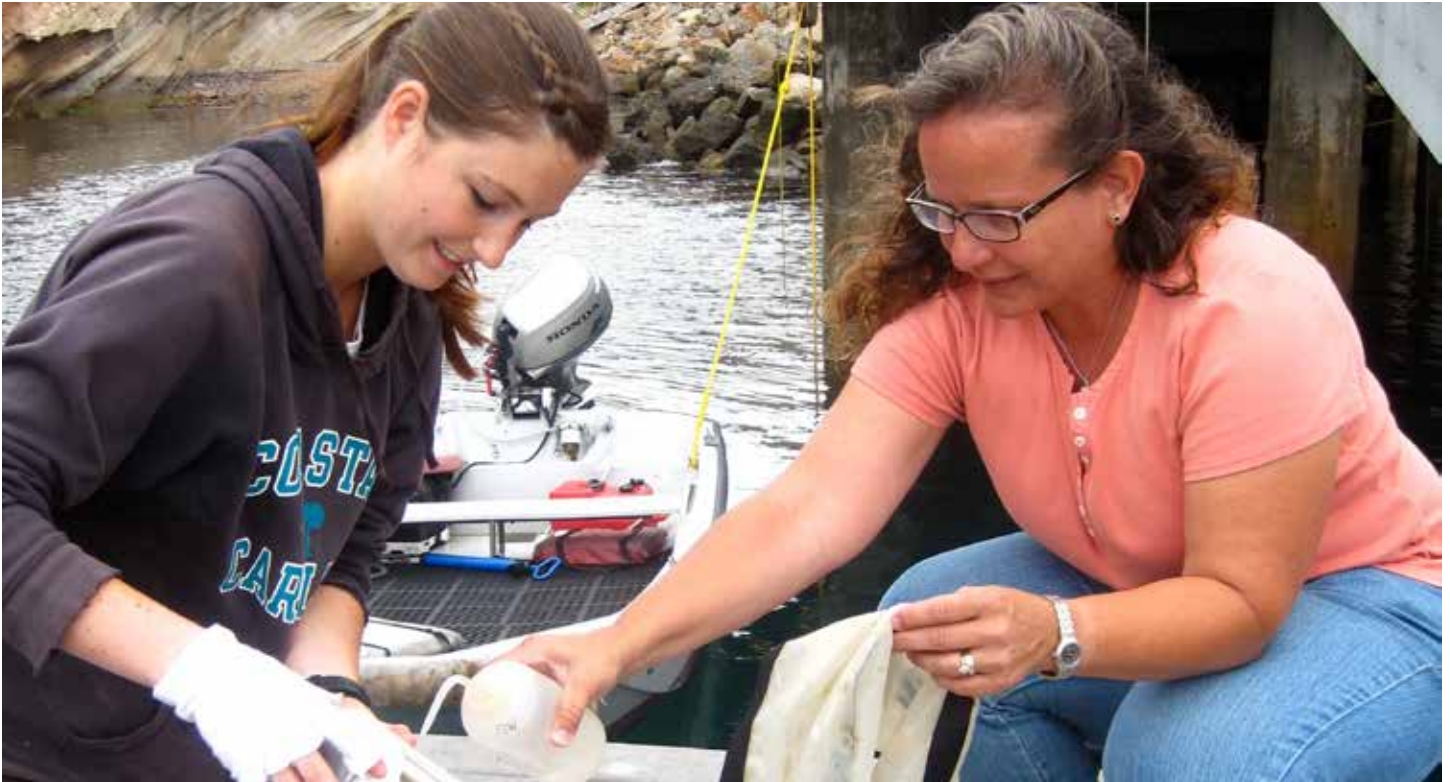
CONSERVING MARINE LIFE ALONG CATALINA'S COAST

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	Traffic accidents and injuries are always a hazard of road transport. Vans will travel no faster than 25 mph on public roads, most of which are unpaved. Participants will not drive; only staff will operate vehicles and boats. You must always wear a seatbelt.
Hiking	You will be walking along a rocky coastline. Some areas are very well protected from the elements, while others are exposed. You will also be walking off-trail, in sometimes thick, low to waist high vegetation. There are no railings on trails or roads. Participants must wear shoes with good grip to avoid slipping and long pants. Please keep in mind that we will also be entering the rocky intertidal, which will be uneven, slippery and wet. It is advised that participants bring a pair of thickly soled water shoes or dive booties.
Stinging animals	Mosquitoes, sand flies, yellow jackets, wasps and spiders are present, and repellent or long-sleeved shirts and pants can help protect from stings and bites. Stingrays and scorpion fish may be present in the water. All dangerous creatures will be discussed during the training period. Please note that if you have a severe reaction to bee stings you may also have a similar reaction to stingray and jellyfish stings—please consult with your doctor.
Sharks and large fish	Attacks by sharks and other large fish are extremely rare. Team members will be instructed to exit the water in a calm manner in the event of an animal acting aggressively.
Local Wildlife	As we are located on the edge of a nature preserve, it is likely you will come into close proximity with local wildlife... bison, snakes, ravens, the island fox, and...ants! As a general rule, please keep your distance and be aware of your surroundings at all times. Fox are curious creatures that will go into your rooms if the door is left open and ants can be very invasive. Keep your rooms clear of any food drink, wrappers, wet towels, etc. Please do not attempt to feed any of the wildlife.
Climate/ Weather	Dehydration and sunburn are two major risks while in the field. You'll be briefed on proper clothing, sunscreen use, and fluid intake. Project staff will monitor participants for symptoms of exposure or dehydration. Take particular care when working during the hottest periods of the day.
Project Tasks/ Equipment	Hands should always be washed after being in the field, especially before eating. Participants are encouraged to take regular breaks and to avoid overexerting themselves. Teamwork and attention to proper technique will keep you from wearing out or getting injured. Inform a staff member immediately if you are feeling tired or ill. Laboratory protocols and use of personal protection equipment are required. Long pants, closed toed shoes and use of lab coat (provided by Wrigley Institute staff) are required in the lab.
Personal Security	Crime on Catalina is low; however, do not leave valuables unattended in public areas.
Swimming	Swimming is possible during recreational time, and drowning is a hazard. Swimming is permitted only in the presence of a person with lifeguard certification and is not allowed alone or at night on any Earthwatch expedition.
Distance from Medical Care	Medical and rescue assistance along the coastlines is abundant, but can take more time when working on the interior of the island. The Catalina Island Hyperbaric Chamber is located at WMSC and is staffed 24 hours a day, 7 days a week, 365 days a year, and all Chamber staff are trained as first-responders. Baywatch paramedics are a few minutes away. A helipad also connects the WMSC to medical facilities on the mainland, and can transport a patient to LA County hospital within 15 minutes, if needed. If advised by Baywatch, transport to the hospital in Avalon takes approximately one hour by car.
Disease	Please see below for immunization recommendations. Most diseases are prevented with basic safety cautions. Please see the CDC (cdc.gov) or WHO (who.int) websites for more information. Diseases present in this region of the U.S. include, but are not limited to, Lyme disease, rabies, bovine spongiform encephalopathy, pertussis, and West Nile Fever.



SAFETY

HEALTH INFORMATION



EMERGENCIES IN THE FIELD

Accommodations, vehicles, and boats all have first aid kits. In the event of a medical emergency, scientists or research staff will administer first aid, and depending on the seriousness of the injury or condition, either take the participant to the medical care using one of the project vehicles (always available) or call emergency services by cell phone. If a participant has to leave the expedition early for emergency reasons, the Earthwatch scientists will determine the most appropriate form of transport to the airport (either one of the project vehicles or ambulance).

STAFF CERTIFIED IN SAFETY TRAINING:

Vivian Kim (ERD/First Aid/CPR)

Captain Gordon Boivin (ERD/First Aid/CPR)

All Hyperbaric Chamber Crew and Education staff are First Aid and CPR certified

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 or 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: none



TRAVEL TIPS

SUGGESTIONS FOR THE ROAD



YOUR DESTINATION

LANGUAGE: English

TIME ZONE: Pacific Standard Time, which equals GMT -8 hours in the winter months.

CULTURAL CONSIDERATIONS: Casual, modest dress is acceptable nearly everywhere. Tipping restaurant wait staff, taxi drivers, airport curbside baggage handlers, and hotel bellhops is customary.

ELECTRICITY: The U.S. standard voltage used for small appliances, hair dryers, electronic equipment, etc. is 120 volts, 60Hz, supplied through type A or B sockets.

MONEY MATTERS

LOCAL CURRENCY: U.S. dollar

PERSONAL FUNDS: We recommend you bring some spending money (\$100–200 is sufficient) for snacks, extra beverages (e.g., soda) and souvenirs.

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	No	No
United Kingdom	Yes	No
Europe	Yes	No
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:

USC Wrigley Institute for Environmental Studies

c/o Ann Close
1 Big Fisherman Cove
Avalon, CA 90704
(213) 740-6780



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)
- Signed copy of your USC release form

CLOTHING/FOOTWEAR FOR FIELDWORK

- Earthwatch T-shirt
- Loose-fitting, quick-drying, comfortable pants (one or two pairs)—pants with zip-off legs work well and can double as shorts
- Quick-drying, lightweight shirts (two to four)
- Lightweight, long-sleeved shirts to prevent sunburn (one or two)
- Well worn-in, comfortable hiking boots or waterproof Gore-Tex shoes (you will be walking through muddy areas)
- Warm layers of clothing (e.g., lightweight jacket or fleece for cool evenings)
- Rain jacket (rain is uncommon, but possible)
- Hat to protect against sun and beanie to provide warmth in evenings
- Nonslip dive booties or heavy water shoes for intertidal work and kayaking
- Long pants and closed toed shoes are required in the research laboratories

CLOTHING/FOOTWEAR FOR LEISURE

- At least one set of clothing to keep clean for end of expedition
- Swimsuit and beach towel for recreational time

FIELD SUPPLIES

- Small daypack for your daily personal items and field equipment
- Sunscreen (waterproof with SPF 30+)
- Two one-liter water bottles

- Insect repellent
- Sunglasses

BEDDING AND BATHING

NOTE: Bedding, a pillow, and a bath towel will be provided by the project

- Shower sandals, if desired

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
- Seasickness medications (Dramamine, Bonine, etc.) if you are concerned about seasickness. We suggest getting the non-drowsy formula!

OPTIONAL ITEMS

- Snorkel gear: mask, snorkel, long fins, and rash guard. Snorkeling is optional; and lots of gear is available; please bring your own gear if you prefer.
- Comfortable shoes to change into after conducting field work
- Binoculars
- Pencil and notebook for note taking during lectures or journaling
- Flashlight with extra batteries and extra bulb
- 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
- Field journal to track your experiences

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. JOHN HEIDELBERG is the Interim Director of Wrigley Institute for Environmental Studies, and head of the Marine and Environmental Biology section in the Biology Department at USC. He is an expert in the growing field of microbial genomics, studying the metabolic potential of marine bacteria by sequencing their DNA. Since coming to USC in 2006, Dr. Heidelberg has been a regular fixture at the Wrigley Marine Science Center where he maintains his laboratory and is actively engaged in the research and curriculum offered at the Catalina facility.



ANN CLOSE is the Associate Director of Wrigley Institute for Environmental Studies, as well as the Director of Education. A member of the Wrigley Institute since its founding, Ms. Close supervises the institute's Education team including program development related to public groups and outreach initiatives and coordination of the institute's GeoBiology field course. She also serves in diverse regional marine education roles, including regional coordinator to the National Ocean Sciences Bowl, a nation-wide high school competition.



DR. JESSICA DUTTON is the Special Projects Director at Wrigley Institute for Environmental Studies. Her background is in marine eco-physiology, looking at the distribution and function of intertidal species such as mussels along the California coast. She also has strong experience in marine policy, having worked in Washington DC with the National Fisheries Service and the National Academy of Sciences prior to joining USC. Dr. Dutton works to advance the institute's research programs, and connect those programs with coastal policy and education initiatives on campus and beyond.



VIVIAN KIM is the Education and Laboratory Assistant at Wrigley Institute for Environmental Studies. Living full-time on Catalina Island at the Wrigley Marine Science Center, she serves as a lead naturalist and science educator for education and outreach visitors to the facility. Ms. Kim also facilitates the institute's research community as a laboratory assistant with focus on Catalina's marine biology and ecology. She will serve as team coordinator for all Earthwatch expeditions.

NOTE: Staff schedules are subject to change.



RECOMMENDED READING

YOUR RESOURCES AT HOME

RESOURCES

BOOKS

- Wild Catalina Island: Natural Secrets and Ecological Triumphs (Frank Hein and Carlos de la Rosa)
- The Edge of the Sea (Rachel Carson)

FIELD GUIDES

- Natural History of Santa Catalina Island (Gerald Bakus)

PROJECT-RELATED WEBSITE

- <http://www.whalemapp.org/>
- <http://dornsife.usc.edu/uscseagrant/habwatch/>
- <http://www.mpawatch.org/>
- <http://wrigley.usc.edu>
- <http://limpets.org/rocky-intertidal-monitoring/>

EARTHWATCH SOCIAL MEDIA

- FACEBOOK: [facebook.com/Earthwatch](https://www.facebook.com/Earthwatch)
- TWITTER: twitter.com/earthwatch_org
- INSTAGRAM: [instagram.com/earthwatch](https://www.instagram.com/earthwatch)
- BLOG: earthwatchunlocked.wordpress.com
- YOUTUBE: [youtube.com/earthwatchinstitute](https://www.youtube.com/earthwatchinstitute)



LITERATURE CITED

YOUR RESOURCES AT HOME

LITERATURE

- Dugan J. and G. Davis. (1993) Applications of Marine Refugia to Coastal Fisheries Management. *Canadian Journal of Fisheries and Aquatic Sciences*, v.50(9): 2029-2042.
- Lubchenco J., Palumbi S., Gaines S., S. Andelman. (2003) Plugging a hole in the ocean: the emerging science of marine reserves. *Ecological Applications* v.13(1): S3-S7.
- Murray, D.R., et al. 2014. "MPA Watch: citizen scientists monitoring human coastal and marine resource use of marine protected areas." *Bulletin of the Southern California Academy of Sciences*, vol. 113, no. 2, p. 110.



RELEASE FROM LIABILITY

UNIVERSITY OF SOUTHERN CALIFORNIA

I, the undersigned, acknowledge and agree that in consideration for permission to participate in the Activities (defined below), I, my spouse, assignees, heirs, guardians, and legal representatives hereby voluntarily indemnify, release from liability, agree to defend, and hold harmless the University of Southern California, The USC Wrigley Institute for Environmental Studies and any organization affiliated therewith, including all of their respective agents, employees, administrators, representatives, officers, trustees, students and assigns (collectively "USC"), for any accident, injury, illness, death, loss, theft, damage to person or property, or other consequences arising or resulting directly or indirectly from any activities which I may engage in, on, about or by access through any property owned, operated or managed by USC (whether permitted or not permitted by USC), including, without limitation, activities such as swimming, diving, snorkeling, scuba diving, wading, or boating (collectively, the "Activities"), including but not limited to claims arising from or related to USC's negligence and/or products liability, including strict products liability. In the event that I am injured, I agree to assume any financial obligation, either through my health insurance, or through some other means, for any medical costs that I incur. USC assumes no responsibility for any medical expenses, injury or damage suffered by me in connection with my participation in the Activities.

IT IS MY INTENTION BY SIGNING BELOW TO EXPRESSLY ASSUME ALL RISK OF PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE UPON MYSELF, TO THE EXCLUSION OF USC, AND TO EXEMPT AND RELIEVE USC FROM LIABILITY FOR PERSONAL INJURY, PROPERTY DAMAGE OR WRONGFUL DEATH.

By signing this agreement, I waive my right to bring any legal action now or at any time in the future to recover compensation or obtain any other remedy for any injury to myself or my property or for my death, however caused, arising out of my participation in the Activities. I further agree that I, my spouse, assignees, heirs, guardians, and legal representatives will not make any claim against, sue or attach the property of USC for any loss or damage resulting from my participation in the Activities. I understand that none of the Activities are endorsed, sanctioned, guaranteed, supervised or monitored by USC.

I acknowledge and affirm that I am not required to participate in any of the Activities as a condition to obtaining any academic degrees. I further acknowledge and affirm that I am not to be considered an employee of USC and that no benefits customarily afforded to employees of USC will be extended to me by virtue of my participation in the Activities. As an individual who actually IS employed by USC in a capacity unrelated to the Activities, I acknowledge that participating in the Activities is not a condition of my employment.

I HAVE CAREFULLY READ THIS AGREEMENT AND FULLY UNDERSTAND ITS CONTENTS. I AM AWARE OF THE POTENTIAL DANGERS INCIDENTAL TO THE ACTIVITIES, THAT THIS IS A RELEASE OF LIABILITY, A WAIVER OF MY LEGAL RIGHT TO COLLECT DAMAGES IN THE EVENT OF INJURY, DEATH, OR PROPERTY DAMAGE AND A CONTRACT BETWEEN MYSELF AND USC AND SIGN IT OF MY OWN FREE WILL.

I EXPRESSLY AGREE THAT THIS RELEASE IS INTENDED TO BE AS BROAD AND INCLUSIVE AS THE STATE OF CALIFORNIA WILL ALLOW AND THAT IF ANY PORTION IS HELD INVALID, I AGREE THAT THE BALANCE SHALL, NOT WITHSTANDING, CONTINUE IN FULL LEGAL FORCE AND EFFECT.

Signature _____ Date _____

Print Name _____

Parent/Guardian Signature (for minors only) _____



PARENTAL/LEGAL GUARDIAN CONSENT AND RELEASE FOR MINORS VISITING POTENTIALLY HAZARDOUS WORK AREAS

UNIVERSITY OF SOUTHERN CALIFORNIA

I understand that _____ [Print] Name of minor child ("Child") _____ Date of Birth will be participating in laboratory experiments at the University of Southern California and will be working in areas where hazardous chemical or other substances may be present (the "Activity").

As the parent/guardian, I am aware of and accept the potential risks and dangers of my Child entering hazardous work areas, and hereby give my consent for him/her to enter and/or work within the hazardous

work areas provided that he/she is:

Under the supervision of a responsible university research staff member who is trained and knowledgeable of the area's potential hazards.

For and in consideration of the University of Southern California permitting Child to participate in the Activity, I, Child, and his/her parents, assignees, heirs, guardians, and legal representatives hereby voluntarily indemnify, release from liability, agree to defend and hold harmless the University of Southern California and its officers, trustees, employees, agents, representatives, and any department, organization or group affiliated therewith (collectively "USC") for any accident, injury, illness, death, loss, damage to person or property, or other consequences suffered by Child arising or resulting directly or indirectly from Child's participation in the Activity, including as a result of USC's negligence, if any. In the event that Child is injured, I agree to assume any financial obligation, either through Child's health insurance, or through some other means, for any medical costs which Child incurs. USC assumes no responsibility for any medical expenses, injury, or damage suffered by Child in connection with the Activity.

BY SIGNING BELOW, IT IS THE INTENTION OF CHILD AND HIS/HER PARENT OR LEGAL GUARDIAN TO EXPRESSLY ASSUME ALL RISK OF PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE UPON HIS OR HERSELF, TO THE EXCLUSION OF USC, AND TO EXEMPT AND RELIEVE USC FROM LIABILITY FOR PERSONAL INJURY, PROPERTY DAMAGE OR WRONGFUL DEATH.

I further agree that Child, his/her parents, assignees, heirs, guardians, and legal representatives will not make any claim against, sue or attach the property of USC for any loss or damage resulting from Child's participation in the Activity. I am aware of the potential dangers incidental to engaging in the Activity, that this is a release of liability, a waiver of Child's legal right to collect damages in the event of injury, death or property damage, and a contract between Child and USC, and I sign it of my own free will.

Print Name of Parent/Legal Guardian _____

Parent/Guardian Signature _____

Date _____



EMERGENCY NUMBERS

AROUND-THE-CLOCK SUPPORT



EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE

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

+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

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:

Earthwatch Australia 24-Hour Emergency Helpline

+61.0.3.8508.5537



MESSAGE FROM EARTHWATCH

DEAR EARTHWATCHER,

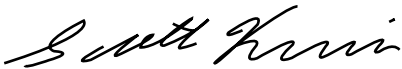
Thank you for joining this expedition! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. It is volunteers like you who fuel our mission and inspire our work.

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,



Scott Kania
President and CEO, Earthwatch





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