

Suggested 4 week itineraries for aquatic ecology expeditions



There are many different 4 week expeditions that offer students the opportunity to gain experience of aquatic ecology research. These expeditions cover fresh water systems such as streams and rivers in the forest of **Honduras** forests and the Amazon river in **Peru**, or can be based at a marine site covering research into marine ecology in **Honduras** or **Indonesia**. Note in Honduras you can combine marine and forest based options.

Honduras - Cayos Cochinos Islands

Itinerary

Week 1 - HC005 Cayos Reef Ecology

Weeks 2,3 - HB105 Reef surveying on Cayos

Week 4 - HB107 Research assistant pool on Cayos

A course covering elements of the aquatic marine environment based on the coral reefs and associated habitats around the small Honduran Cayos Cochinos Islands within the Cayos Cochinos Marine Protected Area (CCMPA). The course will allow the student to develop an understanding of Caribbean reef species and their biology and ecology as well as the methods used in their research. The student will also learn about the interactions between organisms and their environment and what pressures are placed on such systems. Finally the student will contribute data to monitoring programs and discover how this research is being used towards conservation.

The first week involves the reef ecology course where students will learn fish, coral and invertebrate identification while covering elements of reef conservation, surveying and ecology.

The second and third week require the student to join the reef surveying program where they will be involved in assessing the health of the reefs by surveying the fish, coral and invertebrate populations on the reef in contrast to the benthic structure and algal coverage.

The final week allows the student to join the research assistant pool, volunteering on one of the specialist projects running on site. This may involve specialised surveys of marine animals such as conch, urchins or juvenile corals and allow the student to build on the knowledge they gained in the first three weeks.

Honduras - Utila

Itinerary

HU007 - Utila Reef Ecology

HU012 - Advanced Marine Survey Methods

HB105 - Reef surveying on Utila

HB107 - Research assistant pool on Utila

A course covering elements of the marine environment based on the coral reefs and marine environment around the small Honduran island of Utila. The course will allow the student to develop an understanding of Caribbean reef species and their biology and ecology as well as the methods used in their research and how this research will be used towards conservation. It also includes a speciality on marine surveying methods allowing the student to develop a range of skills in marine survey techniques.

The first week involves the reef ecology course where students will learn fish, coral and invertebrate identification while covering elements of reef conservation, surveying and ecology.

Following on from this students will join the advanced marine survey methods course where they will learn a wide variety of skills and techniques used to survey the marine environment. This will include techniques for surveying reefs, seagrass systems and mangrove beds using diving, snorkelling and other methods.

The third week will require the student to join the reef surveying program where they will be involved in assessing the health of the reefs by surveying the fish, coral, invertebrate populations on the reef in contrast to the benthic structure and algal coverage.

Finally the last week the student will join the research pool where they can chose from a range of research groups covering many elements of reef, seagrass and mangrove ecology and conservation. This may involve specialised surveys of marine animals such as conch, urchins or juvenile corals and allow the student to build on the knowledge they gained in the first three weeks.

Suggested 4 week itineraries for aquatic ecology expeditions



Honduras - Cusuco National Park

Itinerary

Week 1 - HM001 Jungle Training

Week 2,3,4 - HM104 River amphibians and invertebrates

This expedition allows the student to work in the rivers and streams in the cloud forests of the Cusuco National Park in Northern Honduras. As with many national parks Cusuco was established as a method of protecting the freshwater systems in the area. This is because the water in these streams and rivers that runs from the mountains is one of the major sources of water in the country, supplying a large portion of the Honduran population. During the expedition the student will learn about overall forest ecology and then specialise in studies on the aquatic systems, studying amphibian populations and invertebrates that are found in the area. The student will learn many different methods for studying such animals and systems and learn the importance of the aquatic systems to the overall forest ecosystem.

The first week of the expedition is spent on the jungle training course where students are taught general forest ecology, including some of the main species in the area and their ecology. The course also highlights the specific requirements for working in the forest environment including safety considerations and conservation needs of the area.

Once the training is complete the student will join the research group studying amphibians and invertebrates. The group is mobile, moving around the park studying many different systems within the area. Amphibian work is highly important as already 5 species have been identified as endemic to the park, and these and many others are under huge pressure from development and the *Chytrid* fungus which is decimating many amphibian populations throughout the Americas. At the same time the student will help collect aquatic invertebrates from the streams as part of a project which is developing a biotic water quality index to monitor organic pollution levels of the streams. Students will experience a range of different skills required to sample these animals and analyse the data gathered. Over the course of the three weeks the student is expected to become an important member of the research team.

Peru - Pacaya Samiria National Reserve

Itinerary

Week 1 - PP001 Introduction to Amazonian Ecology

Week 2,3,4 - PP101 Biodiversity monitoring in Pacaya Samiria

Students joining this project will travel up the Amazon river on specialised research boats into the Pacaya Samiria National Reserve, the largest such reserve in Peru and located within incredibly deep and biodiverse Amazonian rain forest. The boats are equipped with all accommodation and research facilities so the student will be based on the boat for the whole expedition with daily trips into the jungle and associated wetlands. The Peru expedition allows the student to join a wide variety of research teams gaining experience of studying many of the animal species found in the area. Students will also be given an introductory course covering Amazon biodiversity, research and conservation methods and highlighting the threats to the unique environment.

The course starts as the boat completes the voyage up the Amazon river from Iquitos into the Pacaya Samiria Reserve. During this time students join the Amazonian wildlife ecology and conservation training course. This will cover a lot of the ecology of the area, research methods and conservation efforts. The student will also learn survival techniques and the skills required to work in the jungle.

Once the training course is completed and the boat is in the Pacaya Samiria Reserve the student joins the biodiversity monitoring research teams for the next three weeks. These teams work in small groups on specific animals or groups of animals and the student can spend several days with each learning the ecology of each animal, its position with the Amazon ecosystem and the methods used in its study. For aquatic ecology students the animals that will be of most interest include the research studies on fish, caiman, dolphins, giant river otters, frogs and other amphibians and turtles.

Suggested 4 week itineraries for aquatic ecology expeditions



Indonesia - Wakatobi National Park

Itinerary

Week 1 - IH007 Indonesian reef ecology

Weeks 2,3,4 - IH110-113 Marine research options on Hoga island

A course covering elements of the marine environment based on the coral reefs and marine environment around the small Indonesian island of Hoga, situated in the Wakatobi National Park, in the centre of the Coral Triangle – the most biodiverse area of coral reefs in the world. The course will allow the student to develop an understanding of Indo-Pacific reef species and their biology and ecology as well as the methods used in their research and how this research will be used towards conservation.

The first week of the course involves the reef ecology course where students will learn species identification of fish, corals and invertebrates. The course also involves elements of reef conservation, surveying and ecology.

There are 3 week long options, detailed below, from which the student can choose from to build their own itinerary for the remaining three weeks.

Option 1 - IH110 Biotope Mapping

Much of the marine environment in the Wakatobi remains unstudied and the biotope mapping program allows students to take part in large scale mapping of the marine environment classifying habitats based on the presence and abundance of a few key species that the students will study in detail. The aim of this study is to cover as large area of the park as possible to increase the knowledge of what habitats are present, along with their extent and locations.

Option 2 - IH111 Coral Reef Monitoring

Operation Wallacea has been monitoring the reefs within the Wakatobi for over a decade conducting yearly surveys of the populations of fish, invertebrates and coral species. Students will join teams with experts in reef species identification and contribute towards this yearly assessment program by assessing reef species abundances and populations. This will require the student to develop a comprehensive understanding of reef species biology. The monitoring program is more focused than the biotope mapping, allowing more detailed species information to be taken but covering a smaller area. The student will also learn how such data is vital within the context of conservation and running of a marine park.

Option 3 - IH112 Research Assistant Pool

There are many projects running at the Hoga research station at any one time led by a variety of academics with specialist interests. The research assistant pool allows the student to join any of these projects and help collect data on a wide range of different species and habitats. Many of these projects allow the student to develop a detailed understanding of one element of the research being done on site. Such projects are run on the reefs but also on seagrass and mangrove systems and the student can join any such project that takes their interest.