UCME Dissertation Topics

The following topics are suggestions from which your thesis or dissertation can evolve. These are broad themes that can be expanded to fulfil the requirements of either an undergraduate dissertation or a post graduate thesis. They have been chosen because they fit into existing research programmes and can give a greater insight into the ecology of Utila, but ideas from prospective students for new topics and are always encouraged

DP1. Grouper and snapper spawning aggregations.

The commercially important grouper and snapper species aggregate to reproduce at predictable times and places. This has left them vulnerable to over fishing. The objective of this study would be to map identified grouper and snapper spawning grounds, determine exact spawning aggregation times and to record the abundance of aggregating fish at each site to estimate the potential reproductive outputs of these important species.

DP2. Mangrove Root Communities

Mangroves are the dominant vegetation type of Utila and are extremely important to the islands ecology. Mangrove roots provide a surface for attachment of other organisms including sponges, tube worms and molluscs. Roots and these associated assemblages are also important nurseries for juvenile fish. This project would assess the assemblages living on the roots of the red mangrove and determine which juvenile fish species are associated with which root community.

DP3. Cetacean responses to boat activity

Changes in distribution or behaviour could indicate disturbances to the normal activities of cetaceans. Boats and in water interaction with humans may affect the normal behaviour of the whales and dolphins visiting Utila. This project will aim to assess behavioural changes to the cetaceans during encounters with dive and fishing boats and be used to develop encounter guidelines for local boat operators.

DP4. Incidence of Coral Disease.

As reef health declines coral colonies become more susceptible to disease. This study would investigate the incidence of coral disease on various coral species within the Utilian reef system and investigate correlations with environmental variables. This project would highlight how vulnerable specific coral species are to various diseases and show areas of concern for coastal management

DP5. Seagrass communities

Seagrass fringe the shore lines of Utila and form an important shallow water habitat adjacent to the reef. Various essential reef species have part of their lifecycle within seagrass beds and this project would determine the abundance of these keystone species in seagrass areas around the island. This would aid in determining key spawning and nursery areas for these species and provide estimations in recruitment to the reef system, in addition to assisting in targeting the conservation and management of these areas.

DP6. Parrotfish population size and composition.

Parrotfish are an important grazer of algae on all coral reef systems. This project would investigate the species composition and size of parrotfish at different locations around the island and look at their feeding and activity rates. This will provide an important insight the to determine the grazing pressure being exerted by parrotfish upon the reef system.

DP7. Damselfish densities and algal composition

Damselfish are an increasingly significant fish species on all Caribbean reefs. As 'algal gardeners' they have an important influence on the balance of coral and algae cover on the reef and may be exacerbating the phase shift phenomenon where reefs previously dominated by coral become dominated by algae. The prevalence of damselfish within a given area correlated to the algal composition of the area would be useful in monitor the change in reef demographics over time, and the types of algae that will dominate the reef system. By mapping and understanding these changes fisheries management plans can be adapted to address this important issue.

DP8. Parasite prevalence on territorial reef fish

With the densities of certain territorial fish species increasing due to the loss of larger predators the abundance of the ecto-parasites that live on their skin and scales is also likely to be increasing. This project will look at species which are at risk from parasite loading and identify the most common parasites around Utila. The aim of the study is to evaluate the potential of a parasite infestation; the factors which may affect this and the effects this could have on general fish health and distribution.

DP9. Algal community assemblages.

The phase shift from coral dominated reefs to algal dominated assemblages is a phenomenon affecting much of the Caribbean and many other reefs worldwide. Since algae is a spatial competitor with corals and are often associated with degraded environments it is important to understand the factors that influence these algal systems and the influence their dominance has on future reef composition. This project would investigate the dynamics of algal communities on different reef types across a range of environmental conditions and use this data to make projections on reef health.

DP10. Conch and Lobster population study.

Both conch and lobster are keystone species integral to reef health. Over the past decades fishing of these species has decimated their populations. Recent changes to Honduran law has given more protection to these species, offering them a chance to recover but their fate is still uncertain. This project would assess the populations and distributions of these species and evaluate in which reef habitats they are most common. This work will directly contribute to other research working to rejuvenate the populations of these species.

DP11. Plankton and Oceanography.

Despite being the base for oceanic food chains and the food source of the islands biggest visitor, the whale shark, to date the plankton assemblage of Utila has been poorly studied. This project to assess the plankton community off the north shore of Utila would provide baseline data to add to oceanographic datasets. This data would then be correlated with the distribution and abundances of various commercial fish species and whaleshark sightings.

DP12. Bivalves as Biofilters

The ability of bivalves to filter pollutants from the water column is well documented. With increasing levels of pollution being flushed into mangrove and wetland areas the lagoons surrounding the town of Eastern Harbour are becoming increasingly contaminated. This project will conduct a feasibility study for using bivalves as bio-cleaners in local lagoons.

For further information on the projects available at UCME please contact us at info@utilaecology.org