NEAR-Lab Field Experimentation in Belize

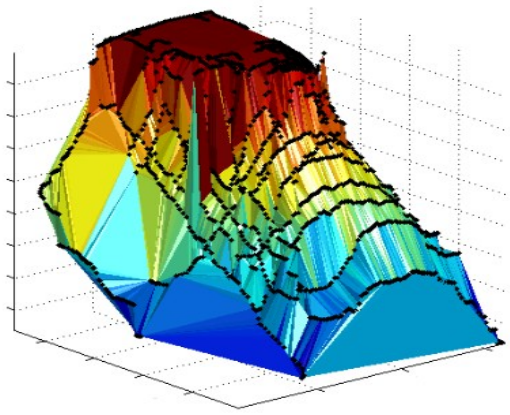

Illustration 1: 3D coral reef model generated with EchoMap and from sonar data from Half Moon Caye, Belize.

Josef Lotz is an ECE student completing his Master degree with research in the Northwest Electromagnetics and Acoustics Research Laboratory (NEAR-Lab) at PSU. His thesis is titled 'Coral Fish Shoal Detection from Acoustic Echograms' and has been sponsored by The Nature Conservancy (TNC), the world's largest conservation organization. Josef is part of a research team that created a software package named EchoMap, a tool that processes raw sonar data and generates visualizations of coral reef surfaces and fish shoal detections. The sonar data is obtained through an inexpensive and portable single-beam echosounder, typically referred to as a "fish-finder." The ability to visualize the underwater coral bathymetry and fish shoal locations helps ecologists and biologists in rapid reef assessment and fish Spawning and Aggregation Site (SPAGS) management. EchoMap incorporates the fish algorithms that were designed as part of Josef's thesis research.

Josef recently traveled to San Pedro, Belize with a TNC team led by Jean-Louis Ecochard (TNC Chief Information Officer) and organized with TNC Meso-American Reef Program. The purpose of the trip was to test the EchoMap program by training reef specialists to use the program, than using it to provide SPAG mapping for the Hol Chan Marine Reserve. The field test was also part of the new five year effort between the Nature Conservancy and PSU called the Conservation Technology Initiative (CTI).

Illustration 2: The "crew", members of the Hol Chan Marine Reserve, TNC, and the Belize Fisheries Dept.

Illustration 3: Josef operating the sonar system

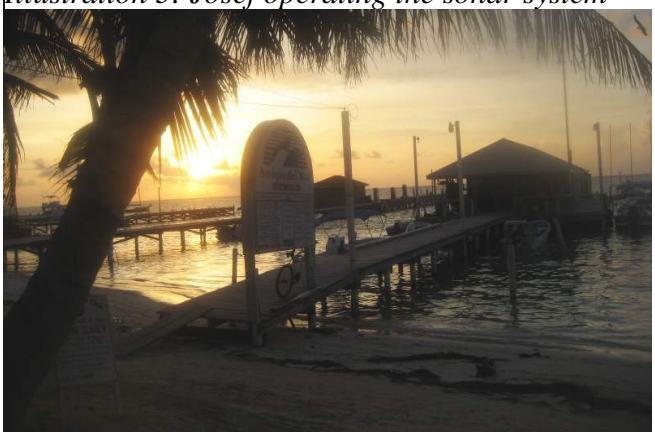

Illustration 4: San Pedro at sunrise

The CTI will initially focus on continued research in underwater mapping and will grow to consider general technology needs for the environmental conservation community.

The field test established EchoMap as a successful tool for marine ecology, and was used to map a coral reef known as Rocky Point. The results will help ecologists determine morphological coral features that attract SPAGS, and provide science-based prioritization for choosing marine conservation sites.