

## Sigma Xi Grant Helps Support Spiny Lobster Study in Belize

Through hard work and a little help from a Sigma Xi Grant-in-Aid of Research, along with several other awards, Appalachian State University (ASU) applied anthropology major Robert C. Thigpen III made several trips to sunny Caye Caulker off the coast of Belize to study the lobster fishery of the western Caribbean.

The streets of the four-mile-long island are made of sand, and most of the 1,200 permanent residents of Caye Caulker are more apt to travel by golf cart or bicycle than automobile. The island is popular with scuba divers, snorkelers, anglers and tourists, but commercial fishing is still an important source of revenue.

Large-scale lobster fisheries arose there in the 1920s, following introduction of the lobster trap and its modification for use in catching spiny lobsters. The oldest fishing cooperative in Belize, the Northern Fisherman's Cooperative Society Ltd (NFCS), was formed in 1960. NFCS offered Thigpen an internship in 2005.

After observing the co-op's quality checks, Thigpen found NFCS only accepts the highest quality lobsters. However, when he noticed that spiny lobsters gained weight after they were caught, he decided to investigate further.

He discovered that as fishermen soaked the lobster tails preparing them for sale (a necessary part of the process), the tails naturally increased in weight by approximately 9 percent of their total weight. As a result, some young lobsters that had not yet reproduced were accidentally harvested.

In addition, the tails lost the water weight before they were re-sold, thus causing the co-op to have less product by weight to sell than it actually purchased. As Thigpen continues

this research, he believes he will be able to make suggestions to the fishing cooperatives that will curtail this economic loss both to the cooperatives and the fishermen.

In the course of his project, Thigpen found some eager research assistants among the older children of the family from which he rented a room. He believes that what he taught them about marine biology will help them

with resource management issues and sustainability practices of today.

"Scientists obviously contribute to our understanding of the biology of commercially harvested species," he continues. "Still, scientists must be aware of the culture of the people they work with and their perspectives and needs regarding these fisheries if we are to be successful in contributing to fishery management policies."

Thigpen has presented his research findings and their potential consequences for the sustainability of the spiny lobster fishery at regional and international conferences, including the Belize National Marine Science Symposium.

He also gave a presentation at a teachers' seminar held by the Hugh Parkey Foundation for Marine Awareness and Education to help develop a new marine science workbook for Belizean school children. He is consulting with them on the design of the new marine wet lab on Spanish Bay Caye in Belize.



Robert Thigpen, acting as sideman to second-generation lobster fishermen Leopoldo "Polo" Heredia, checks lobster traps in the waters of Caye Caulker.

PHOTOGRAPH BY ALYSSA AJIL

in school and in their future university studies. He also acknowledges the assistance of and appreciates the encouragement that he received from the fishermen as well as the use of the NFCS research facility on the caye.

Though his major is applied anthropology, Thigpen is receiving a minor in biology. He works closely with several professors in ASU's Department of Biology as well as his home department.

"Having my own international research project as an undergraduate has been an invaluable learning experience," Thigpen says. "However, I would not be suited for this type of research without my training in anthropology and biology. They are the perfect blend of disciplines to deal

Thigpen is continuing his research by performing a stable isotope analysis of spiny lobsters and their place in seagrass meadow food webs of the western Caribbean. He will present his preliminary results in November at the 59th annual meeting of the Gulf and Caribbean Fisheries Institute. His talk is titled "Non-lethal Methodology for Stable Isotope Analysis of Marine Invertebrates."

After graduation from ASU, Thigpen plans to attend graduate school and continue his research on spiny lobsters. He also wants to produce an educational/documentary film on the Caribbean fishery that will showcase the local fishermen and discuss current harvesting practices.