Global Perspectives Project Report: Watershed and Community Assessment in the Lake Atitlán region of Guatemala

July 13-22, 2013

Dr. Roger Coupal, Agriculture and Applied Economics

Dr. Ginger Paige, Ecosystem Science and Management

This project brought a small group of UW faculty and graduate students to Lake Atitlán, in the State of Sololá, Guatemala to survey environmental and community factors with respect to watershed and lake management. Lake Atitlán is located in the highlands of Guatemala, and is considered one of the Great Lakes of the World (GLOW 2010). The endorheic lake sits in an old caldera in the Guatemalan Highlands. The elevation at lake level is approximately 5,100 ft above sea level, and the surrounding watershed rises to over 12,000 ft in some areas. Over 400,000 people live in the watershed and the region provides important economic resources for the local communities from forestry, subsistence agriculture and cash crops (e.g. coffee, vegetables), as well as household water, fishery resources, and reeds from the lake. Urban centers make up 1% of the landscape but play an important role in the economy through recreational opportunities at the lake.

To address the environmental and land use issues associated with Lake Atitlan requires an integrated and collaborative (long-term) research approach. This project, lead by Dr. Roger Coupal and Ginger Paige, brought together faculty and graduate students from the University of Wyoming and faculty at Universidad del Valle in Guatemala (UVG) to develop a framework for long-term collaborations among faculty and students at both institutions. Faculty in the departments of Ecosystem Science and Management and Agricultural and Applied Economics at UW bring necessary research and modeling skills to the research project. However, we will need to collaborate closely with local colleagues due to the complexities of the mix of cultures in the State of Sololá, Guatemala and the complexities of the water quality issues with Lake Atitlán. The local expertise cannot be replaced from faculty here.

The objectives were to: 1) further research collaborations between the two universities; 2) directly involve students from UW and UVG in the data collection process; and 3) produce some baseline data and methods to facilitate development of a large scale proposal. This is a pilot project to develop an approach to collect and evaluate data for input into a larger grant to be submitted to international development agencies (e.g. World Bank or USAID). Ultimately, our intent is to develop a long-term collaborative project with UVG and other identified researchers to develop tools and processes to meet environmental and social-economic needs for the Lake Atitlán region and build capacity at UVG to address these needs.

A group of 3 faculty and 2 graduate students from UW traveled to Guatemala from July 13- 22, 2013. The team included: Drs. Roger Coupal (Ag Econ), Ginger Paige (ESM) and Kristi Hansen (Ag Econ), and graduate students Dale Novotny (Ag Econ) and Alan Klatt (ESM). Over the nine days in Guatemala, we were able to successfully address our project objectives. Successful collaborative meeting were held with key faculty at UVG including:

- Dra. Margaret Dix, Biologist, Universidad del Valle
- Dr. Rolando Cifuentes, Agronomist, Universidad del Valle
- Lic. Terreso Joj, Director Solola Campus, Universidad del Valle
- Dr. Edwin J. Castellanos & Dra. Margarita Vides Irving, GIS Laboratory, Universidad del Valle

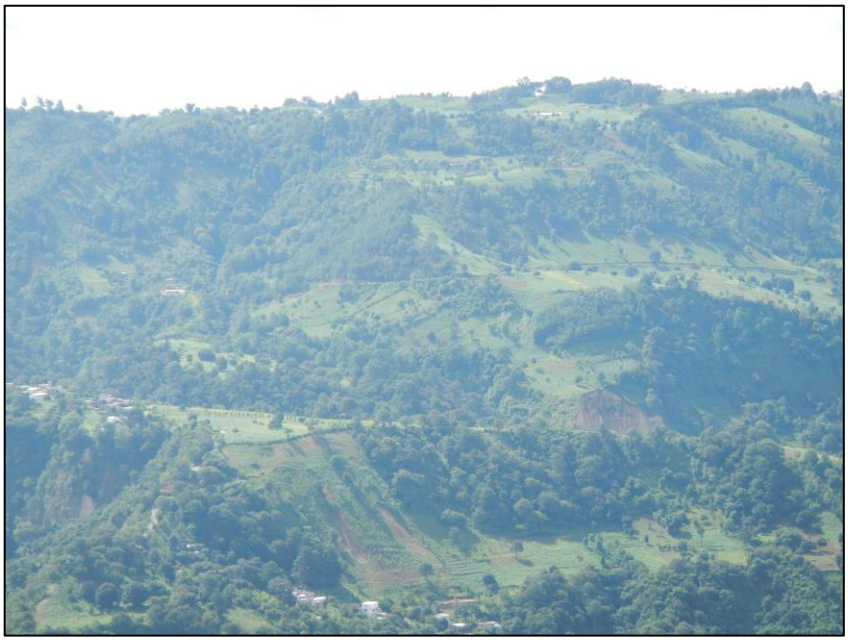
Through these meetings, we were able to identify contact to assist us with field site visit locations and collect significant spatial data relevant to the Atitlan Watershed.

We spent significant time in the field in two key sub-watersheds of the greater Lake Atitlan watershed. With the assistance of faculty and staff from the Sololá campus, we were able to visit several farms and cooperatives and were able to talk with local farmers and gather data regarding types of agricultural production in the watersheds, fertilizer use, and economic costs and infrastructure.

UW faculty and graduate students visit cooperative field with local farmers and collaborators from UVG.

Through these combined efforts, meetings and field visits, we were able to develop stronger collaborative relationships with UVG and collect the relevant and necessary data to move forward with our modeling efforts. We have been using these data to build 1) a watershed assessment model and 2) a small farm economic model for the Lake Atitlan Watershed. These two models, once finalized will be used in a publications and ultimately, form the framework for a long-term collaborative project with UVG and other identified researchers to develop tools and processes to meet environmental and social-economic needs for the Lake Atitlán region.

Additional photos from the project documenting the watershed, agriculture and lake characteristics:



Upper section of the Concepcion sub-watershed.

Lake Atitlan at sunset.

Large agriculture cooperative in Concepcion sub-watershed near Solola.

Agricultural plot at the large coop.

Gully and rill erosion on a small broccoli field in the adjacent watershed.

Dale Novotny, AG ECON graduate student, interviews a local farmer regarding agricultural practices.