

The Manatee Project in Honduras with ESSE 21

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My name is Daniel Gonzalez-Socoloske and I'm one of Dr. Robert Ford's master's students in Biology –see picture with crocodile in Honduras. My first course with him was Remote Sensing (ESSC541). In that course I was introduced for the first time to the tools, concepts, philosophy, and methods of the ESSE21 project. Shortly after my entering the Earth and Biological Sciences department I traveled with Dr. Ford to Honduras where we met with staff and community members of the Cuero y Salado Wildlife Refuge and other conservation NGOs and government agencies working on manatee conservation and protected area management on the North Coast of Honduras--see Honduras Manatee Project link below. See also the LULC Module--Case Study No. 1.

Soon after I decided to focus my master's project on the analysis of the status, distribution, and conservation of the West Indian manatee (*Trichechus manatus*)--see my brief overview report online. As we got into the project it became clear that the central field problem was finding, observing, and monitoring the movements of this elusive creature in what is a very isolated, murky, tropical estuarine environment



(see manatee picture in dark waters of Cuero y Salado). I had never used remote sensing or GIS before but soon found these tools invaluable in addressing the problems I faced in the field (see aerial picture and the Quicktime Movie which gives an overview of this isolated but beautiful coastal zone.)



After this initial exposure I added other courses with a GIS focus. In fact, I ended up taking the full Geoinformatics Certificate that the ESSE grant has helped create jointly with the School of Public Health, Geoinformatics Unit.

The most interesting innovation to come out of our field work was the successful testing of a small-scale, mobile "side-scan sonar" that could help us locate the

manatee in the murky waters—see Poster presented at the Society for Marine Mammalogy in San Diego (December 2005). In fact the USGS Sirenian Project, Wildlife Trust, Sirenian International and other specialists studying dugongs and manatees now see this new methodology as potentially crucial to studying them in other “difficult” environments such as the Amazon River and the coastal lagoons and rivers of West Africa. I have subsequently tested the sonar in Florida and a landlocked lagoon in Southern Mexico.



The ESSE21 activities and methods have definitely strengthened my research skills and better prepared me to engage effectively in multidisciplinary team research that is typical of conservation science today. And, I have also become much more comfortable with the human and policy dimensions of conservation. I believe that comes from the ESSE approach—particularly what is learned by doing real-world place-based research in the field. I also perfected other skills such

as proposal writing, field data collection, the politics of science and policy-making, and the need to be good at “networking” in science today.

In addition, as a Hispanic student I believe I will contribute to increasing the number of underrepresented students in science. I am quite sure I will go on to a career in conservation and biological science with a strong commitment to the use of the new tools of remote sensing, mapping, and GIS as well as the philosophical and conceptual tools of Earth System Science.

Remote Sensing and Systems Modeling

<http://resweb.llu.edu/rford/courses/ESSC550/>

Biodiversity and Conservation (BIOL 549)

<http://resweb.llu.edu/rford/courses/BIOL549/>

Cuero y Salado Wildlife Refuge

<http://www.cueroysalado.org/>

Manatee Project Pages

<http://resweb.llu.edu/rford/courses/ESSC5xx/hondurasmanatee.html>

LLU Land Use Land Cover Land Cover Module

http://resweb.llu.edu/rford/ESSE21/LUCCModule/case_study_1.html

QuickTime Movie of field area and aerial survey

http://resweb.llu.edu/rford/courses/ESSC5xx/slides/Honduras_300306_strm.mov

Geoinformatics Certificate at LLU

<http://www.llu.edu/llu/sph/geoinformatics/progs.html>

Manatee Research Poster

<http://resweb.llu.edu/rford/courses/ESSC5xx/docs/SMMPoster.pdf>

Robert Ford's home page

<http://resweb.llu.edu/rford/>