



No Wake Zone

St. Catherines Island — Research, Conservation, Education

Volume 5, Issue 3

March 2010

Eaglebrook Returns By Lois Moulton

On March fifth, seven Eaglebrook students and two faculty flew out of Boston's Logan Airport for our Island Ecology Program in the warm and sunny South. When we arrived it was sunny, but it was hardly warm. We caught the end of an unseasonably cold winter in Georgia. On the second day, we had to go through a painfully familiar ritual here in Massachusetts, but one I thought I would never have to perform on St. Catherines Island. Our entire crew had to scrape frost off the seats of the Pope Mobile before we left on that morning's excursion! Fortunately this was the end of the cold and the days warmed appreciably over the course of the next week. Other than some chilly, pre-dawn drives, our activities were bathed in warm sunshine.

Matt Napolitano showing students recently excavated archaeological artifacts.



This year's initiates continued with the program's on-going projects of monitoring the development of the inlet at Flag Pond and an adjacent hammock that is slowly taking form with the accelerated erosion along this stretch of South Beach. The kids also helped to measure and make photo logs of the erosion along the scarp near Party Bluff. Some of the fresh erosional scars and slumping helped dramatize the relentless scouring of the winter waves. It is along this stretch of beach that we spend most of our time each year discussing barrier island formation and beach geomorphology.

Aside from the dozens of photos taken with the lemurs, perhaps the greatest numbers of photos were taken of the iconic Live Oak skeletons strewn along the beaches, and the lonely sentinels of palm trunks with only the most vague hints of life still in their crowns. A recent harbinger of the changes to come was discovered when studying the beach and dunes next to Beach Pond where there is an over-wash and sandy delta. It is small but easy to see just a few meters north of South Beach entrance. A quick refractometer reading showed the water in the pond to be at six parts per thousand. It will not take many of these over-washes before the pond transitions into a more saline ecology.

Though we always have an agenda filled with annual activities and long-term monitoring projects, we never try to set a rigid schedule. It is the many little opportunities that always arise on our visits that help to make the experience so rich. This trip was no different. Irv Quitmyer was on-island working with the archaeologists interpreting some of the shell remains found around the St. Catherines Shell Ring. He was generous enough to invite us to the marsh to discuss the life cycle and growth of the quahogs. The discussion of the marsh life and its importance to the entire coastal community was fascinating. The kids thoroughly enjoyed his instruction. He was very patient and his explanations touched on many of the topics we cover in science class. It is the real-world application of their knowledge that makes this trip so invaluable to a group of young students. The archaeologists were running electrical resistivity tests and magnetometer surveys of the Meeting House Field area. To see immediate results on a computer screen was quite impressive. I remember when the magnetometer studies were first being entertained as a viable research technique. What a difference! I hope the kids and I are able to see when all the data is integrated. The anticipation of such cutting-edge technology must be very exciting.

Friday morning we left the dock at St. Catherines feeling a great sense of accomplishment accompanied by the usual wistfulness when leaving this beautiful, bountiful island. Our thanks go out to the entire island crew as well as the various scientists and archaeologists that added so much to our island experience.



Clamming with Irv Quitmeyer and Jen Hilburn





Long-billed Curlew Discovery—documented eating a Ghost Shrimp on St. Catherines Island

By Ellen Jedrey and Jenifer Hilburn

On Friday, January 8, at approximately 16:00hrs a group of shorebird biologists (Brad Winn, GA DNR; Stephen Brown, Manomet, MA; Ellen Jedrey MA Audubon, Shiloh Schulte, Manomet) observed a Long-Billed Curlew eat a total of three Ghost Shrimp on St. Catherines Island. We were able to film and photograph images of the bird eating the ghost shrimp. Each of these Ghost shrimp were approximately 10cm long, and based on size were identified as *Callichirus major* (Bishop & Bishop, 1992). To our combined knowledge, this is the first record of prey selection for the Long-billed Curlew in winter in Georgia.

Taking The Earth's Temperature to Understand Deep History

By Rachel Cajigas

Last May, sitting in west-facing rocking chairs at Bradford Hall, the St. Catherines Island archaeologists learned of a brand new way to date ancient ceramics. In an article published in the Proceedings of the Royal Society, Wilson and her colleagues announced to the world their new way to date potsherds by measuring the amount of water that clay particles have absorbed over time. Almost overnight, “rehydroxylation” became the newest buzz word in the archaeological world.

Because temperature is so critical to rehydroxylation dating, it becomes imperative to better understand the relationship between water, air, and soil temperatures at various depths. We can find this out by using data loggers – small, waterproof units that can easily be placed into the side wall of open archaeological excavation units.

This March, Irv Quitmeyer and Gale Bishop visited the American Museum of Natural History archaeology crew on St. Catherines Island with the specific goal of facilitating the data logger experiment. Using the same data loggers used in the sea turtle program to



An example of a ceramic sherd similar to the samples sent for rehydroxylation dating.

measure nest temperatures, the crew tested the McQueen Shell Ring, St. Catherines Shell Ring, Back Creek Village, and the Mission Santa Catalina de Guale. To obtain temperature data that is comparable to those at depth below surface, we decided to test at standardized depths in open excavation units. Data loggers were inserted into the sidewalls of each unit and attached to a thick, insulated wire for easy location and retrieval. Units were backfilled so that the loggers were insulated from ambient air temperature.

In addition to the buried data loggers, we have placed one data logger at each site to monitor air temperature. The aerial data loggers at each site were cased in a covered PVC pipe with holes to control for wind and sun and suspended in a tree a meter above surface.

We are planning a two-year study, to provide adequate control for the rehydroxylation dating of ancient St. Catherines Island ceramics. This way, should the one year experience atypical meteorological conditions, we'll have another year's data for comparison. The information collected can help us understand how much soil temperature can change throughout the year and how that is related to air and water temperatures. These data will help guide our temperature model for the rehydroxylation study to provide more accurate dating results.

In the meantime, as the data loggers do their jobs, we've submitted four archaeological potsherds for exploratory rehydroxylation dating. The results, if successful, could revolutionize our understanding of the deep history of St. Catherines Island.

Ginessa Mahar and Rachel Cajigas measuring depths of the temperature data loggers in an excavation unit.

