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Department of Marine Sciences
Presents a Seminar By

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UConn Integrative Geosciences

A 6,000 Year Climate Change and Hurricane Record from the Bahamas-Implications for Climate and Humans, Past and Present

The impact of sea-level and climate change on coastal landscapes has been profound yet not well calibrated with respect to their specific influence on the sustainability of vulnerable communities. Further, whether or not the intensity and frequency of large cyclonic systems will increase and have a greater impact on these communities because of rise in sea level and abrupt climate change is still not well understood. These critical questions need to be answered, especially for those communities with significant low-lying habitable areas, such as those in the Bahamas Archipelago.

A ~5000 year depositional history was constructed of Shad Pond, a hypersaline coastal lagoon located on the southeastern tip of Eleuthera Island, Bahamas. Proxy records of hurricane activity, as well as sea level and climate change history were measured and analyzed on cores from three sites taken along shore-normal transects. Sediment composition and granulometry, loss on ignition (LOI), X-ray fluorescence (XRF) measurements, along with dune elevation transects and ground penetrating radar (GPR) profiles provide a comprehensive dataset to reconstruct the historical deposition in this basin.

Dune transects and GPR profiles indicate a phased history of the pond, beginning with initial stages as an open lagoon with possible mangroves or buttonwood flora. The lagoon closed to become a lake at approximately 3700 cal yBP indicated by the transition between the upper peat and microbial mat layers. This could have been due to increased storm events and/or lowering of sea level. Storm surge deposition and subsequent progradation and aeolian aggradation continued to maintain the barrier between anchoring bedrock headlands. Hurricane overwash deposits punctuated the algal mat accumulation throughout this time period. Present day conditions are hypersaline with modern mats forming throughout the lake bottom. It is likely that Lucayan (the first people to inhabit Eleuthera) occupation was influenced by the position of the shoreline and this lake was probably hypersaline at the time of their arrival and throughout their inhabitation, corresponding with the Medieval Warm Period 1200-1000 yBP. The two Lucayan Periods (Early and Late) correlate with increased hurricane activity and wetter periods.

Host: Penny Vlahos

Time & Date: 11:00 am, Friday, May 1, 2015

Place: Marine Sciences Building, Seminar Room 103

Please see this [page](#) for cancelations and additional seminar information,
email marinesciences@uconn.edu, or call 860-405-9152 or 860-405-9151