

HOLOCENE STRATIGRAPHY AND EVIDENCE OF TRANSGRESSION IN THE TEN THOUSAND ISLANDS, SOUTHWEST FLORIDA

[ROTH, Monica J.](#)¹, TEDESCO, Lenore P.², and EBERT, James R.¹, (1) Earth Sciences Department, SUNY College at Oneonta, Ravine Pkwy, Oneonta, NY 13820-4015, Rothmj66@oneonta.edu, (2) Department of Geology, Indiana - Purdue, Univ at Indianapolis, 723 West Michigan Street, Indianapolis, IN 46202-5132

Sediment cores from the Blackwater River area of the Rookery Bay National Estuarine Research Reserve document the Holocene transgression in a variety of environments. Four cores were retrieved from a 5 km transect, which included the Blackwater River channel, bay environments, the barrier island region and the margin of the Gulf of Mexico. Sedimentologic characteristics in each core provide a record of changing environments linked to the post-Pleistocene rise in sea level.

Cores were split and described in detail. A series of samples from each core were analyzed for carbonate, organic matter and siliciclastic content. In general, carbonate content increased upward within each core. Mud was generally present in small quantities, with the exception of two samples which were quartz wackes. Organic matter was sparse except in peaty sands. Quartz sand, very fine through medium grained, was the dominant constituent in nearly all samples. However, the two cores furthest offshore show a decrease in sand content in the younger sediments.

Surface sediments in each core naturally reflect present environments. In three cores, modern sediments are fine to very fine quartz sands. The fourth comprises a sandy, oyster boundstone. Older Holocene sediments in the Blackwater area cores include red mangrove peats, quartz arenites and oyster boundstones. Two cores penetrated the Holocene-Pleistocene, which is marked by Holocene sediments underlain by Pleistocene quartz arenite (Parkinson 1987). In all cores, the Holocene transgression is most clearly recorded by an upward increase in carbonate content, which is attributable to increased carbonate production with increased marine circulation in all estuarine subenvironments of the Blackwater River area.

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