

Northeastern (46th Annual) and North-Central (45th Annual) Joint Meeting (20◆22 March 2011)

Paper No. 31-1

Presentation Time: 8:00 AM-8:15 AM

**EASTERN MUDSNAIL (*ILYANASSA OBSOLETA*) AS A
PALEOENVIRONMENTAL AND SEA-LEVEL INDICATOR ALONG THE
NORTHERN ATLANTIC SEABOARD**

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The eastern mudsnail (*Ilyanassa obsoleta* (Say, 1822)= *Nassarius obsoletus*) is a scavenging gastropod that inhabits protected coastal environments along the eastern coast of the United States. Its wide geographic distribution, high population density, largely epifaunal activity (limited bioturbation), narrow vertical habitat range (primarily intertidal), and existence throughout the Holocene make it a potentially valuable indicator of past environmental conditions and sea-level fluctuations. It becomes particularly important where other traditional sea-level indicators, such as saltmarsh peat, are not available. In this study, *I. obsoleta* specimens from sediment cores offshore southern New England and Cape May area, New Jersey, were used to document their past temporal and spatial distribution. Three samples from a paleo-valley sequence offshore southern Martha's Vineyard, Massachusetts, yield mid-early Holocene AMS radiocarbon dates (6,218-5,464 cal BP). In addition to confirming the existence of a back-barrier environment, these data help constrain a poorly dated part of the regional sea-level curve. At Sewell Point, New Jersey, several well-preserved, in-situ *I. obsoleta* shells were recovered from a mixed-sediment lagoonal fill sequence at a depth interval of 2.10-3.99 m below mean high tide level. Based on regional sea-level reconstructions, and assuming an intertidal habitat, the gastropods likely span the range of 1,300-700 to 2,300-2,100 cal BP. At the two field sites, the gastropods were recovered with a 3-cm-diameter gouge auger, which attests to their widespread distribution in the paleo-lagoon. Radiocarbon dating of the gastropods and associated plant rhizomes, currently underway, will be used to assess the potential of *I. obsoleta* as a paleoenvironmental and sea-level indicator along this part of the U.S. Atlantic coast. Ultimately, area-specific ecological studies of the mudsnails (indicative meaning) and the ages of fossils from coastal and offshore sediment cores will confirm their effectiveness in complementing the traditional Holocene sea-level indicators.

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[General Information for this Meeting](#)

Session No. 31

[Theory and Application in Cenozoic Paleoclimate Studies](#)

Omni William Penn Hotel: Conference B

8:00 AM-12:00 PM, Monday, 21 March 2011

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