

2009 Portland GSA Annual Meeting (18-21 October 2009)

Paper No. 5-8**Presentation Time:** 9:45 AM-10:00 AM**A LACUSTRINE SEDIMENTARY RECORD OF NEOGLACIATION IN THE UINTA MOUNTAINS, UTAH****MUNROE, Jeffrey S.** and BIGL, Matthew F., Geology Department, Middlebury College, Bicentennial Hall, Middlebury, VT 05753, jmunroe@middlebury.edu

A sediment core collected from EJOD Lake in the Uinta Mountains of Utah provides information about Holocene Neoglaciation. EJOD Lake has a surface area of 2.7 ha with a maximum depth of 4.3 m, and is located above modern treeline at an elevation of 3323 m. A composite stratigraphy was constructed from overlapping cores extending from the sediment-water interface to a depth of 239 cm. Four AMS radiocarbon ages on terrestrial macrofossils support a depth-age model with an average sedimentation rate of 0.42 mm/yr. Using this model the base of the core corresponds to an age of 5300 BP. Multiproxy analysis focused on sediment water content, loss-on-ignition (LOI), bulk density, color spectrophotometry (CSP), and grain size distribution. Water content and LOI values are highest near the core base (>60% and ~14%, respectively) and decrease to minima (~40% and <8%) ca. 800 BP. Bulk density increases upward through the core. CSP values demonstrate an inverse relationship between L^* and both a^* and b^* , indicating that when the sediment is darker it is also redder and yellower. Median grain size averages ~10 μ m, with notable departures to coarser and finer values. Integrated consideration of the complete set of proxies reveals that the sediment was less organic, denser, coarser, redder, and yellower ca. 5400-5100, 2100-1750, 800-500, and 250-50 BP, indicating increased input of clastic sediment from the surrounding watershed at these times. Prominent channels extend upslope from EJOD Lake toward a series of bouldery end moraines ~500 m away and ~50 m higher in elevation. Lichen measurements reveal that these moraines stabilized ca. 1700 BP, suggesting that the clastic episode from 2100-1750 BP was a period of active Neoglaciation. The episode from 5400-5100 BP may relate to the deposition of eroded moraines closer to EJOD Lake on which lichens were not measured. The younger two intervals of heightened clastic input overlap with the Little Ice Age, and likely correspond to formation of the extensive complex of moraines and rock glaciers inset behind the lichen-dated moraines. This record of Neoglaciation provides a useful point of comparison with records developed for other mountain ranges in the region.

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Session No. 5

[Quaternary Geology: Glaciation, Paleoclimate, and Landscape History](#)

Oregon Convention Center: B114/115

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