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## Multi-Proxy Analysis of Lower Mississippi Alluvial Plain Lacustrine Sediment, Clark Lake, Sharkey Co., Mississippi

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### EXTENDED ABSTRACT

The study area lies at the junction of the ancestral Yazoo and Sunflower meander belts of the Mississippi River that were active between 6200 and 3000 yr before present (BP) (Saucier, 1994). Clark Lake is situated in southeastern Sharkey County, Mississippi (N 32°41.24', W 90°41.00') within a meander loop of the Big Sunflower River at its confluence with the Yazoo River (Fig. 1). The meander loop delineates the southeastern boundary of the Delta National Forest. The 12 ha lake is in an advanced stage of eutrophication, featuring an average water depth less than 1 m. The lake may be a remnant oxbow or an abandoned channel; however, it is not apparent which river system formed the feature.

Four pairs of 7.6 and 10 cm diameter sediment cores were extracted from four locations in Clark Lake using a portable coring rig with a vibrating head. The best cores, specifically cores 1–4 (location 1, core 4) (1.34 m) and 2–3 (1.94 m) were selected for analysis based on core quality and depth of penetration. Analyses included particle size, dry bulk density (dbd), total C and N, magnetic susceptibility, induced neutron activation and inductively coupled plasma analysis (INA–ICP), X-ray diffraction (XRD), and dating using <sup>137</sup>Cs, <sup>210</sup>Pb, and <sup>14</sup>C by accelerator mass spectrometry (AMS). IntCal13 and CALIBomb were used to calibrate <sup>14</sup>C ages (Reimer et al., 2013, 2004).

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