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Paper No. 24-10

Presentation Time: 10:40 AM

**PRELIMINARY HIGH RESOLUTION SEISMIC STRATIGRAPHIC AND SEDIMENT  
CORE INVESTIGATION OF JACKSON LAKE (WYOMING)**

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Jackson Lake is a large piedmont lake located in Grand Teton National Park (Wyoming). Seismic surveys of Jackson Lake were conducted in 2018 and 2021. Seismic data were acquired using an Edgetech SB-0512i CHIRP system at multiple swept frequency ranges (0.4-4.0 kHz, 0.5-7.0 kHz) producing high-resolution images of the basin fill. Seismic images reveal approximately isochoric packages of reflections in the upper 150-200 ms two-way travel time (TWTT) throughout the basin; these packages are interpreted to have formed through hemiplegic sedimentation and mass transport processes. Origins of mass transport complexes are of interest due to the Teton Fault, a large N-S striking normal fault running along the western lake margin that is a major earthquake hazard. Three overlapping piston cores collected in Moran Bay provide nearly 14 m of sedimentary and chronological ground-truth for the uppermost seismic reflectors. Initial core descriptions reveal that the primary core facies is a diatomaceous ooze with abundant terrestrial plant macrofossils. The core chronology coupled with high resolution seismic imagery provides an opportunity to constrain the timing of major lake level changes and to identify, map, and date mass transport complexes observed throughout the basin. This study will present new high-resolution seismic imagery and sedimentary core records not previously seen from the Jackson Lake basin.

Session No. 24

[T6. Limnogeology and Paleoclimate](#)

Friday, 8 April 2022: 8:00 AM-12:00 PM

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