

**Changing Lake Bathymetry with Deglaciation:
The Mendenhall system**

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Ongoing rapid ice ablation and glacier thinning has continued the buoyancy-driven, large-scale calving events and ice terminus collapse of the Mendenhall Glacier. New bathymetric data collected from Mendenhall Lake between 2004 and 2007 reveal a shallowing of the lake basin adjacent to the 2007 glacier terminus. Since 2000, the lake has expanded beyond its 3.4 km² footprint and 0.05 km³ volume as it elongated to the north filling its old Pleistocene ice-scoured cirque basin. The northeastern-most deep in the lake basin reached a maximum depth of ~97 meters below mean lake level in 2004. Since that time this deep shallowed to the north decreasing along the 2007 glacier terminus to depths ranging from 74 to 2 m below mean lake level. This new bathymetric data will be used for future studies to estimate changes in lake sedimentation rates and lake basin morphology since 1970 when original lake surveys were conducted by AK Dept of Fish & Game. Comparison of lake basin volume with river discharge data will help to better define the seasonal contribution of glacier melt water to Mendenhall River summer discharge, which reached 50% during the summer of 1998.