

CHANGES IN BATHYMETRY AND SEDIMENTATION IN PRO-GLACIAL MENDENHALL LAKE 1973-2008

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Mendenhall Glacier is a temperate maritime glacier that has undergone nearly continuous retreat since the end of the Little Ice Age circa 1750 AD in the Juneau area. Twenty first century recession rates have increased relative to the late 1940's when the entire terminus was in contact with this pro-glacial lake. Accelerated glacier ice thinning and ablation through lake calving events have been monitored over the last decade. Bathymetric data collected from a basin just south of the current lake-front terminus between 2004 and 2008 shows sediment infilling with the maximum depth shallowing from 81.7 meters below mean sea level in 2004 to 77 m below mean sea level in 2008. During this time the footprint of Mendenhall Lake has expanded to the north following terminus recession, exposing an LGM cirque basin. Lake basin morphometry was first measured beginning in 1973 by fisheries biologists in the Alaska Department of Fish and Game. Since 2000, regular bathymetric surveys of the lake have been conducted. By combining lake discharge measurements with total suspended sediment data from the Mendenhall River, the total volume of suspended sediment discharged by the Mendenhall Glacier into its lake is estimated.