

## **INVESTIGATIONS INTO RAPID TEMPERATURE DECREASES IN THE UPPER MADISON RIVER DOWNSTREAM FROM QUAKE LAKE, MONTANA**

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During the review of temperature data collected from the Madison River downstream from Quake Lake, we noticed two cases of short term, very sharp temperature decreases. On 23 June 2001, river temperature decreased 8.1 °F over 7.5 hours and on 28 July 2001, river temperature decreased 15.2 °F over 9.5 hrs. Water temperature remained low for ~ 30 min to 1 hr and then rebounded quickly to typically normal levels. We believe that the cause for these anomalies may be a wind driven disturbance tilting the Quake Lake thermocline allowing cool hypolimnetic water to spill out of the Quake Lake outlet. We support this hypothesis with a presentation of the geographical orientation of the Lake, wind data from a nearby weather station, and temperature profile data taken from Quake Lake. Other cases of this phenomenon at this site are identified.