



## **SWIPS Field Deployment during Freeze-up 2008**

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### **POSTER ABSTRACT**

Frazil ice often causes severe problems at hydraulic structures during freeze-up in rivers. Many methods for measuring frazil ice concentrations have been investigated in the laboratory, but none of these methods has proven to be sufficiently accurate or robust enough for use in the field. Recently, a new generation of underwater acoustic instruments has been developed by ASL Environmental Inc. This instrument is called the Shallow Water Ice Profiling Sonar or SWIPS.

This poster presents results from a field deployment of the SWIPS in the North Saskatchewan River in Edmonton, Alberta.. The field deployment together with a laboratory component, are part of a research project aimed at developing a method for obtaining concentration measurements of frazil ice in the field. Continuous freeze-up monitoring of the river was undertaken including air and water temperatures and daily photographs of river conditions. A special field mount was constructed to hold the SWIPS units, Acoustic Doppler Current Profiler (ADCP), and an underwater video camera. The mount was deployed from a pedestrian bridge using electric winch to lower it into the river. The instruments were connected to field laptops computers to record the data and to allow real time observation of the data.

The units were deployed during freeze-up on November 20<sup>th</sup> and 22<sup>nd</sup>, 2008. River ice conditions, instrumentation and experimental procedures are described. Results from the both the low and high frequency SWIPS units ADCP water velocity profiles are presented.