



Abstract:

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Turbulence Measurements in Grand Passage, Nova Scotia

The characterization of a tidal energy site requires the measurement of both the mean and turbulent aspects of the flow. An assessment of the mean flow allows for an estimate of the expected power output, and hence, is important in determining the economic feasibility of a project. On the other hand, an assessment of the turbulent characteristics can provide insight into the structural loading forces that would be applied to an installed turbine. The measurement of these dynamic, short-term variations in the flow is non-trivial and various instrumentation methods are currently being investigated.

In this poster, I will summarize turbulence measurements that were made in Grand Passage, which is located at the mouth of the Bay of Fundy. The measurements were made using a vertical microstructure profiler (VMP) which measures fluctuations in the flow at scales ranging from 0.1 to 1 m. The VMP was used at various locations within the passage during both the flood and ebb tides; therefore, the spatial and temporal variability in the turbulence quantities will be analyzed. Comparisons will also be made to measurements obtained using fast-sampling acoustic Doppler current profilers (ADCPs), which are typically used to measure the mean flow.