

Title: Acoustic detection ranges for marine mammal monitoring at a tidal turbine site: Grand Passage, NS.

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Passive Acoustic Monitoring (PAM) for marine mammals at tidal energy developments requires an understanding of site-specific acoustic detection ranges. Since underwater sound is used as a tool for detecting marine mammal presence via their vocalizations, sounds mimicking those of marine mammals were projected to assess the feasibility of a PAM system at a proposed small-scale (<2 MW) tidal energy site in Grand Passage, NS. Consecutive sweeps were transmitted with an Ocean Sonics underwater projector (*icTalk*) from a rigid inflatable boat as it drifted over a moored Ocean Sonics hydrophone (*icListen*) in July 2012. A Nortek Vector velocity sensor co-located with the hydrophone measured the flow to determine the hydrophone's effective detection range over the phase of the tide. The conditions under which the projected sounds were detectable will be presented. Furthermore, the naturally occurring ambient noise in high-flow environments imposes rather severe constraints on detection limits. Noise reduction techniques were field-tested in an attempt to extend acoustic detection ranges. Ambient noise levels were measured with a drifting hydrophone to establish baseline acoustic conditions prior to turbine installation, relevant to the tidal project's environmental assessment process. This work will contribute to the future monitoring of marine mammal presence in the vicinity.

STUDENT POSTER presentation