**Ambient acoustic noise with depth in the Honguedo Strait, Gulf of St Lawrence and implications for baleen whale detection**

Endangered whales, such as the North Atlantic right whale (NARW) and blue whale rely on the Honguedo Strait to transit between the eastern and western regions of the Gulf of St Lawrence, Canada. The strait between the Gaspé Peninsula and Anticosti Island is a minimum of 70 km wide, and as a busy shipping corridor represents an area of increased risk of vessel strike and noise impacts to these whale species. From 4th September through 30th October 2019, an experiment was conducted to evaluate the impacts of noise on the performance of near real-time acoustic detection of whales, especially NARW. The experiment used a digital acoustic monitoring (DMON) instrument on a profiling Slocum glider and two fixed autonomous multichannel acoustic recorders (AMAR) on the seabed. The glider travelled between 30 and 210 m water depth 14 times back and forth along a programmed transect and recorded flight, hydrographic and acoustic data. The depth profile of ambient sound power spectral density is analysed with respect to glider flight data, vessel traffic from AIS data as well as weather data. At frequencies below about 50 Hz, which includes most calls by blue and fin whales, flow noise masks the true ambient sound and increases in power with increasing glider vertical velocity. The observed relative noise profile with depth at frequencies greater than 200 Hz, which includes the majority of NARW calls, agree with predictions from a wind-wave driven sound field model, consisting of homogeneously distributed noise sources placed close to the sea surface. The difference between the observed and predicted noise-depth profile is further exploited to determine the prevailing contribution of ship generated noise.