# What Underwater Sounds Does a Small Boat Make and Do the Dominant Frequencies in the Noise Coincide With Fish Calls?

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Over the last few decades, ocean acoustics has become an important research area for understanding human impact on underwater sea conditions. Recent studies show that anthropogenic sounds caused by ships, drilling and other human activities may affect marine life on a greater scale than expected. However, studies often focus on sound analyzes of large transport ships, rather than on smaller boats and the impact they may have on minor watercourses. For this reason, the present study highlights the underwater noise caused by two leisure boats with the aim of understanding their effect on some common fish species in lake Runn, Falun, Sweden. By placing a hydrophone three meters under the water surface, sound levels from two different motorboats were measured as they passed the hydrophone at varying speeds and distances. The recordings were then compared to pre-recorded sound samples of four fish species common in lake Runn. This sound analysis indicated that the noise emitted by leisure boats coincided with the frequencies in calls of several fish species. Although the exact biological impact of this correlation is unclear, previous studies have indeed indicated that fish are affected by sounds in their audible spectrum. This leads to three conclusions. Firstly, determinants like distance and speed affect the noise perceived. Secondly, the dominating frequencies vary, depending on speed; higher speeds means higher dominant frequencies. Thirdly, the coincidence between noise emitted from boats and calls from common fish implies that fish in Runn can be disturbed by leisure boats.

**Awards Won:**