



PROMOTING STEWARDSHIP OF WHALES AND THE SALISH SEA ECOSYSTEM THROUGH EDUCATION AND RESEARCH

For Immediate Release

Date: January 22, 2009

Southern resident orcas must yell above the din

Friday Harbor, Wa. -- A new research paper published by researchers working closely with The Whale Museum shows that the endangered killer whales of Puget Sound raise their voices in direct proportion with increasing underwater noise; that increasing underwater noise correlates with increasing numbers of vessels in the neighborhood of the whales.

This past fall, seven of these endangered killer whales went missing, presumed dead, leaving a total population of about 83 animals. On an average summer day approximately 20 vessels are near the whales throughout the daylight hours. It is not uncommon to find 50 vessels surrounding these whales during summer weekends and holidays.

The Southern Resident orcas' underwater vocalizations were recorded with an array of hydrophones. The recorded data were used to calculate how much energy vocalizers put into each of their calls. In addition, the number of vessels within 1000m of the research boat were counted. This is the first report of killer whales responding to increased noise by increasing the volume of their calls, an effect called the Lombard effect, that we humans are familiar with as we also raise our voices in noisy situations.

This paper concludes: "The potential costs of such vocal compensation are important to consider. For example, increasing vocal output to compensate for noise might have energetic costs, lead to increased stress levels, or degrade communication among individuals which could affect their activity budget. At some level, background noise could also completely impede the use of calls by killer whales for communicative functions."

Supplementary information: research paper "Speaking up: Killer whales (*Orcinus orca*) increase their call amplitude in response to vessel noise"

Marla M. Holt, Dawn P. Noren, Val Veirs, Candice K. Emmons, and Scott Veirs
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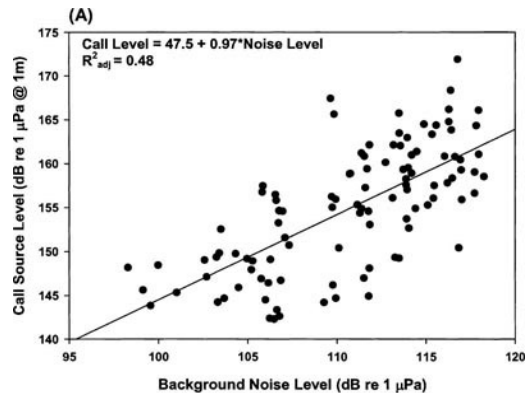
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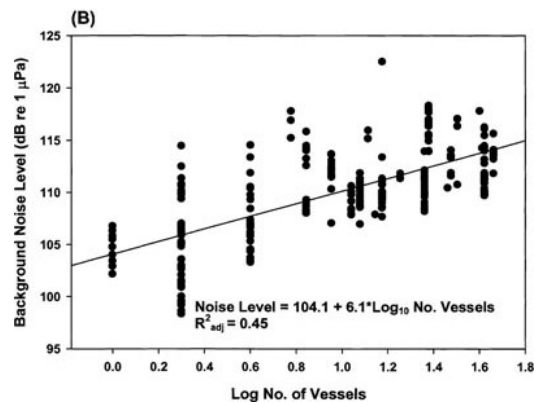
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Two graphs that summarize the principle findings:

A. Orca's calls' energy (termed Call Source Level) increases as Background Noise increases. For each decibel of increase in background noise, the orca raise their voices by 1 decibel.



B. Background Noise increases of the Number of Vessels near the whales increases, here expressed as the logarithm of the number of vessels within 1000 m of the research vessel.



In partnership with NOAA/NMFS, Beam Reach, OrcaSound, and others, The Whale Museum operates the Seasound Hydrophone Network with five hydrophones deployed throughout the Salish Sea region.

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