

Underwater hearing in spotted seals

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The characterization of species-typical hearing in arctic seals is important in terms of understanding both their perception of the acoustic environment and their susceptibility to anthropogenic noise. In this study, two 1-year-old male spotted seals (*Phoca largha*) were tested in a go/no-go procedure using the method of constants to measure their underwater hearing sensitivity. Detection thresholds, defined as the stimulus levels resulting in 50% detection probability, were measured for 10% bandwidth linear frequency-modulated sweeps at frequencies between 0.1 – 72.4 kHz. The resulting audiograms exhibited the typical mammalian U-shape, with a wide range of best sensitivity between 3.2 – 25.6 kHz. Moreover, these audiograms were similar to those previously described for related species, strengthening the notion that functional hearing groups may exist among the true seals. The study of acoustic ecology—including measurements of basic hearing capabilities—is relevant to the protection of vulnerable species, especially animals such as arctic seals that often utilize auditory cues to orient and communicate in relative darkness. This work represents the first reported data concerning hearing in spotted seals and provides the foundation for future studies examining noise-induced temporary threshold shifts and masking effects.