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Title:

Close-range received levels of Hawaiian monk seal (*Neomonachus schauinslandi*) underwater calls

Abstract:

Aquatically mating phocids are known to produce underwater vocalizations during the breeding season. However, for the tropical Hawaiian monk seal (*Neomonachus schauinslandi*), the breeding season is protracted and underwater sound production has only recently been documented. This study provides the first amplitude estimates of underwater calls produced by a male Hawaiian monk seal. Spontaneous underwater vocalizations were recorded year-round from an adult male Hawaiian monk seal living in human care at Long Marine Laboratory, Santa Cruz, CA, USA. Six call types were identified. These were generally low-frequency, short-duration sounds with average peak frequencies ranging from 48 Hz to 292 Hz. Sound pressure level (SPL) was measured over the 90% duration of 20 to 40 calls of each type. Received levels at distances of 0 to 7 m ranged from 123 to 169 dB re 1 μ Pa. Mean SPL values per call type at distances of 0 to 7 m ranged from 137 to 153 dB re 1 μ Pa. Call types with relatively brief durations (< 600 ms) tended to have higher SPLs than the call types with longer durations (> 1300 ms). These bioacoustic data for Hawaiian monk seals can be used to determine upper boundaries of intraspecific communication ranges for these seals in different ambient noise conditions, and have implications for potential conservation and monitoring efforts using passive acoustics.

