

JILLIAN MARIE SILLS

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RESEARCH FOCUS

Expertise in the field of animal psychophysics, with experience conducting cooperative behavioral research with eight species of seals, sea lions, sea otters, and walruses. Twelve years of experience working to describe the auditory sense of seals in air and under water using psychophysical methods with trained subjects. Currently leading several ongoing projects at Long Marine Laboratory (University of California Santa Cruz); responsible for training animals for participation in behavioral research paradigms, collecting and analyzing auditory data, and preparing reports and publications.

EDUCATION

Doctor of Philosophy in Ocean Sciences, University of California Santa Cruz, 2016

Bachelor of Science in Biological Sciences and Natural Resources Cornell University, 2009

CURRENT POSITION

Project Scientist, University of California Santa Cruz, 2019 – present

Manage projects, research authorizations, data analysis, manuscript preparation, proposal preparation, administration, teaching

SELECT PUBLICATIONS

Sills, J. M., and Reichmuth, C. 2022. Vocal behavior in spotted seals (*Phoca largha*) and implications for passive acoustic monitoring. *Frontiers in Remote Sensing*, 3: 862435.

Branstetter, B. K., and Sills, J. M. 2022. Mechanisms of auditory masking in marine mammals. *Animal Cognition*, <https://doi.org/10.1007/s10071-022-01671-z>

Ruscher, B., Sills, J. M., Richter, B., and Reichmuth, C. 2021. In-air hearing in Hawaiian monk seals: implications for understanding the auditory biology of Monachinae seals. *Journal of Comparative Physiology A*: <https://doi.org/10.1007/s00359-021-01498-y>.

Casey, C., Sills, J. M., Knaub, S., Sotolotto, K., and Reichmuth, C. 2021. Lifelong patterns of sound production in two seals. *Aquatic Mammals* 47(5): 499-514.

Sills, J. M., Parnell, K., Ruscher, B., Lew, C., Kendall, T. L., and Reichmuth, C. 2021. Underwater hearing and communication in the endangered Hawaiian monk seal *Neomonachus schauinslandi*. *Endangered Species Research* 44: 61-78.

Sills, J. M., Ruscher, B., Nichols, R., Southall, B. L., and Reichmuth, C. 2020. Evaluating temporary threshold shift onset levels for impulsive noise in seals. *Journal of the Acoustical Society of America* 148(5): 2973-2986.

Sills, J.M., Southall, B.L., Reichmuth, C. (2020). Auditory biology of bearded seals (*Erignathus barbatus*). *Polar Biology* 43(11): 1681 – 1691.

Reichmuth, C., Sills, J.M., Brewer, A., Triggs, L., Ferguson, R., Ashe, E., Willians, R. 2020. Behavioral assessment of in-air hearing range for the Pacific walrus (*Odobenus rosmarus divergens*). *Polar Biology*

Reichmuth, C., Sills, J.M., Ghoul, A., Mulsow, J.L. 2019. Long-term evidence of noise-induced permanent threshold shift in a harbor seal (*Phoca vitulina*). *Journal Acoustical Soc America* 146(4): 2552-2561.

Strobel, S. M., Sills, J. M., Tinker, M. T., and Reichmuth, C. 2018. Active touch in sea otters: in-air and underwater texture discrimination thresholds and behavioral strategies for paws and vibrissae. *Journal of Experimental Biology* 221, jeb181347

Sills, J.M., Southall, B.L., Reichmuth, C. 2017. The influence of temporally varying noise from seismic air guns on the detection of underwater sounds by seals. *Journal Acoustical Soc America* 141(2): 996-1008.

Reichmuth, C., Sills, J. M., and Ghoul, A. 2017. Psychophysical audiogram of a California sea lion listening for airborne tonal sounds in an acoustic chamber. *Proceedings of Meetings on Acoustics*, 30: 010001.

Reichmuth, C., Ghoul, A., Sills, J.M., Rouse, A., Southall, B.L. 2016. Low-frequency temporary threshold shift not observed in spotted or ringed seals exposed to single air gun impulses. *Journal Acoustical Soc America* 140: 2646-2658.

Sills, J.M., Southall, B.L., Reichmuth, C. 2015. Amphibious hearing in ringed seals (*Pusa hispida*): underwater audiograms, aerial audiograms, and critical ratio measurements. *Journal Exp Biology* 218: 2250-2258.

Sills, J.M., Southall, B. L., Reichmuth, C. 2014. Amphibious hearing in spotted seals (*Phoca largha*): underwater audiograms, aerial audiograms, and critical ratio measurements. *Journal Exp Biology* 217: 726-734.

Reichmuth, C., Holt, M.M., Mulsow, J., Sills, J.M., Southall, B.L. 2013. Comparative assessment of amphibious hearing in pinnipeds. *Journal of Comparative Physiology A* 199: 491-507.