
The huaka’i of Hawaiian monk seal Kekoa: conservation through sound science

Kirby Parnell¹, Brandi Ruscher², Jillian M. Sills³, Colleen Reichmuth³

¹Hawaii Institute of Marine Biology, University of Hawaii Manoa, Kaneohe, HI, United States
²Department of Ocean Sciences, University of California Santa Cruz, Santa Cruz, CA, United States
³Institute of Marine Sciences, University of California Santa Cruz, Santa Cruz, CA, United States

The Hawaiian monk seal (Neomonachus schauinslandi) is an endangered marine mammal and the subject of significant conservation concern. Limited bioacoustic information was available for this species until recently. The adult male Hawaiian monk seal Kekoa (KE18) was removed from the wild after repeated problematic interactions with conspecifics; he was then transferred temporarily to UC Santa Cruz, where he participated in studies to increase understanding of monk seal auditory biology. Compared to other seals, Kekoa’s behavioral hearing data suggest that monk seals have less sensitive hearing and a reduced functional frequency range of hearing in air and under water. A year-round characterization of his spontaneous underwater vocalizations revealed at least six low-frequency call types with a simultaneous peak in calling behavior and testosterone levels during the breeding season. Kekoa’s huaka’i, or journey, has provided the first description of underwater communication for this protected species and contributed much-needed perspective about amphibious hearing abilities. Kekoa’s work has also inspired ongoing research with captive and wild individuals to confirm species-level traits in sound reception and production. These efforts have applications to studies of free-ranging monk seals through passive acoustic monitoring, development of automated call detectors, and the use of multi-sensor biologging devices.

Special Session: Contributions of Expert Subjects to Animal Bioacoustics