

### **Rhythmic Entrainment in a California Sea Lion (*Zalophus californianus*)**

*Peter Cook, Andrew Rouse, Margaret Wilson (University of California Santa Cruz), & Colleen Reichmuth (Institute of Marine Sciences)*

Motoric entrainment to an isochronous rhythmic auditory stimulus is a behavioral capability once thought to be unique to humans. Recently, this ability has been identified in a few other species, most notably the sulfur-crested cockatoo (*Cacatua galerita eleonora*). Because the most convincing demonstrations have come from animals that demonstrate vocal mimicry, it has been theorized that entrainment is an evolutionary byproduct of vocal mimicry and related adaptations in the basal ganglia. Anecdotal evidence suggests that, when present, entrainment may be innate rather than acquired. To further explore whether 1) entrainment to specific auditory tempos can be acquired through explicit training, and 2) whether such an ability would generalize to novel tempos, we are studying rhythmic entrainment in an easily trained but vocally stereotypic mammal: the California sea lion. After more than 20 sessions of operant training, the sea lion subject has learned to reliably synchronize a continuous head bob to two similar auditory stimuli with different rates (80 and 120 beats/minute). This finding confirms that a vocally stereotypic animal can learn to entrain, and will serve as a jumping off point to assess transfer of rhythmic entrainment to novel tempos.