

Oral 12

Underwater song and associated behavior of captive bearded seals

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Summary:

Bearded seals (*Erignathus barbatus*) largely rely on sea ice for their lives including breeding, feeding and resting. Therefore, negative effects of recent ice reduction have been concerned. Passive acoustic monitoring of marine mammals for their conservation became popular in recent years, but most of these works have just estimated the presence of animals. If we understand the behavioral contexts and function of vocalizations, we could get more useful information from the monitored sounds. Although there have been many studies on underwater vocalizations of bearded seals, little is known about the behavioral context, mainly because of the difficulty observing the behavior in the wild. In this study, we analyzed the relationship between underwater vocalization and behavior of captive bearded seals to estimate the function of their vocalizations. We recorded behavior and sounds of an adult male and two adult females in *Otaru* aquarium, Hokkaido, Japan between March 2012 and May 2013. Behavioral observation was conducted in the daytime focusing on social behavior. Underwater sounds were continuously recorded using a hydrophone (recording range: 20 Hz to 20 kHz) and a linear PCM recorder (sampling rate: 48 kHz). Although the previous studies speculated that only adult males vocalize, we found that females also frequently vocalized. The adult male vocalized from December until April with a peak in March, while the two females vocalized only in March, breeding season reported in the wild. The adult male produced 3 call types (trill, moan and high-moan), while the females produced 5 call types (moan, high-moan, growl, snort, and bell) associated with muzzling behaviors against the throat of the vocalizing male. These call types were often recorded in typical sequence that consist of solo-part by the male or female, and duet-part between the male and female. These results suggest that their vocalization is related to the courtship and/or territorial behavior in breeding season.