Acoustic partitioning in a marine vertebrate community off Brazil

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Abstract

In order to increase intra-specific communication efficacy and to decrease probability of miscommunications errors and masking a certain degree of partition of a community's acoustic space is expected. Aiming to investigate the acoustic partitioning of a marine vertebrate community composed by fish, dolphin and whale species, eight acoustic features (aggregate entropy, average entropy, 90% bandwidth, center frequency, 90% duration, interquartile bandwidth, low frequency and peak frequency) of calls manually extracted from recordings off Brazil were submitted to discriminant function analysis (DFA). Results show that species are discriminated in acoustic space and thus occupy different acoustic niches. All acoustic features significantly contribute to species' discrimination. Function 1 explained 95,9% of the variation in the acoustic parameters due to species. The most important parameters were central frequency, interquartile bandwidth and average entropy. Spectral partitioning may also function as a mechanism to avoid masking in this marine community. Work supported by: Rufford Small Grants Foundation (RSGF), Cetacean Society International (CSI), Instituto Chico Mendes de Conservação da Biodiversidade (ICMBIO), Projeto Baleia Franca (Project Right Whale) and Federal University of Rio Grande do Norte (UFRN)

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