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Click and burst pulse proprieties of wild bottlenose dolphin in the Central Mediterranean Sea

In this study we describe the impulsive signals from bottlenose dolphin of the Central Mediterranean sea. Data were collected during 2011 and 2012 year during 27 survey in the Sicilian Channel (ranged from 1 to 25 nautical miles from the coast, included Lampedusa island) in which were sighted 144 specimens. It was used a digital acquisition system that allow to obtain calibrated signals in the range 0.01-150 kHz at 16 bit. Based mainly on the pulse repetition rate, the signals were grouped in a) LF click (single clicks without a regular pulse rate), click train (click with a median inter-click interval of 60 ms), burst (with a median inter-click interval of 2.2 ms) and HF click (with a median inter-click interval of 2.7 ms). The considered measured parameters were: SPLpk (dB re 1microPa peak), duration, 1°, 2° and, 3° peak of frequency, number of peak frequency, bandwidth, centroid frequency, 10%, 25%, 75% and 90% percentiles of the power spectrum distribution. Most of all parameters were significantly different between the different groups types reflecting the different functions of these signals. LF clicks showed a lower peak frequency and longer duration and could be used to explore wider area without a focal target. Otherwise the click train type showed a higher SPLpk, peak frequency and lower duration and number of peak frequency showing a better resolution to investigate a specific target. In the click train there is a positive correlation between the SPLpk and the quartile of the power spectrum distribution.

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