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## **Acoustic signals of white whales summering in the north-eastern Sea of Okhotsk, far east Russia**

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Here we present the first data on the acoustic repertoire of white whales from the north-eastern Sea of Okhotsk. In the period of 2010-2012 over 34 hours of vocalizations of white whales summering in the river estuaries of western Kamchatka were recorded. Based on time-frequency characteristics the recorded sounds were classified into tonal signals (whistles) and pulsed signals presented by pulsed tones and click series.

Whistles were the most common acoustic sounds of the whales: the percentage of these signals amounted to 53-71% of all sounds. The less part of vocalizations consisted of pulsed tones (21-32%) and click series (8-16%). Whistles and pulsed tones were presented by signals with stable (stereotype) or variable structure. Both tonal and pulsed stereotype signals were characterized by distinctly expressed structural peculiarities and were often produced in series. Statistical analysis showed that the overall vocalization rate as well as the rate of different sound types used by whales depended on the behavioral context. The overall vocalization rate varied from 0.03 to 33.5 sounds per minute and was significantly higher during social interactions and feeding of whales than during other types of behavior, especially such as resting or anxiety situations. During hunting on fish – the key type of the behavioral activity in the observed whales – the most significant type of sounds were stereotype whistles. For example, on average during salmon chasing the whales produced 1.7 stereotype whistles, 0.2 variable whistles, 1.1 pulsed tones and 0.6 click series per minute.

According to our data stereotype whistles play the key role during active feeding of white whales. We suppose that in conditions of poor visibility typical for the investigated rivers such signals could play an important function of identification and coordination of whales during hunting.