

COMPARATIVE EVALUATION OF ECHOLOCATION AND COMMUNICATION SIGNALS OF DOLPHINS

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Analysis of dolphin signals searching underwater objects at long distances in difficult conditions of anthropogenic interference was performed. In the experiment, it was demonstrated that dolphins similar ultrashort pulse (USP) packets in communication behavior. Using the developed algorithm for processing sound files, we have identified characteristic sequences of signals that are uniquely related to the conditions of the laboratory experiment. This allowed us to find patterns and differences in signal packets. The interval between bursts of pulses depends on the distance to the search object and, as a rule, is longer than the time required for their analysis by an ideal observer. In the verbal interaction mode, dolphins use complex composite signals consisting of USP packets and FM pulses. Packets of communication signals vary in duration (from 120 ms to 1100 ms) and number (from 25 to 100 pulses). Simulation of cetacean signals allows you to create a set of secretive signals that will be perceived by the operator as signals belonging to animals. In the conditions of the shelf, the covert transmission of hydroacoustic information using biosimilar signals can also be created by simulating short, broadband (more than 100 kHz) sounds of cracker crayfish, which by now are becoming very common not only in tropical and subtropical waters, but also in temperate European and Far Eastern waters.

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