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Abstract

Multiple signals must be identified from different fish simultaneously to observe group behavior using acoustic biotelemetry. We demonstrated simultaneous identification of multiple signals using a new phase modulation-coded telemetry system. We deployed eight transmitters with a 1.28-s signal transmitting interval at the same location, and two receivers that were 18.5 m and 38.0 m away from the transmitters. The detection rates of the two receivers during 15 min of recording were 77.0% and 73.0%. These results show that multiple signals from several transmitters were detected simultaneously by the receivers and were discriminated at high resolution (<2 s). This new telemetry system will be useful in studies on fish schooling behavior, aggregation, and predator-prey interactions.