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Analysis of the impact of weather factors on the behavior of pelagic commercial fish and the possibility of detecting their schools and aggregations using unmanned aerial vehicles

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Abstract. The paper examines the influence of weather and hydrometeorological factors on the behavior of pelagic commercial fish and the effectiveness of detecting their schools and aggregations using unmanned aerial vehicles (UAVs). The focus is on the Pacific saury, one of the most challenging targets for detection in the North-Western Pacific Ocean. The responses of the fish to artificial light, the impact of storms, cyclones, and wind waves were analyzed, as well as the changes in the thermostructure of the upper ocean layer on the distribution and stability of fish aggregations. It has been shown that weather conditions have a dual effect: they worsen the visual conditions of observation and simultaneously change the spatial distribution of schools, causing them to move into deeper waters and disperse. The operational capabilities of various types of UAVs for monitoring the sea surface were also assessed. It was established that the effectiveness of UAV-based monitoring is determined by a combination of meteorological, oceanographic, and technical factors and requires an integrated approach to observation planning and implementation.

Keywords:
pelagic commercial fish, Pacific saury, fish aggregations, fish schools, unmanned aerial vehicles (UAVs), weather factors, monitoring

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