

2016年1月5日受付, 2016年3月3日採録

Abstract

Ventilations and behaviors of large juvenile or adult Japanese flounder *Paralichthys olivaceus* were investigated at 16 decremental steps of dissolved oxygen (DO) ranging from 6.00 to 0.50 mg O₂/L. The frequency of opercular movements increased with the decrease in DO from 4.00 mg O₂/L to 1.00 mg O₂/L. On the other hand, when DO was below 1.25 mg O₂/L, flounders often moved horizontally at the bottom, and opened their mouths and opercula extremely. These behaviors suggest that it is difficult for Japanese flounders to maintain their metabolisms by opercular movement. Below 0.75 mg O₂/L, off-bottom swimming behaviors that are considered to be escape behaviors were observed. A rapid decrease of the frequency of opercular movements at 0.50 mg O₂/L might indicate a lethal effect of low DO on Japanese flounders.