

Faster growth before metamorphosis leads to a higher risk of pseudoalbinism in juveniles of the starry flounder *Platichthys stellatus*, as suggested by otolith back-calculation

Abstract

The mechanism underlying malformation during flatfish metamorphosis is not clear. Here, the relationship between growth before metamorphosis and the occurrence of malformation after metamorphosis was examined in individuals reared in a single tank. Otoliths of starry flounder *Platichthys stellatus* larvae were labeled with alizarin complexone before metamorphosis [12 days after hatching (DAH)]. The positive linear regression between the lapillus otolith diameter and body length at 12 DAH enabled the estimation of individual larval size after completion of metamorphosis. At 12 DAH, the average body length of the typical pseudoalbino juveniles was significantly greater (5.37 mm) than that of the normal juveniles (5.13 mm) ($P < 0.01$, $n = 100$). In addition, of the larvae that were estimated to measure less than 4.8 mm at 12 DAH, approximately 80% metamorphosed into normal juveniles, whereas more than 60% of the larvae that measured more than 5.4 mm became pseudoalbino juveniles. These results indicate that the larvae that grow rapidly during the first 12 days are more likely to become pseudoalbino individuals after metamorphosis. © 2010 The Japanese Society of Fisheries Science.