文章摘要

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七带石斑鱼胚胎及仔稚鱼形态观察

Development and growth of embryos and early larvae of Epinephelus septem fasciatus

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中文摘要:

对七带石斑鱼胚胎和仔稚鱼发育过程进行了观察，描述了从受精卵到仔稚鱼各发育时期的形态特征；在水温22±0.5 ℃、盐度30条件下进行七带石斑鱼仔鱼的饥饿耐受力实验，记录了饥饿条件下初孵仔鱼的存活与生长、卵黄囊与油球的利用情况。结果表明，胚胎发育可划分为卵裂期、囊胚期、原肠胚期、神经胚期和器官形成期。在水温20.5±0.5 ℃、盐度30.0条件下，受精卵历时38 h 45 min孵化出膜。初孵仔鱼全长1.059±0.071 mm，至4日龄全长2.27~2.36 mm时，卵黄囊完全消失；16日龄，全长4.99 mm时，鳔形成；至25~30 日龄，尾鳍鳍条发育完整。在饥饿条件下，初孵仔鱼的死亡高峰出现在孵化后4~6 d，半数死亡时间出现在5 d，至7 d饥饿仔鱼全部死亡。卵黄囊期仔鱼的生长可分为3个阶段：仔鱼初孵时的快速生长期，卵黄囊消失前后的慢速生长期，以及在不能建立外源性摄食后的负生长期。随着生长发育时间的延长，饥饿仔鱼与正常条件下仔鱼的生长差异显著($P < 0.05$)。饥饿仔鱼体长较短，头大且体瘦，长期饥饿后脑后部下陷。

英文摘要:

Embryonic and early larval development and growth of Epinephelus septemfasciatus, including morphological features and developmental period, were observed and studied. Starvation tolerance test was also conducted and other index such as larvae survival and growth, yolk sac, and oil globule utilization rate were recorded under the condition of water temperature 22±0.5℃ and salinity 30. Based on the obtained data, the embryonic development of E. septemfasciatus was divided into five stages, namely cleavage stage, blastula stage, gastrula stage, neurula stage, as well as organogenesis stage. The embryos hatched at 38h45min after fertilization in seawater at 20.5±0.5 ℃ and salinity of 30.0. The whole length of newly-hatched larva was 1.059±0.07 mm. The yolk sac of larvae disappeared 4d post hatching at a whole length of 2.27~2.36 mm, and air bladder of larvae formed during 8~15d post hatching. Then the soft rays of caudal fin developed finally at 30d post hatching. Newly-hatched larvae showed 100% mortality after 7 days of starvation,

and the half mortality time was 5d and themortality peaked at 4 6d post hatching. The growth of yolk sac larvae can be divided into three periods: rapid growth period of newly hatched larvae, slow growth period before and after the disappearance of yolk sac, and negative growth period afterwards due to the lack of exogenous feeding. Starvation magnified the difference of growth between starved and normal larvae ($P<0.05$). Larvae had shorter soma length, bigger head and thinner body after a period of food deprivation. The rear part of head sunk after long-time starvation.

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