



Effects of temperature and lipid droplet adherence on mortality of hatchery-reared southern hake *Merluccius australis* larvae

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Abstract

Effects of exogenous (water temperature) and endogenous (lipid droplet adherence) factors were experimentally tested on early survival of southern hake *Merluccius australis* reared under controlled conditions. Experiments to determine the effect of temperature (10, 12 and 14 °C) on larval growth rates and yolk-sac absorption rates of unfed southern hake were carried out under laboratory conditions. There was no significant differences in growth rates at the temperature range tested (ANCOVA, $F=0.164$, $p>0.25$), but yolk-sac absorption rates and mortality increased with temperature (ANCOVA, $F=53.84$, $p<0.001$). A high percentage (between 31 and 81%) of hake eggs showed a lipid droplet not adhered (i.e., freely moving in the yolk, and not located in the posteriormost portion of the yolk-sac). In a second experiment, fed southern hake larvae with the lipid droplet not adhered during embryonic development did not survive after yolk-sac absorption. This study provides the first data on the influence of the lipid droplet absorption on larval survival of cultured hake, and can be used as an early indication of the quality of the batch.

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