



Larval development of *Mesodesma donacium* ("Macha")

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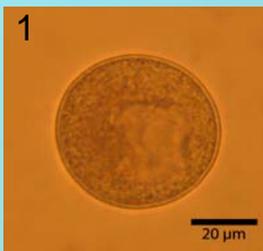
Introduction

Mesodesma donacium is a valuable marine resource demonstrating an important role for the Chilean and Peruvian artisanal fishery. The assessment of the stocks is difficult and information on distribution patterns is scarce [1]. An accurate description of the larval development and modern methods for identification (e. g. Plankton recorder) could lead to a better understanding of the ecology of this species and deliver a proper method to track larval dispersal of *M. donacium* [2,3].

Material and Methods

Adult *M. donacium* were collected from natural stocks at "Playa Hornitos" app. 100km north of Antofagasta. 50 clams were stripped and gametes used for artificial fecundation. Larvae were reared for 28d under constant temperature conditions (17°C) and a 12h daylight cycle in 1µm filtered seawater, which was UV sterilized and airtight. To minimize contaminations the watervolume was exchanged once a day. After the first 48h food was provided using Microalgae (*Isochrysis galbana*, *Chaetoceros gracilis*, *Nano* spec.). Daily size of larvae was recorded. Larval stages were analysed under a light microscope and documented using a digital camera (Sony DSC-W5).

Results



1 Ovule, app. 50µm, day 1



2 Two cell stage, app. 75x60µm, day 1



3 Blastula with cilia, app. 50µm, day 1



4 D-Veliger with Velum, app. 92x70µm, length of cilia up to 20µm, day 4



5 Larva, app. 125x97,5µm, day 11



6 Larva, app. 135x115µm, day 19



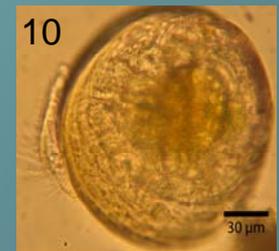
7 Larva with Velum, app. 177x155µm, day 19



8 Larva with hinge, app. 205x180µm, day 22



9 Larva, deformed, app. 97x77µm, day 13



10 Larva, deformed, app. 155x150µm, day 22

D-Veliger appeared after 26h. Larval activity was high at the beginning of the experiment and decreased with time. Deformations shown in picture 9 and 10 were continuously observed. After 28d mortality was 100%. All photos: 400x.

Perspectives

To complete the description of the larval development electron microscopical documentation of the hinge will be carried out. Temperature experiments will be conducted to reveal the capacity of this bivalve to survive warm El Niño conditions. A zooplankton recorder will deliver detailed information on the distribution of *M. donacium* larvae along transects.



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