GROWTH AND MOLT CYCLES OF SPIDER CRAB **MAJA SQUINADO** (HERBST) UNDER CULTURE CONDITIONS

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Introduction

The spider crab *Maja squinado* (Herbst) is a species of great commercial interest in Galicia (NW Spain) and is subject to intense fishing. Several papers about growth and reproduction of juveniles in this area (Galicia) have been published (Sampedro et al. 1999; Sampedro 2001). However, there is very little data about growth and molt cycles in the first year of life of the species. This paper reports the first data on growth and survival rates of spider crab juveniles under culture conditions. The effect of different diets and the analysis of molt cycles of *M. squinado* are also analysed.

Material and Methods

Zoas from three different broodstocks were used; the first, born in October 2000, were hatchery-reared and utilized to test five different diets; the second group (May 2001), was used to study growth, survival and molt cycles and the third (June 2000), to analyse terminal moults. These last two groups were reared in a semi-intensive system until the age of 65d.

In the first experience, carried out with 50 individuals each in 100 l tanks, five different diets were used: crab, macroalgeae, sea urchin, mussel and a mix of the previous diets. In the second experience, with 800 juveniles per 400 l tank, two different habitats were used, one under external conditions with proliferation of algae on the walls of the tank and another inside the facilities with a low level of light incidence. The diet consisted of mussels. Carapace length (CL) and survival were determined for each tank. The molt cycle was controlled individually (n=4) since the age of 67 to 376d. Animals were marked with plastic labels and kept in a common tank. The increase in carapace length and the ages of the subsequent moults were recorded.

Results and Discussion

Different diets. - In spite of the best growth and survival rates being obtained using crab and sea urchin as food respectively, it was decided to use mussels in the following long-term experiments, taking into account its acceptable values (see Table 1), lower price and availability.

Comparison of growth and survival using two different habitats.- The growth and survival statistical tests (ANOVA) didn't show significant differences between external and internal habitats (p<0.05) and they were considered as one group (Fig 1). At the age of 373d, carapace length was 104.51mm and the survival rate was 2.05%, much lower
than that obtained in previous experiments (Iglesias et al., in press). One possible explanation for this low survival rate could be the high initial density used (300 ind m$^{-2}$).

Table 1: Increase in carapace length (CL) and survival rate during a period of 35d of *Maja squinado* using five different diets. i= 91 days old; f= 124 days old.

<table>
<thead>
<tr>
<th></th>
<th>Crab</th>
<th>Macroalgae</th>
<th>Sea urchin</th>
<th>Mussel</th>
<th>Mix</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL$_i$ (mm)</td>
<td>7.7</td>
<td>8.0</td>
<td>7.7</td>
<td>7.8</td>
<td>8.3</td>
</tr>
<tr>
<td>CL$_f$ (mm)</td>
<td>10.8</td>
<td>8.8</td>
<td>9.7</td>
<td>9.0</td>
<td>9.3</td>
</tr>
<tr>
<td>Survival (%)</td>
<td>38</td>
<td>38</td>
<td>78</td>
<td>66</td>
<td>74</td>
</tr>
</tbody>
</table>

Moult cycle: Juveniles up to 6 months presented an inter-moult period of 20-40d, and a CL increase ranging between 33.8-36.7%. The values for the next 6 to 13 months were 65-142d and 49.8-60.4% (Fig 2). Additional information on terminal moults was obtained from two individuals belonging to the third broodstock (June, 2000). Carapace lengths were 134mm (434d-old male) and 140mm (493d-old female). According to Sampedro et al. (1999) these sizes have a 54.2% and 95.7% probability (respectively) of reaching sexual maturity.

![Growth and survival of juveniles](image1.png)

![Average moult age and CL of juveniles](image2.png)

References

