

## **Від океану до морозильної камери і назад**

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## **From the Ocean to the Freezer and Back**

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The global production of blue mussel (*Mytilus galloprovincialis*) has a significant role on the marine aquaculture industry; hence it is one of the most cultivated mollusk worldwide (FAO, 2018). However, several hazards affect the culture and the seasonal supply of mussel seed, which sets up an increasing interest on the development of inland seed production without seasonal limitation and safe of global variations. Cryopreservation can provide the stable storage of living resource of mollusk early development stages throughout the year and the possibility of selection of genetic lines according to production issues. Research has normally focused on short term effects on post-thawed cells. Here, cryopreservation long term effects were analyzed in cryopreserved mussel larvae and their capacity for competent seed production using two different larval stages and protocols.

Mature blue mussels from Galicia (NW Spain) were spawned and the cells were incubated to produce Trochophores (18–20 h post-fertilization) and 72h-old D-larvae for these long-term experiments where larvae were incubated post-thaw in the lab. The best results were obtained with D larvae which were reared until reaching the juvenile stage obtaining a survival to spat over 20% regarding to controls, settlement was up to 92.46%. Simultaneously seed was settled on ropes and moved into a mussel raft for a year-round monitored incubation in the ocean.

The study of the cryopreservation long term effects is essential to achieve the total implementation of cryopreservation for Aquaculture and fish management. With those experiments we found that although growth of cryopreserved larvae during the larval development is slightly under the controls, it levels up with the controls before settlement. Once the larvae had settled into juveniles their growth rate shows no significant differences to those of controls for the whole year, reaching over 6 cm in 8 months with natural feed.

Future work will include the genetic study of those larvae and the spawning of the farmed mussels in order to obtain data on their fertility and a second generation from cryopreserved larvae (F2).

