

Larval recruitment of *Crassostrea gigas* in a french Mediterranean lagoon

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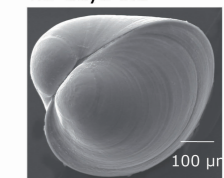
1. Ifremer
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Abstract

In reply to an increasing demand of French Mediterranean oyster farmers to diversify their activity, the PRONAMED project was conducted to determine the origins of the variability in the natural recruitment of the Pacific oyster *Crassostrea gigas* in Thau lagoon. Natural recruitment was followed in 2010 and set a record. During the summer of 2012, a poor correlation between the number of larvae and spat was observed in shellfish farming areas indicating a potential biological lock during the larval metamorphosis period. Success of recruitment outside the shellfish farming zone was, in contrast, demonstrated.

"Pronamed II" Project (2012 -2014) will focus on two questions :
 • What is driving natural spat collecting variability ?
 • Is there an economical potential for natural spat collecting in the Thau lagoon?

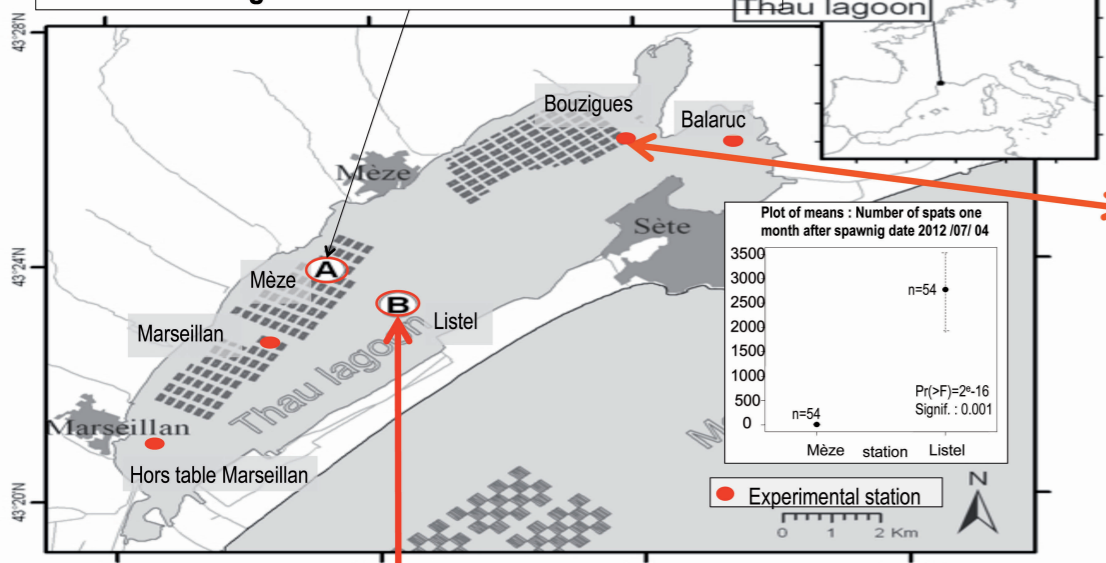
«Big» oyster larva 13 days old



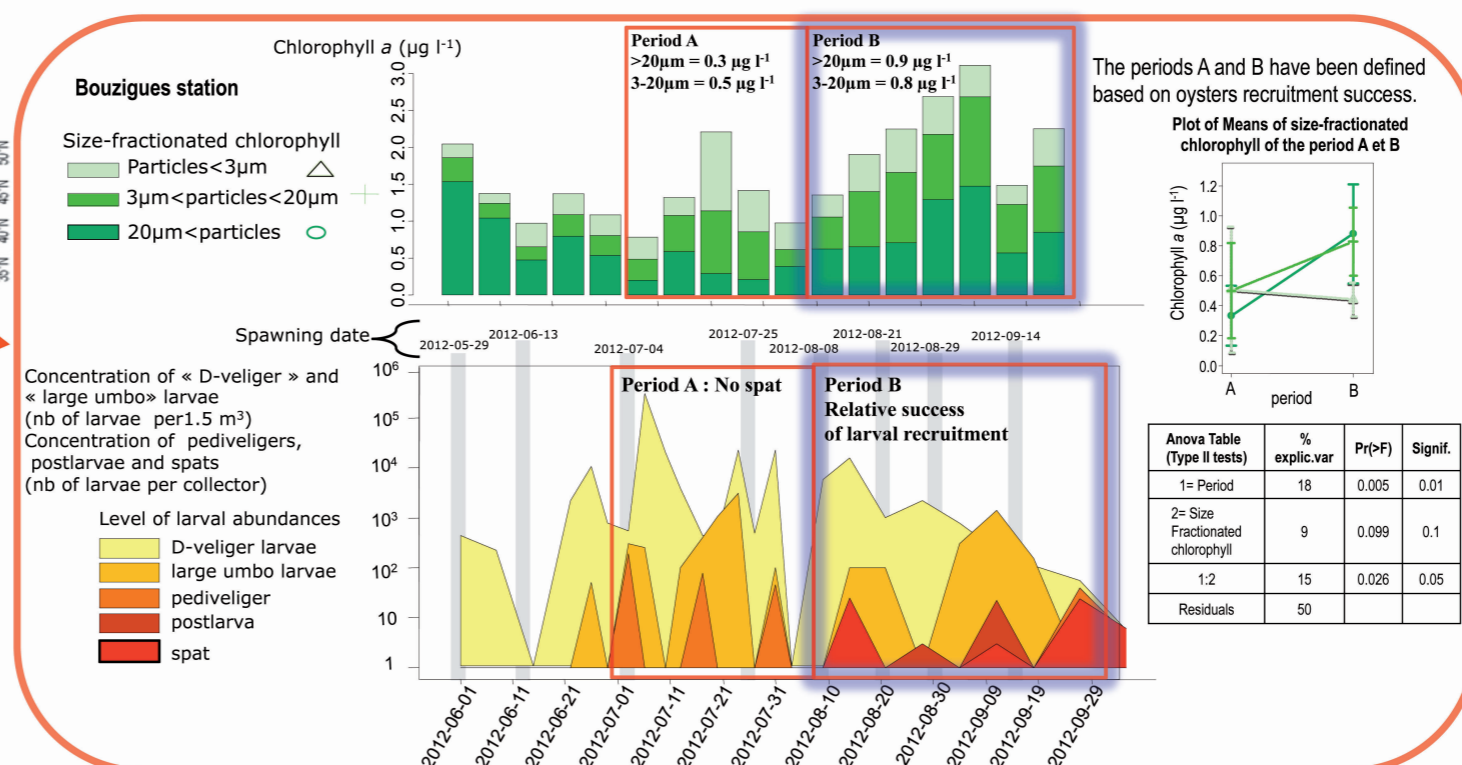
"Pronamed II" project aims to characterize the success of natural recruitment in the lagoon ecosystem. It tends to show that Thau lagoon presents an oyster spat collecting potential outside farming areas. For that, 40 campaigns during spring and summer 2012 allow us to screen weekly the lagoon by an ecological multifactorial benthopelagic approach (phytoplankton, zooplankton, microfauna) on 6 stations (3 in farming-zones and 3 off-zones).

First results of 2012

On average, less than 100 oysters spats per collector in shellfish farming areas



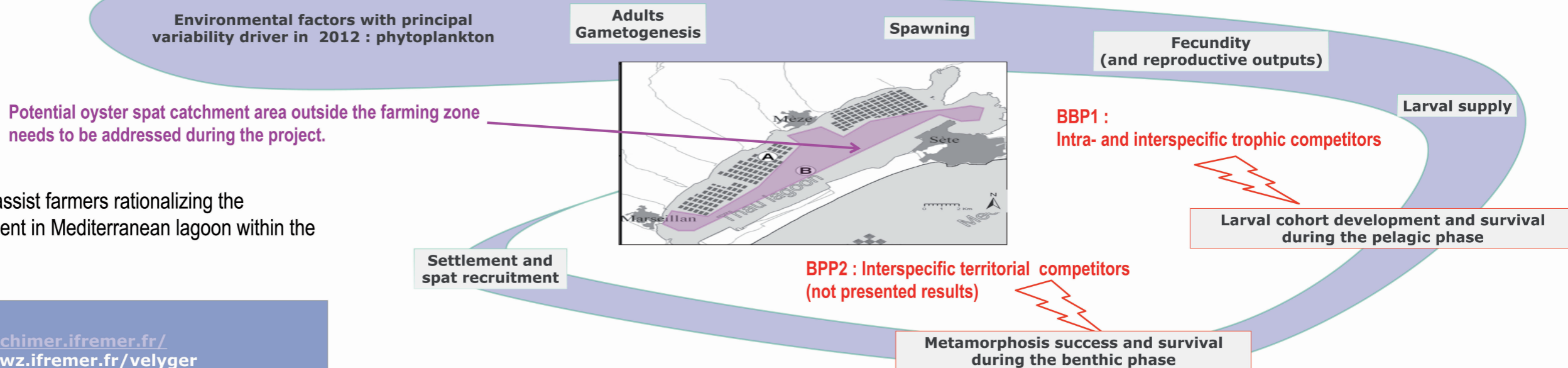
On average, more than 2700 spats per collector off-zones



Oyster larvae abundances in Bouzigues and chlorophyll data showed that spat recruitment improves with size-fractionated chlorophyll concentration in period B than in period A (3 times higher for particles >20µm and 1.6 times higher for 3µm-20µm fraction).

Food competition was identified as the first biological blocking point between adult oysters and zooplankton in shellfish-farming area during the larval pelagic phase with "phytoplankton" as limiting factor.

Our hypothesis is that the lagoon offers *Crassostrea gigas* various ecological niches with regard to lagoon confinement and established biocoenosis (shellfish farming areas vs. off-zones) giving **two biological blocking points** during the life cycle.



Potential oyster spat catchment area outside the farming zone needs to be addressed during the project.

Decision support tools are planned to assist farmers rationalizing the management of natural oyster recruitment in Mediterranean lagoon within the framework of PRONAMED II Project.