

EFFECT OF ENVIRONMENTAL DRIVERS ON THE REPRODUCTION OF THE PACIFIC OYSTER *Crassostrea gigas* IN THE MEDITERRANEAN: THE CASE OF THE THAU LAGOON

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The aquaculture of the oyster *Crassostrea gigas* is largely based on natural recruitment of the species on spat collectors along the french Atlantic coast, the remaining spat being provided by hatcheries and nurseries. Due to an increase in the climate/meteorological variability, during the last twenty years, the natural spat collection has become variable, from null to overabundant depending on the year. Since 2008, the oyster spat mortalities worsen the situation, reducing the available spat and increasing the cost of the latter. However, the temporal variability of the natural recruitment modalities in the Mediterranean do not allow the aquaculture industry to rely on native spats, making the understanding of natural recruitment in the Mediterranean a challenge for the future in order to fit the professional needs.

The present study aimed to define *C. gigas* spawning triggers within the Mediterranean, and to understand the conditions for recruitment success depending on year to day processes. To achieve this goal, the reproduction cycle from gametogenesis to spat collection was followed during two years in several locations inside and outside farming structures within the Mediterranean "Thau" lagoon. Besides the inter-annual variability of natural recruitment, oyster gametogenesis as well as larvae groups from little larval abundance, spatfall intensity and environmental conditions were followed at a weekly temporal resolution. Competition and predation were assessed within the studied period within the water column.

This work provides new insights in larval recruitment revealing punctual events such as wind or new moon (Fig. 1) as drivers for spawning and highlights the relationship between phytoplankton assemblages and recruitment success.

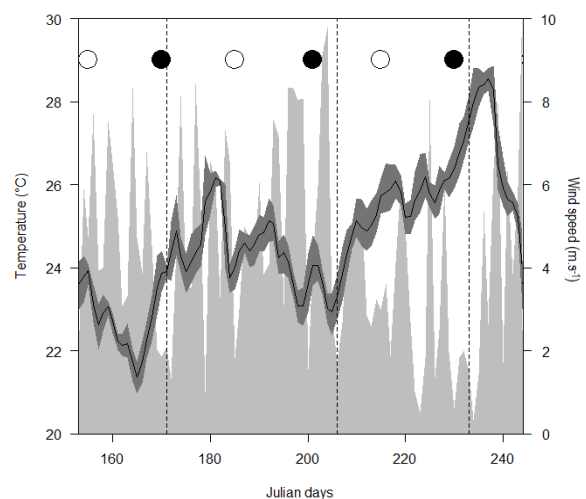


FIGURE 1: Relationship between some environmental variables during the reproduction season of the species *C. gigas* within the Thau lagoon during the year 2012. Temperature is represented as a curve with the associated temperature daily range in dark grey. Wind intensity is represented with light grey. Spawning events are represented by dotted lines. Full and new moons are represented respectively by white and dark circles.