

# Evidence of small-scale variability in food source partitioning between cultivated Pacific oyster (*Crassostrea gigas*) and its potential competitors

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Shellfish farming is known to affect benthic environment in general and benthic community species composition in particular. Oyster culture structures and oyster shells provide hard substrates for many suspension-feeding epibionts, considered as potential competitor for food with cultivated oysters. In this study we addressed two main questions:

1 – Is there a true competition for food between cultivated oysters and wild suspension feeders associated with?;

2 – Is there a spatial variability in these trophic interactions?

Sessile epifauna associated with oyster culture was sampled in an estuarine ecosystem dominated by cultivated bivalves, La Baie des Veys (Normandy, France). We used analysis of both carbon and nitrogen stable isotopes in organisms sampled all over the area covered by oyster farming.

Results showed that two spatial scales should be considered to understand ecosystem food web functioning. Using a punctual approach, stable isotope ratios analyses indicated that a competition occurred essentially between oysters *Crassostrea gigas*, mussels *Mytilus edulis* and barnacles *Elminius modestus*. Others species (serpulid *Pomatoceros lamarckii*, ascidia *Asciidiella aspersa*, terebellid *Lanice conchilega* etc.) showed larger differences in  $\delta^{13}\text{C}$  and/or  $\delta^{15}\text{N}$  and had probably different diet than oysters. Nevertheless, we noted an interesting change in trophic relationships between the same species according to the sampling site; relationships of two species with regard to organic matter may change at small scale. Despite their common trophic guild (i.e. suspension feeders), the present study clearly provide unequivocally example of food source partitioning in marine shellfish invertebrates.

**Key words:** oysters – sessile epibionts – trophic web – food competition – stable isotopes – small-scale variability