Coexistence of Pacific oyster *Crassostrea gigas* (Thunberg, 1793) and blue mussels *Mytilus edulis* Linnaeus, 1758 on a sheltered intertidal bivalve bed? - DTU Orbit

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The invasive Pacific oyster, *Crassostrea gigas* Thunberg, 1793 was introduced in Denmark for aquaculture in the 1970s. Presently, feral populations are found in many parts of the country, with the largest populations established on existing beds of blue mussel, *Mytilus edulis* Linnaeus, 1758. This study was conducted in the Limfjord estuary, at Agger Tange, where *C. gigas* was introduced in 1972. The study site is a large cluster of raised intertidal bivalve beds inhabited by *C. gigas* and *M. edulis* in a sheltered part of the estuary. The two bivalves have some of the same living requirements, and as *C. gigas* have been present in the ecosystem for more than 40 years, we hypothesize that the presence of *C. gigas* has altered the spatial and temporal distribution of *M. edulis* by inducing a niche separation. The spatiotemporal development of the bivalve bed was determined using orthophotos. *C. gigas* and *M. edulis* were collected from the bivalve bed, shell lengths were converted into biomass, which were interpolated to create biomass contours and combined with modelled topography of the bivalve bed to study niche separation. The bivalve bed slowly extended northwards over a period of 11 years, where it also became more fragmented. The northern part of the bed was composed of mussel mats on top of soft sediment. This area was dominated by *M. edulis*, while areas in the south were dominated by *C. gigas*. In the southern part, the bivalve bed was composed of thick and compact sediment suggesting it represent the oldest part of the bivalve bed. There were no differences in the conditions of *C. gigas* and *M. edulis* from old or newly established areas, and there were no difference in the vertical distributions of the bivalve species. Thus, spatial and temporal separation of the two species is not pronounced at present, and thus unable to explain why they seemingly coexist.

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