

# INNOVATIVE OFFSHORE MUSSEL FARMING IN THE BELGIAN NORTH SEA

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## Why offshore mussel farming?

- + There's no nearshore space available (no bays, tourism, etc) .
- + Belgian fisheries have severe difficulties (high fuel & low fish prices, limitations in landings) and is looking for other production methods and diversification.
- + Mussel spat is freely available in the sea and attaches naturally on the ropes.
- + Mussels are growing very fast in the North Sea (fig. 1).
- + Almost no fouling or predators.
- + Very little maintainance.
- + The Belgian offshore mussel is an exclusive product taste, texture, and meat quantity per shell).

## What makes it so difficult?

- The use of traditional longlines is not practical due to the rough sea conditions and intense traffic in the North Sea.
- Cage structures protect the ropes from these factors but are very heavy and therefore difficult to handle.
- The rough character of the North Sea limits the number of working days on sea, which obstructs a regular supply of mussels to the customers.
- Mussel production areas (fig. 2) are located far from the shore, which increases shipping costs.



## Mussel quality

- Offshore mussels have no parasites (Buck *et al.*, 2005; Buck, pers. comm.)
- The offshore mussels have a lower pesticide (fig. 3), PCB and heavy metal load than their nearshore relatives.
- Bacterial load can change very quickly probably due to bird faeces, dredge dumping and/or runoffs during heavy rainfalls.
- The amount of harmful algae never exceeded the norms, but monitoring has not been carried out in spring yet.
- Not all mussel areas are equal. D1 gives the best results, whereas Oostdyck gives no growth at all and Westhinder has less but bigger mussels.

## Offshore shellfish future

- The combination of offshore windmill farms (e.g. Thorntonbank) and shellfish cultures could be a compensation for the loss of fishing grounds.
- Other species (flat oyster, scallops and algae) could be grown in combination with mussels. Oyster and scallop spat can be obtained from land-based hatcheries.
- Improvement of the growing and harvesting techniques could reduce production costs.
- The use of submerged longlines in well defined areas might be an answer to the heavy cage structures.

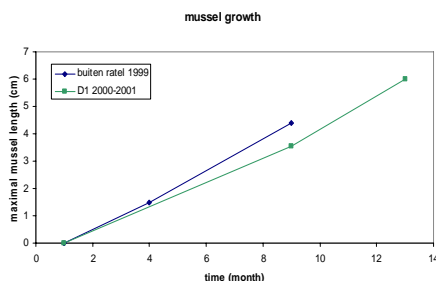


Fig. 1. Mussel growth at Buiten Ratel and D1 in 1999 and 2000-2001.

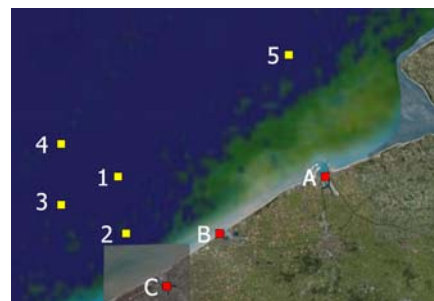


Fig. 2. The experimental area "Buiten Ratel" (1) and the contemporary areas D1 (2), Oostdyck (3), Westhinder (4) en Thorntonbank (5). A, B and C are the places Zeebrugge (A), Ostend (B) and Nieuwpoort (C).

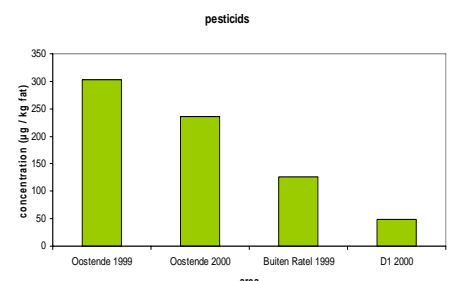


Fig. 3. Total pesticide load of near-shore (Oostende) and offshore (Buiten Ratel and D1) mussels.

### Reference:

Buck BH, Theiliges D, Walter U, Nehls G, Rosenthal H. 2005. Inshore-offshore comparison of parasite infestation in *Mytilus edulis*: Implications for open ocean aquaculture. *Journal of Applied Ichthyology* 2: 107-113

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