

BLUE MUSSEL CULTURE: DOES OFFSHORE CULTIVATION LEAD TO INCREASING PRODUCT QUALITY?

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Offshore production offers a new perspective for mussel culture in the German Bight (North Sea) as no expansion is possible in the intertidal and subtidal zone of the Wadden Sea due to restrictions on the number of licenses and environmental protection. The development of offshore wind farms offers a unique opportunity to co-use and co-manage large marine areas. Furthermore, groundings of wind mills are perfect structures for mooring culture systems to deal with the strong hydrodynamic conditions in the German Bight.

Former investigations showed that the basic biotic conditions in many parts of the German North Sea are given to cultivate different candidates (e.g. seaweeds, oysters or mussels) under offshore conditions. In a new project “MytiFit” financed by the government of Bremen (Germany) and the Alfred Wegener Institute for Polar and Marine Research in Bremerhaven (Germany) the culture potential and the response of the blue mussel (*Mytilus edulis*) under offshore conditions will be investigated in detail. The focus of this project will be the overall health of the candidate, regarding the loads of micro- and macro parasites, shell-stability, attach ability of mussels using different artificial substrates and its lysosome membrane stability of the digestive gland cells as an indicator of the overall energy status of the mussel. In a test field 17 nautical miles off the coast from the city of Bremerhaven three test moorings with large buoyancy (Fig. 1) will be deployed to test the described parameters in different water depths. Collectors of different style and surface material are fixed to ferrules around the body of the buoy.

Offshore areas are far away from urban sewage and estuarine runoff, which result in a continuous supply of clean water with good O₂-conditions. Furthermore, the concentration of pollutants, pesticides and near-surface agents can be considered to be minimal. One can assume that organisms living under good water conditions accumulate less toxins, have a less stressed immune system and a minor infestation of parasites. Therefore, mussel grown under offshore conditions should have a better health status than mussels grown in near- and inshore areas. Additionally, the good health status should result in a higher growth rate and yield to a qualitatively better product for human consumption. Rapid growth and best product quality are the premises to compensate higher investment costs for the culture systems compared to traditional bottom culture techniques.

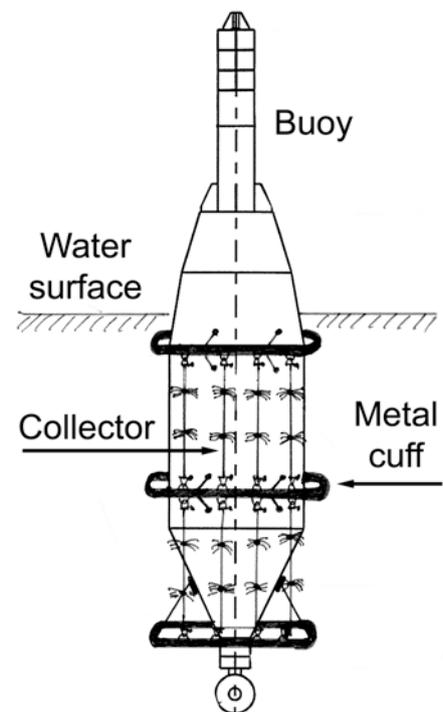


Figure 1. Offshore test buoy displaying vertical collectors.