

## No water safety or environmental risks

Our client has years of practical expertise in the aquafarming.

The Producers Organization of Mussels in The Netherlands plans to go offshore and develop a test mussel farm in the Voor-Delta, the group of banks and shoals west of the coast of Zeeland. Initially, our client submitted a report for approval to Rijkswaterstaat which was based on calculations using a more simplistic and straight forward approach which is common in the sea farming industry. However, the calculations using this traditional approach did not work and therefore did not get approved by Rijkswaterstaat. It is because of the challenging environmental conditions of the Dutch coastal area that combined fairly high waves, high current speed and shallow waters which made it difficult to provide a catenary line. For this reason, MULTI.engineering teamed up with our sister company MarIdea to perform the engineering verification for this Sea Farm project.

**NO ENGINEERS, NO FUTURE !**



### CLIENT

- Since 1924, "Machinefabriek Bakker B.V." (Baker) designer and constructor of special machines and installations for the shellfish sector.
- Bakker is located in a unique location right on the water at the head of the port of Yerseke.



### PROJECT

Developing a test mussel farm in the Voor-Delta



### LOCATION

Zeeland



### MULTI SERVICES

Performing the engineering verification for this Sea Farm project using time-domain simulations, to determine the extreme loads on the main structural components of this test



## OUR EXPERT TALKING ABOUT THE PROJECT

“MULTI.engineering teamed up with our sister company Marldea to perform the engineering verification for this Sea Farm project using time-domain simulations, to determine the extreme loads on the main structural components of this test farm, including Drag anchors, Mooring lines (chain), Bridles lines, Backbone and Interconnecting shackles.

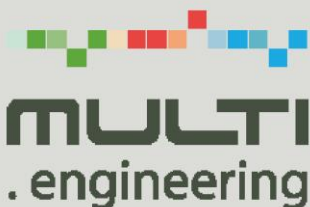
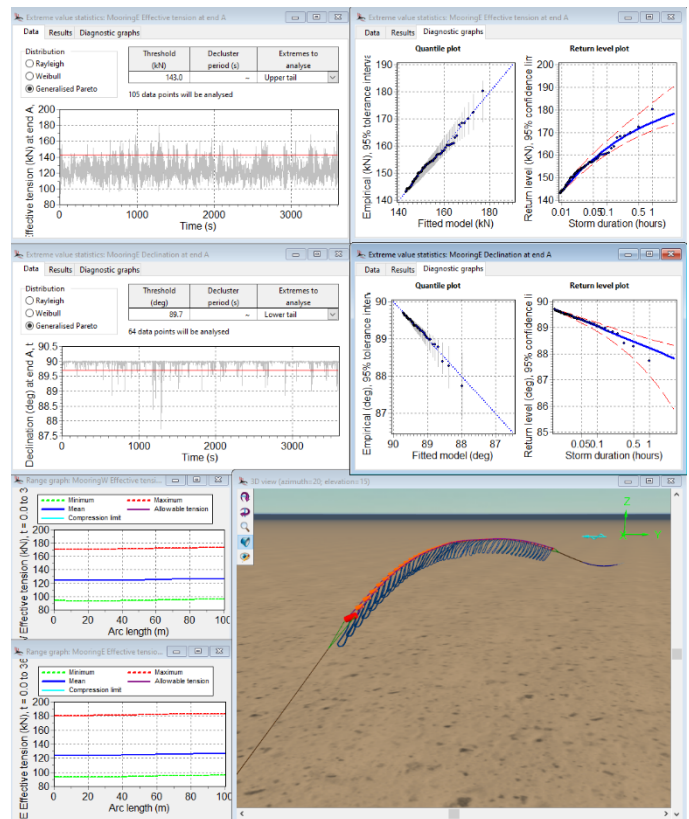
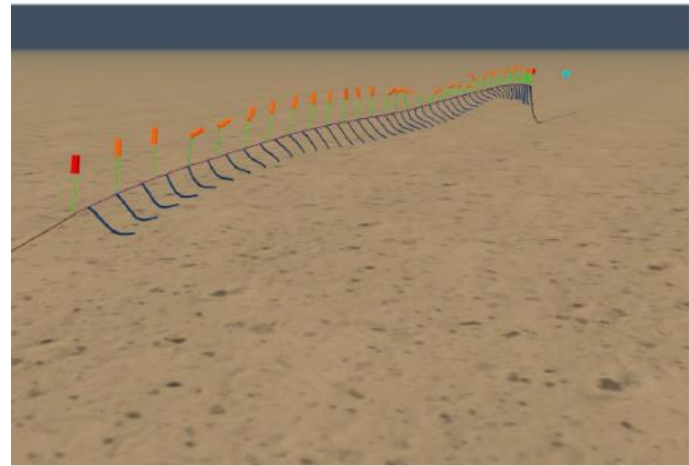
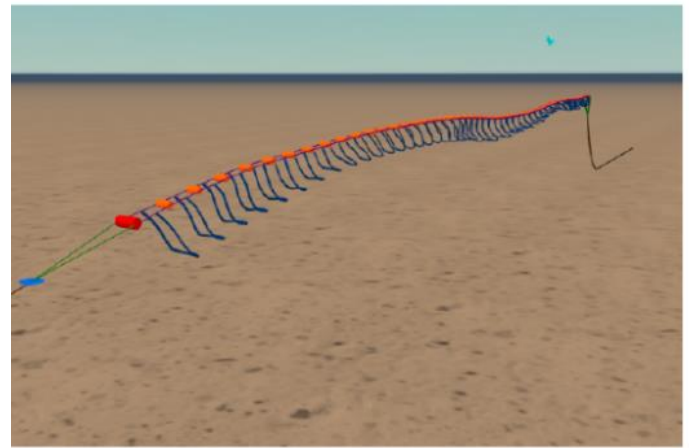
Two options were explored: a dual backbone and a single backbone system. The dual backbone system float on the sea surface while the single backbone is about a few meters below the sea surface.

Although it was initially intended to judge only the forces in parallel current and wave, during the engineering works it became clear that perpendicular environments might be governing. The challenging environment with high current speeds at limited water depth and resulting uplift on the anchor lines required a more complete calculation using OrcaFlex, which otherwise would result in over conservative structural components.

To improve the confidence in the maximum anchor loads, these loading conditions were further investigated. All the engineering was performed in close cooperation with our client, who has years of practical expertise in the aquafarming.

In the end, we provided a complete package with all the relevant specifications, certificates, etc. of all structural components in the report and discussed available standards and sea farming codes, and their applicability in defining safety factors for the different components. As a result, the client was given approval by Rijkswaterstaat using the work we performed, as the calculations we provided as part of our report were at a level that gave confidence to Rijkswaterstaat that there would be no water safety or environmental risks associated with the project.”

Tom Jacob, Project Manager MULTI.engineering



MULTI.engineering is an engineering company, we support customers' success by offering flexible engineering solutions. Working with us is always a great experience!

### CONTACT US

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