

BROUWERS ISLAND

DESIGN CONDITIONS AND HYDRONAMIC STUDIES

Zeelenberg Architectuur and Boskalis are developing Brouwers Island; a land reclamation project in the west of Lake Grevelingen. Brouwers Island will be a sustainable marina of the future in combination with luxurious beach houses. Boskalis asked Svašek Hydraulics to establish the environmental design conditions (like wind, waves, currents and water levels) and to conduct a numerical wave penetration and current study.

Lake Grevelingen is a former sea arm of the North Sea that was closed in 1971. It is the biggest salt water lake of Europe. The project consists of an archipelago of islands separated by shallow creeks and marshland at the west side of Lake Grevelingen, next to the closure dam. Due to a small tidal inlet in this closure dam the tidal movements in Lake Grevelingen are limited to some 5cm. Based on the wind statistics of a nearby station the wave climate at the project site is determined.

With the numerical wave model HARES the wave penetration into Brouwers Island is determined for the 1/10 and 1/100 year wave conditions.

Currents in and around Brouwers Island are originated by the wind and the limited tide. With the numerical model FINEL2D these currents are modelled

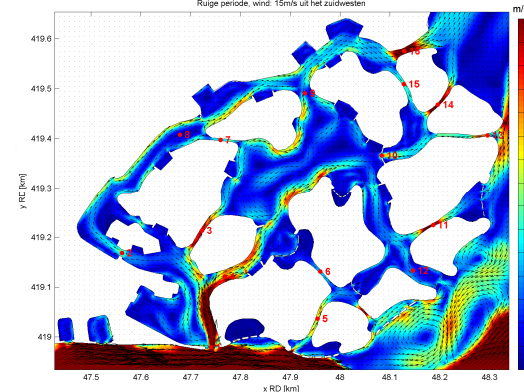
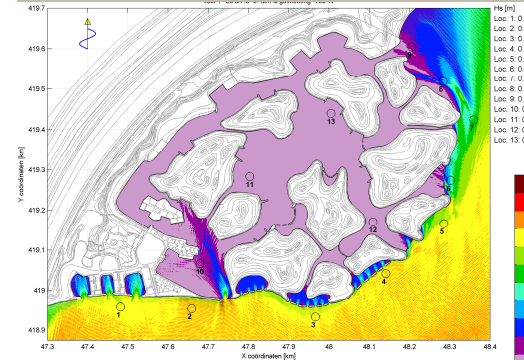
Stagnant water inside Brouwers Island might be a problem. To investigate the possibility of stagnant water the currents are modelled for a (very low) constant wind speed of 2 m/s. With use of particle tracking the circulation of the water is made visible.

CLIENT
Boskalis / Hydronamic

LOCATION
Lake Grevelingen, the Netherlands

DATE
2014

SERVICES
Establishing design conditions
HARES wave penetration modelling
FINEL2D current modelling



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