



Bathymetry measured with 200 kHz echosounder.  
Bed level is in m below NAP.

## Design of recreational beach, Enkhuizen

Recreational beaches along the IJsselmeer coast just north of Enkhuizen have been eroded a number of times in the last decades. As a part of their development plans of that part of the IJsselmeer coast, the municipality of Enkhuizen wishes to construct a recreational beach once more. In order to minimise the maintenance costs of this recreational beach, Enkhuizen has asked Svašek Hydraulics to design such a beach including the required protection.

The basis of this design process was a bathymetrical survey performed with a dual frequency echosounder. The figure above depicts the bed level (in m relative to NAP) obtained with the high frequency echosounder. This bathymetrical data was used to:

- Identify morphological processes (where has the sand of the previous beaches gone to?)
- Set-up a SWAN wave model to arrive at the local wave climate
- Compute the sand volumes involving the proposed beach layout

The local wave climate coupled to a simple sediment transport formula indicated, among others, the equilibrium beach orientation. This orientation was used to arrive at a beach layout design.

It appeared that a beach design solely based on the equilibrium orientation was not feasible (too much sand is involved). Therefore the beach is designed with the equilibrium orientation where possible whereas the remaining stretches are protected by offshore breakwaters having an orientation equal to the equilibrium orientation.

**Client**  
Municipality of Enkhuizen

**Location**  
Enkhuizen

**Date**  
2007

**Services**  
Bathymetrical survey  
Beach design  
SWAN wave modelling

### Svašek Hydraulics

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