

# From sand to land



## The Sand Engine 18 January 2011

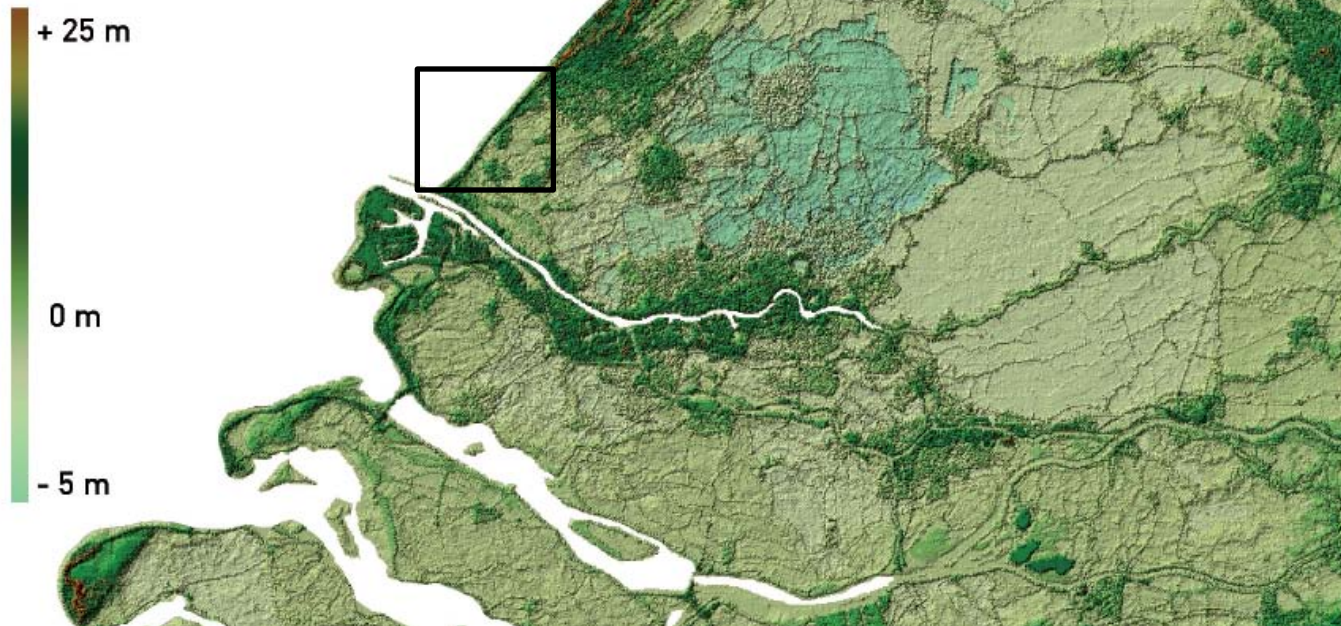
*Martin Baptist, EcoShape*



# Brief history

## Province of Zuid-Holland

Below sea level  
Rising sea level  
Fiercer storms  
More rain





# Location Delfland



# Sand nourishments

Types: beach / foreshore / mega-nourishment





# Aim of the Sand Engine pilot

Short term

Innovation

Knowledge development  
and dissemination

More efficient  
coastal maintenance

Room for nature  
and recreation

Long term

Protect nature and  
environment in  
the Randstand



# “The Sand Engine”

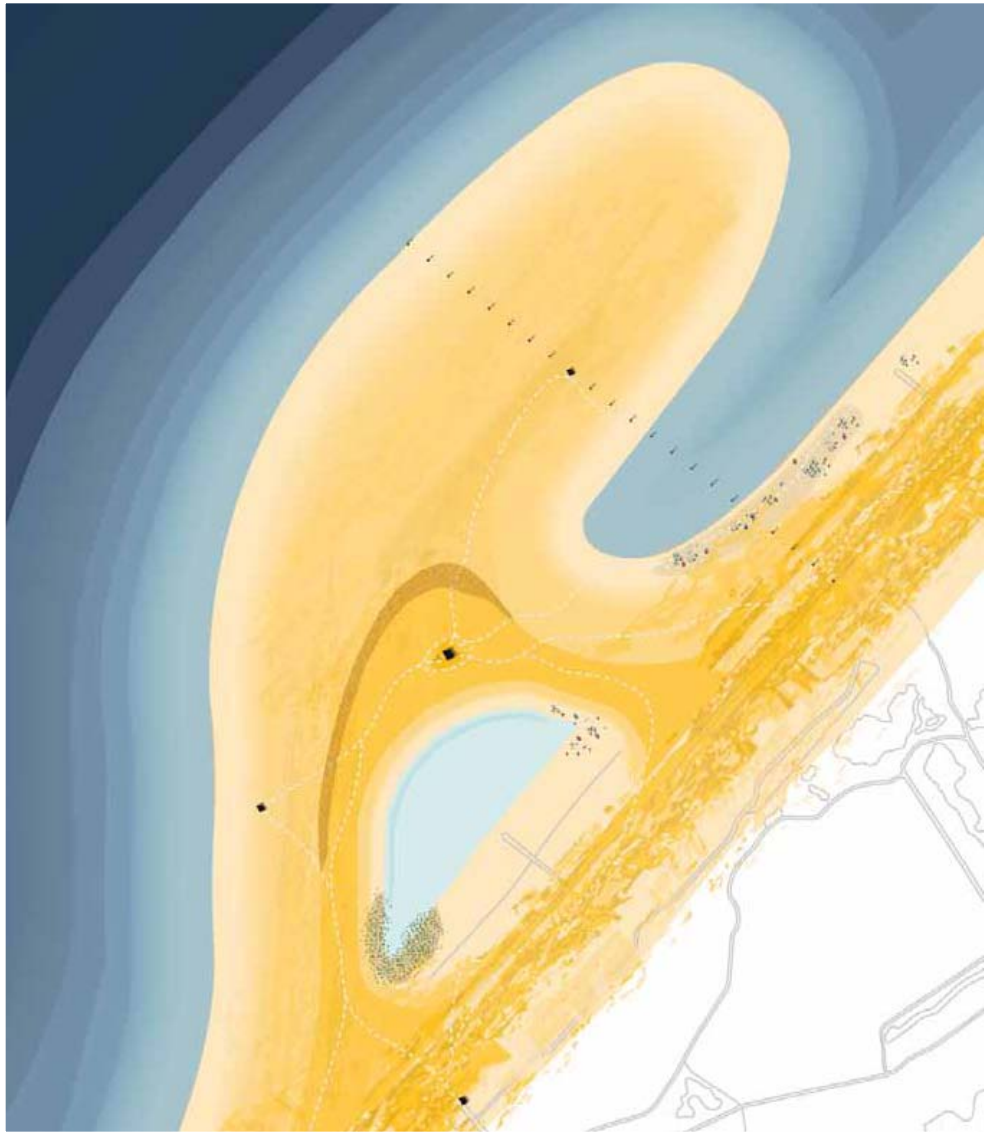


20 million cubic metres sand = 100 hectares land





# Design Sand Engine

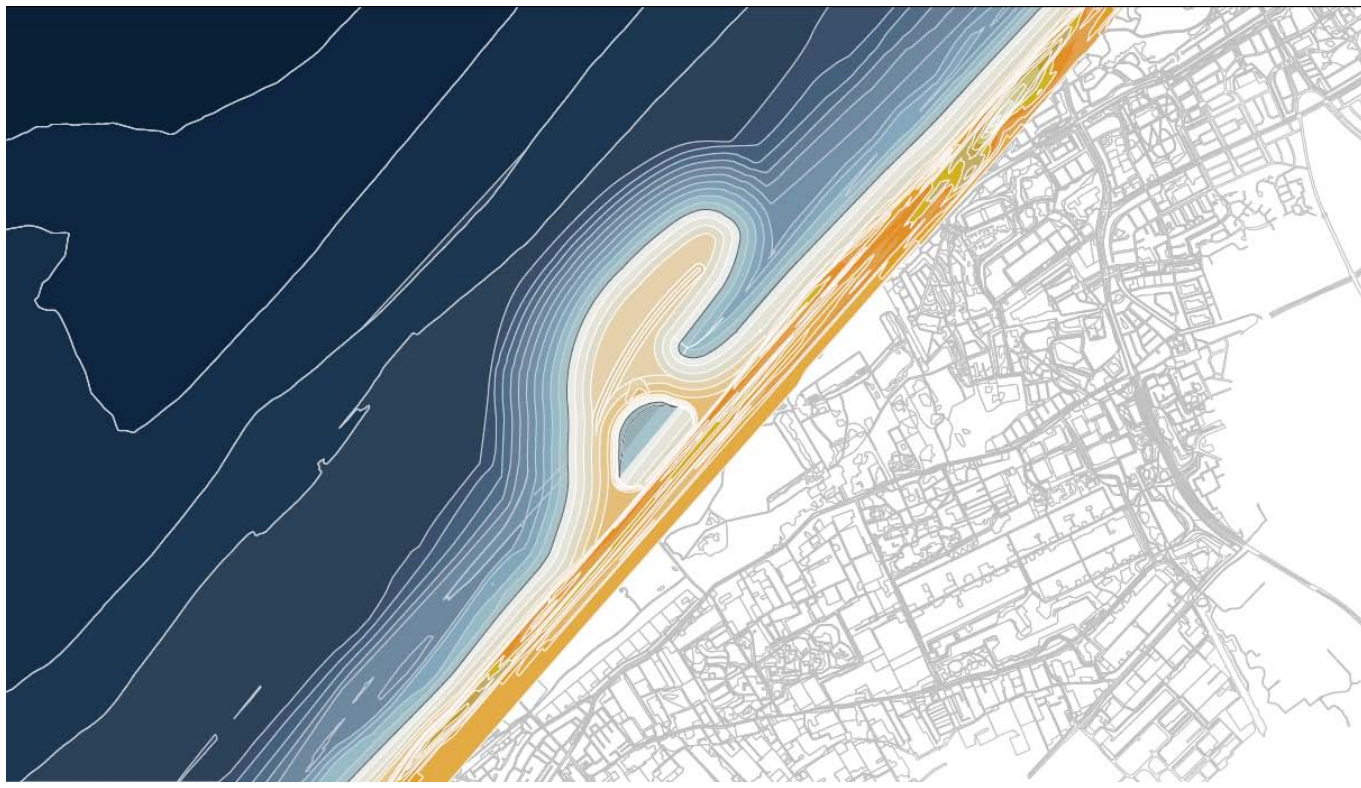


1. Diverse habitats
2. Recreation
3. Flood safety



# Morphology

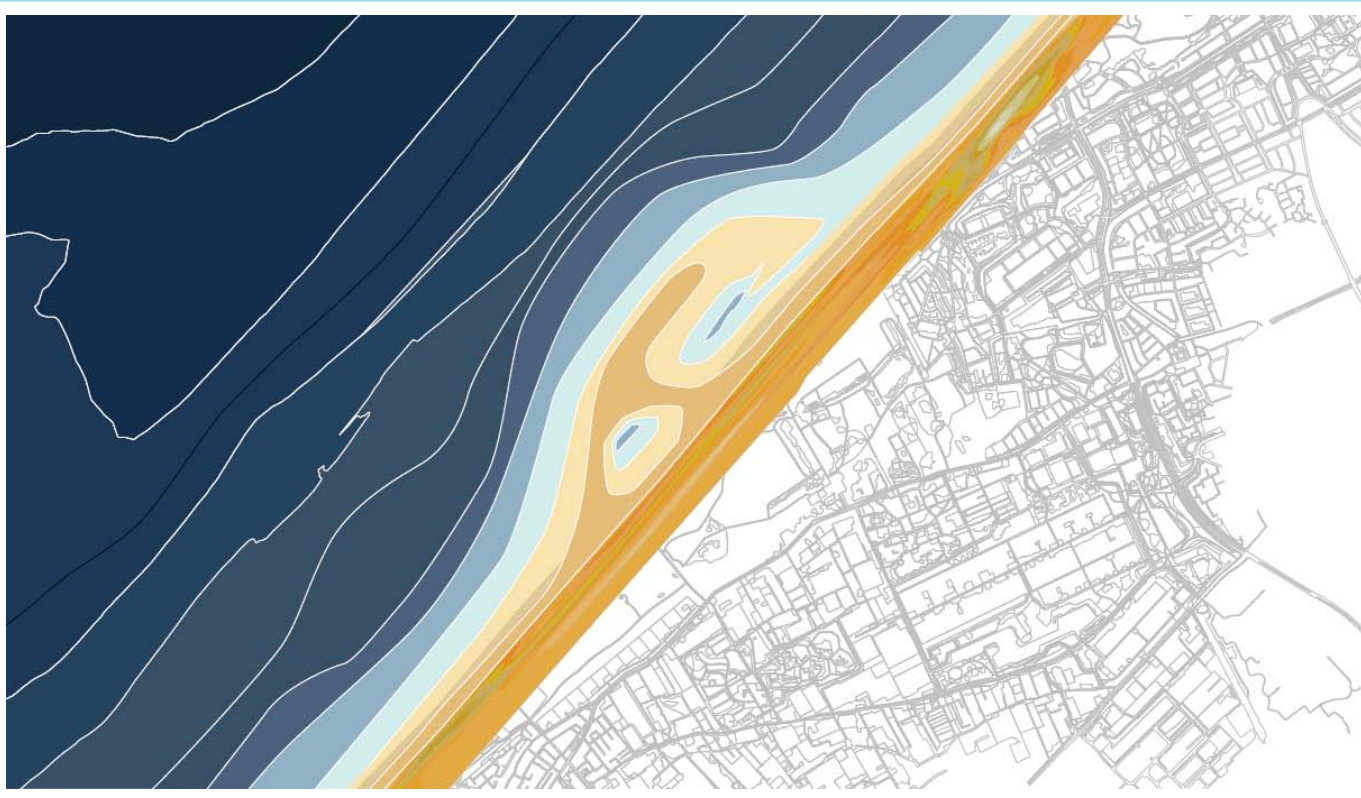
## Start of construction





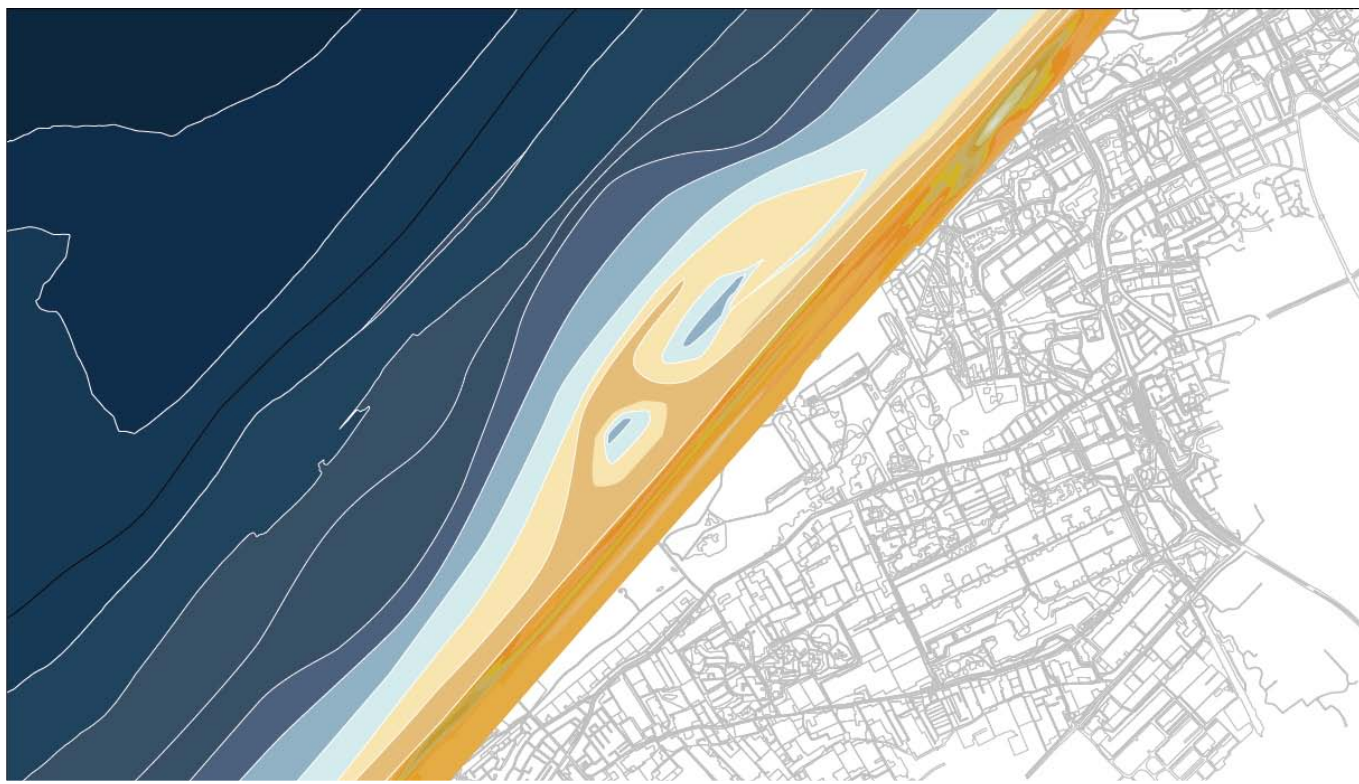
# Morphology

After 5 years



# Morphology

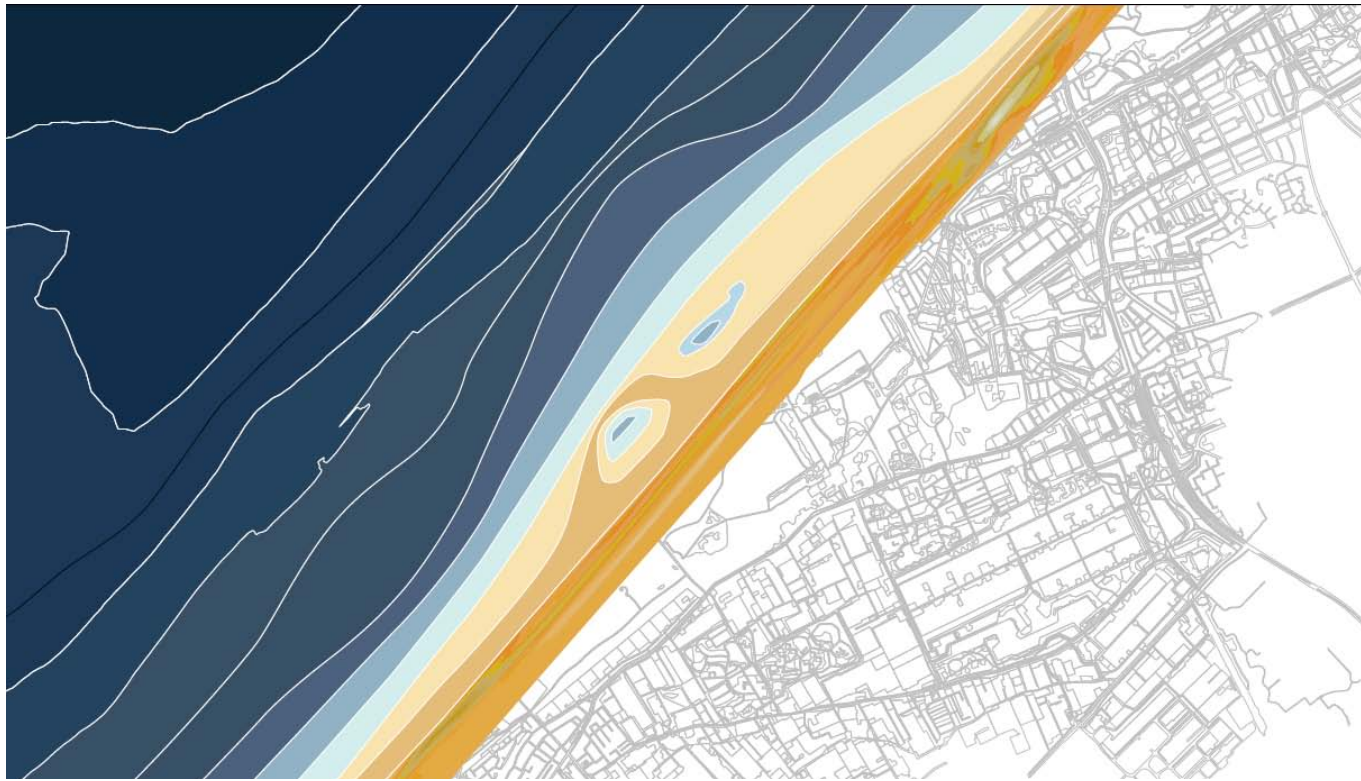
After 10 years





# Morphology

After 20 years



# Monitoring goals

Gather information for good and safe management

Fulfil permit conditions

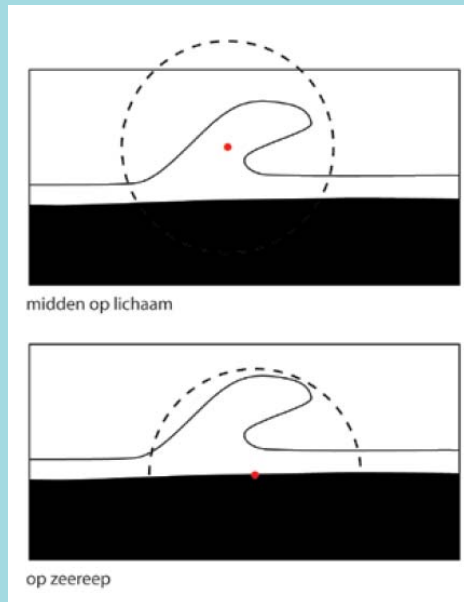
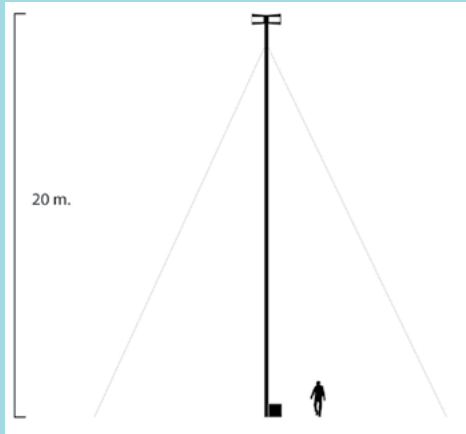
Investigate whether the EIA targets are being achieved:

1. Natural dune expansion
2. Knowledge development and innovation
3. Attractive recreational and natural environment





# Monitoring: approach



- Climate and waves
- Profile of foreshore, beach and dune
- Sediment composition
- Groundwater levels
- Sand and salt spray
- Beach and dune vegetation
- Benthos, fish, sea birds and sea mammals
- Recreation and swimmers' safety
- Management and risk control



# Organisation



Projectbureau Pilot Zandmotor Delflandse Kust  
(Project Bureau Sand Engine Delfland Coast)



Rijkswaterstaat  
*Ministerie van Verkeer en Waterstaat*

The Zandmotor is part of the programme Kustvisie Zuid-Holland and initiative of the Province of Zuid-Holland and Rijkswaterstaat.

[www.kustvisiezuidholland.nl](http://www.kustvisiezuidholland.nl)





# Partners



Gemeente Den Haag



Hoogheemraadschap van Delfland



Zuid-Hollands Landschap



milieufederatie  
ZUID-HOLLAND

