

# **'Doing nothing' to maintain the dunes on Ameland does not affect coastal safety**

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'Dynamic coastal management' has been used to maintain the dunes in several areas on Ameland since 1990. In other words, nature has been allowed to take its course and few interventions have been made. Research carried out by Alterra, Wageningen University and the Nature Center Ameland has shown that this strategy does not compromise safety.

## **Very little known about types of dune management**

Nearly half the population of Europe lives within 50 kilometres of the coastline. Coasts are often the nub of vital economic activity. The total length of our coastlines is almost 90,000 kilometres. Securing the land behind them can be an enormous job, particularly in view of rising sea levels. Much of the coast is protected by dunes, which provide a natural line of defence. However, very little is known about their natural development under different types of management, despite their immense importance to a country like the Netherlands. The Dutch dunes not only protect the coast, they are also an important part of various ecosystem services, such as drinking water supplies, recreation and conservation.

## **Customary approach and dynamic dune management**

Alterra, Wageningen University and Nature Center Ameland carried out research into two types of dune management: 'soft engineering' and 'dynamic [coastal management](#)'. Their results were recently published in the Journal of Coastal Research. Soft engineering refers to the customary type of coastal management, whereby sand is replaced on the seaward side of the dunes in order to strengthen or maintain them. Sand fences are then erected and marram grass planted. Since 1990, dynamic coastal management has become increasingly popular in the Netherlands. This approach involves allowing natural processes to take place undisturbed, as long as safety is not compromised. These processes are sometimes actively stimulated in a strategy known as 'building with nature'.

## **Research on Ameland**

The study was carried out in East-Ameland, where Alterra has already

spent many years researching the impact of soil subsidence caused by gas extraction by the NAM. "We studied the effects of dynamic coastal management introduced in two areas in 1995 and in 1999," says Alterra researcher Pieter Slim. "We looked at the way the beach and the dunes developed before and after the introduction of dynamic coastal management. Using data from 1980 to 2010, we analysed all the relevant information, including the development of the position of the toe, the top and the slope of the dune, the sand volume, the shape and width of the beach, the water level, wave height and the like."

## Just as safe to 'do nothing'

The study showed that the introduction of dynamic coastal management, with a minimum of dune maintenance, had no negative effects on the way the dunes developed. Dune growth rates were the same, while the toe of the [dune](#) evolved more naturally. Heavy storms sometimes had a negative impact on vegetation development in the foredunes, but subsequent recovery was the same whether dynamic coastal management or the customary approach was used. The coastal strips of dunes grew autonomously. Dynamic coastal management does not therefore reduce coastal safety.

**More information:** Bart De Jong, Joep G.S. Keijsers, Michel J.P.M. Riksen, Johan Krol, and Pieter A. Slim (2014) "Soft Engineering vs. a Dynamic Approach in Coastal Dune Management: A Case Study on the North Sea Barrier Island of Ameland, The Netherlands." *Journal of Coastal Research*: Volume 30, Issue 4: pp. 670 – 684.

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