

Report
Ecological Research Elastocoast
Dutch Pilot Locations Petten and the Zuidbout



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Location Petten (Noord-Holland), 25-04-2009

The dike was last visited for ecological monitoring on June 17th, 2008. At that time, the Elastocoast layer was almost fully covered with Purple laver (*Porphyra Umbilicalis*), and Gutweed (*Blidingia minima*), which seemed to dominate in different areas. Also birds were present, the common oystercatcher (*Haematopus ostralegus*) and the seagull (*Larus spp.*) were foraging on the dike.

On april 25th, 2009 the dike was mainly covered with mussels (*Mytilus edilus*), which formed a dense layer on Elastocoast. Some areas however, were not covered with mussels and formed a distinct gap in which the Elastocoast layer was clearly visible. Taking the density of the mussels in consideration it is quite likely that mussels were also present here, but have disappeared because of some kind of disturbance. Erosion of the polyurethane was also visible here.

Also patches of *Blidingia minima* were present, and few places were covered with *Fucus Spiralis*. Purple laver was no longer present. Algal coverage was still quite zoned, mostly the areas directed towards the sun were covered. Another animals which has occupied the Elastocoast is the barnacle. Numerous of these animals were seen on the parts of the layer not covered with mussels and between algae.

The pores of the material were still filled with sand and parts of shells. Isopods were found in the pores, burrowing in the sand. It is likely more organisms have occupied the pores.

Location the Zuidbout (Zeeland), 26-04-2009

The dike was last visited for ecological monitoring on June 17th, 2008. At that time, *Blidingia minima* was the dominant species, and occurred in large patches. There was a strong zonation of these algae, both horizontally and vertically. Some patches were occupied with *Fucus spiralis* and *Enteromorpha compressa*. Many snails (*Littorina spp.*) were found.

On April 26th, 2009 there still was a strong vertical and horizontal zonation on the part of the dike which has been refurbished with Elastocoast. Seen from the top, the vertical zonation is marked by *Blidingia minima* and *Fucus spiralis*, which forms a very sharp boundary with the zone below (which is occupied by many snails and barnacles).

Horizontally, there are areas which show the vertical zonation, and areas which hardly have any vegetation at all (although snails and barnacles are found all over the lower part of the Elastocoast layer). Especially on the most southern part of the dike vegetation has recovered. On this part of the dike the slope is less steep than the slope further towards land. Steeper slopes can result in higher (wave) dynamics, which in turn can result in less favourable circumstances for algal attachment. This is probably seen on the northern areas (more towards the land) of the dike. The effect of dynamics is perhaps also seen on areas where the Elastocoast layer changes in thickness. It is possible that waves are being 'bounced back', creating more difficult circumstances for algae to attach on the layer.

Also differences in substrate may be a cause for horizontal zonation. On areas where a lot of sand has been distributed and where Vilvoordse rock was placed on top of the Elastocoast layer show a better recovery of vegetation. This makes the surface of Elastocoast less smooth, creating better circumstances for algae to attach.

Next to the Elastocoast layer (on the northern part) were the top layer is Vilvoordse rock and existing vegetation also had been removed, vegetation has fully recovered. However, on the Elastocoast layer next to this area of Vilvoordse substrate has not recovered.

Conclusion

Vegetation has further recovered on the Elastocoast layer of the pilot locations. In Petten, the dense coverage by mussels is remarkable. On the Zuidbout it is possible that differences in dynamics cause the horizontal zonation seen on the Elastocoast layer. To test this hypothesis, further research is necessary. Also, to get a clear picture of vegetation recovery on Elastocoast further monitoring is necessary.