Ecology under development at the HPZ

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2009

2015

Low dune along the sea
Dune valley in between
High dune against the old dike

40Mm3
Nourishment in process of completion
2015

Old dike, considered no longer safe
(2004)

What ecology?
Ongoing vegetation research

- Transects (5) and permanent observation plots (50)
- Yearly vegetation surveys
- Soil material analysis (grain size, organic content (ca. 0), pH, geochemistry, CaCO3 (>2%), etc.) in each PQ, once only
- Yearly vegetation structure map (for Van Oord)
Results

• Grainsize (average larger) and CaCO3 gradients (average lower) from south to north; reflects on species richness and on vitality class
• Rapid and wide-spread increase in cover of embryonic dunes on the high beach
• In dune valley, specific salt tolerant vegetation with rare species
• Low and high dune: flourishing en decline of planted Marram grass depending on sedimentation rate of fresh sand from the beach
Results: rapid overall increase number of plant species

Different types of pioneer vegetation (planted/spontaneous)
The Old Dike and High Dune (land side)

- Old dike: more sheltered, less salt spray, increase in density/species number of a.o. eutrophic plants, source of plant seeds for the new HPZ
- High dune: Sea buckthorn shrubs developing, slow growth of other planted shrubs, strong south to north gradient in vitality (declining)
The High Dune (middle part)

• Marram grass plant pattern still present; less vital growth; will die off over time; take-over by “Grey dune” species
• Very slow colonization of intentionally unplanted zones
High Dune: sea front dune

• Upper reaches receive less sand: less vital growth, some formation of shallow blow outs
• Closest to the beach: very vital growth (> 50 cm sand trapped in vital Marram grass/yr)
Dune valley

- At first slowly, but now rapidly freshening
- Rapidly narrowing due to sedimentation of beach sand, especially in the south
- Some rare plant species appearing
Embryonal dunes on the beach

- Wide beach-low gradient
- Rapid spreading of new embryonal dunes with good quality vegetation
- Really natural vegetation> bonus!
- New coastal dune in the making
Thank you for your attention!

Conclusions:
• Planted vegetation = temporary vegetation
• The real gain for nature is likely in the embryonal dune zone
• Second may be the dune valley once it gets a more natural topography (colonization by dune plant species takes time!)

the Ecoshape team