

## Introduction and problem statement

Most migratory waders, passing the Netherlands rely on the South-Western delta for their survival. The Schorerpolder has been acquired by the port authority, North Sea Port, to serve as nature compensation for the future harbour expansion.

## Relevance to society

By transforming the Schorerpolder into an intertidal area, it is possible to add natural but also cultural value. This change provides the opportunities for maintaining genetic variety and habitat as well as restoring the historical identity and allowing research and education, while developing an image for the port.

*“To what extent, can the designs of the Schorerpolder area meet the requirements for foraging of red listed estuarine waders and shelducks in order to facilitate an increase in population in the South-Western delta?”*

## Tidal range and target species

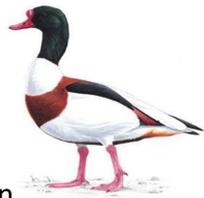
A large tidal range increases the size of the sediment plain, which gives estuarine waders more area to feed on mudflats. This is crucial for the smaller species of waders as their required feeding time can be up to 13 hours per day. The target species are selected by looking at the IUCN red list status and their reliance on the Western Scheldt.



**Eurasian Curlew**  
IUCN: Least concern  
Site specific: Fluctuating



**Bar-tailed Godwit**  
IUCN: Near threatened  
Site specific: Stable



**Common Shelduck**  
IUCN: Least concern  
Site specific: Increasing



**Sanderling**  
IUCN: Least concern  
Site specific: Decreasing



**Eurasian Oystercatcher**  
IUCN: Near threatened  
Site specific: Low but stable



**Northern Lapwing**  
IUCN: Near threatened  
Site specific: Increase



**Red Knot**  
IUCN: Near threatened  
Site specific: Decreasing

| Parameter          | Open connection | Controlled tide     | Separated function  | Combined perspective |
|--------------------|-----------------|---------------------|---------------------|----------------------|
|                    |                 |                     |                     |                      |
| <b>Tidal range</b> | Unchanged       | Reduced             | Reduced             | Reduced              |
| <b>Preference</b>  | Best Option     | Intermediate Option | Intermediate Option | Worst Option         |

## Ranking the alternatives

The area best suitable for this proposal is alternative 1, open connection. This layout allows a tidal pattern with a long dry fall period which is preferable for all target species. Introducing a canal decreases the low dynamic area thus second, is alternative 2, with less ideal circumstances. The combined perspective is least preferred when looking in to bird foraging requirements.

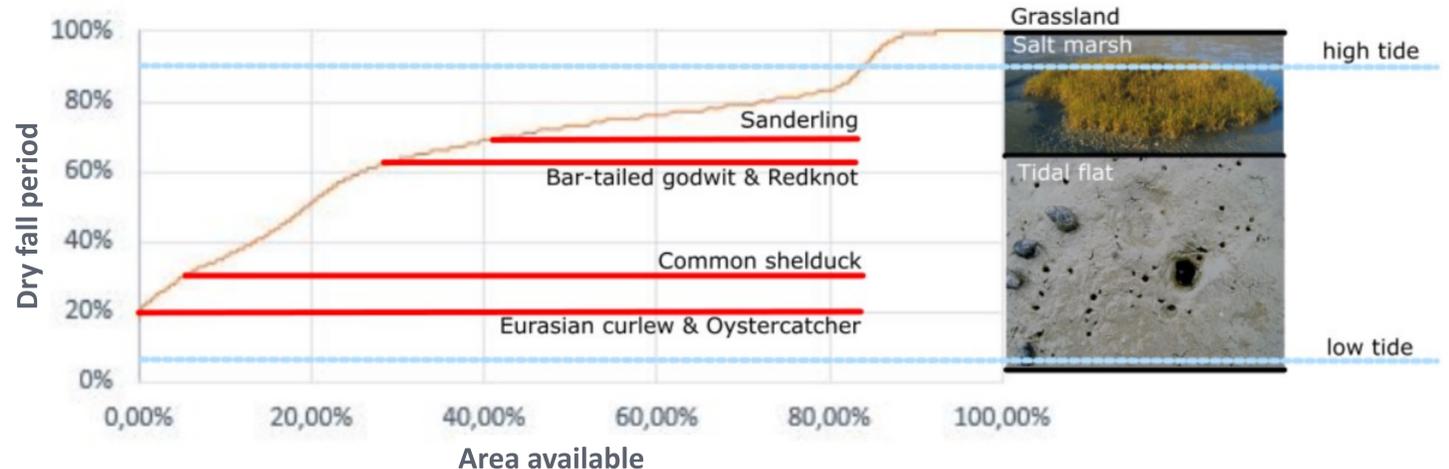
## Method

For the most suitable alternative a curve that links the dryfall period to the area of Schorerpolder is produced. This data was acquired from a dryfall curve from Vlissingen and a hypsometric curve from the polder. Then the requirements for bird foraging were plotted into this graph, originated from extensive monitoring in the Western Scheldt. An Ecotope map of the Westerschelde is

## Results

At least 40% of the area is suitable for the Sanderling which is the bird with the highest requirements with a dry fall period of at least 70%. For Schorerpolder this is where the salt marsh starts. Almost 30% will become mudflat where 60% will become salt water marsh. Due to a sheltered position, the salt marsh can develop relatively low in the tidal range. This might compromise the area's suitability for foraging.

## Dryfall in relation to bird requirements



## Discussion and conclusion

The realignment of the Schorepolder brings potential to develop a salt water marsh and mudflats to add natural value to the Western Scheldt. Estuarine bird species represent an important group for the Western Scheldt. After realignment according to alternative “open connection” Schorerpolder can add at least 20 suitable hectares for foraging. However, sedimentation of the area is not included in this research. In addition, the most suitable alternative is also estimated as the most expensive measure. Also, further research might be at place to explore what the salt water marsh and mudflats can bring for the function of breeding and other bird species.

## References

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