

Netherlands Natural Capital Model - Technical Documentation

Developed for the Atlas of Natural Capital (www.atlasnatuurlijkkapitaal.nl)

Coastal protection

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1. Overview

A large part of the Netherlands lies below sea level. Without coastal protection we would be unable to live, work and engage in recreation at all places in the country. Sandbanks, mudflats, salt marshes, beaches and dunes form a natural barrier against storm surges and marine flooding. According to the CICES classification coastal protection is a regulating service.

Coastal protection is modelled as one of the ecosystem services in the Natural Capital Model. At the current stage, one output map reflecting the strength of the dune profile can be viewed within the Atlas Natural Capital for the ecosystem service 'coastal protection'. Here coastal protection is modelled as the strength of the dunes within 1 km from the coast line. Table 1 and 2 provide an overview of the input and output maps used to model the ecosystem service 'coastal protection'.

Table 1: Output maps generated for the ecosystem service 'coastal protection'.

Output map	Unit
Strength of the dune profile	m ³ sand

Table 2: Input maps applied to estimate the ecosystem service 'coastal protection'.

Input	Unit	Short description	Source
Standardized Coastline	[-]	The Standardized Coastline is a policy-based line on which sand supplementation takes place.	IenM
Digital Elevation Model	[cm]	Gives the altitude of the ground surface level in cm above Dutch Ordnance Level (NAP).	AHN

2. Modelling the ecosystem service

The service coastal protection results in one output map showing the strength of the coastal zone, estimated as the total amount of sand (or any other material) between the location of the cell and the coastline (Figure 1). The ecosystem service coastal protection is estimated over a maximum width of 1 km along the coastline. This coastal zone is defined perpendicular to the Standardized Coastline (IenM, 2012), where the elevation is greater than zero. A schematic representation of the model can be found in Figure 2.

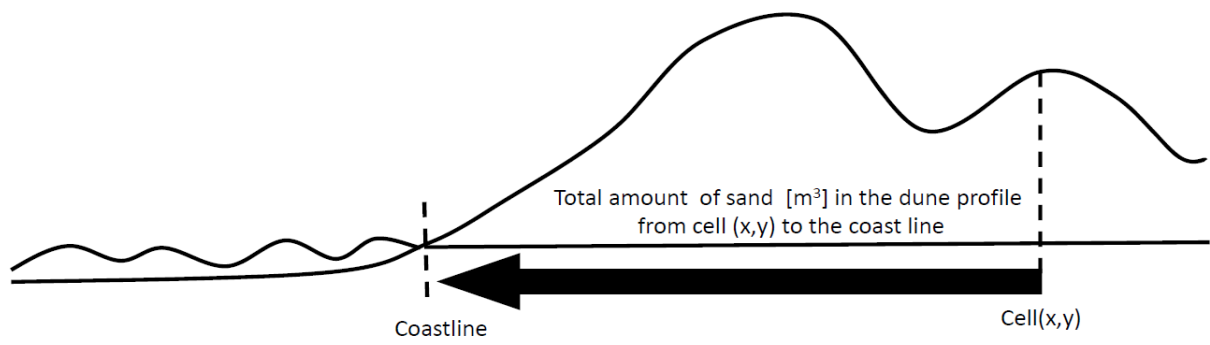


Figure 1: Schematic representation of the ecosystem service coastal protection.

3. References

IenM (2012) Basiskustlijn 2012. Ministry of Infrastructure and Environment, The Hague, Netherlands.

Figure 2: Schematic overview of 'coastal protection' model

