

TIDAL OUTLET KILLETJE

MONITORING CAMPAIGN BOTTOM PROTECTION ON BOTH SIDES OF THE TIDAL OUTLET

Waterdunen project creates a nature and recreation area, in which the tide determines the natural value. Due to the constant change of high and low water, the scenery of creeks, sand and mud flats looks different every hour. This nature reserve and the tide therein are created by a connection to the Western Scheldt in the Killetje, a so-called 'tidal outlet'. One of the components of this project is that bottom protection has been applied in the vicinity of the tidal outlet. The stability of the bottom protection is a concern at high discharge rates during inflow and outflow. A monitoring campaign has taken place to assess the stability of the bottom protection in practice.

Due to the constant tidal inflow and outflow of Waterdunen, the seabed in front of the tidal outlet will erode and cause instability of the outlet structure. This erosion can occur on both sides of the tidal outlet. Therefore, a bottom protection is needed. The applied bottom protection consists of quarry stone which is partly penetrated. The stability of the bottom protection is a concern at high discharge rates during inflow and outflow.

To regulate the occurring discharge rates, the slide positions of the gates in the tidal culvert are adjusted with control software in such a way that the bottom protection remains stable. The discharge limits used in the software are based on model calculations of the flow. To verify these limits, a monitoring campaign took place

between September 2019 and December 2019.

During this monitoring campaign, the hydraulic conditions at the location of the bottom protection (on both sides of the tidal outlet) have been monitored and analysed, and the design principles were verified and adjusted based on the observations.

The monitoring was carried out by AquaVision under the supervision and support of Svašek Hydraulics. During the campaign, the following measurements were carried out:

- Sailing ADCP measurements.
- Static HADCP measurements.
- Sailing Valeport measurements.

CLIENT

The province of Zeeland
Scheldestromen Water Board

LOCATION

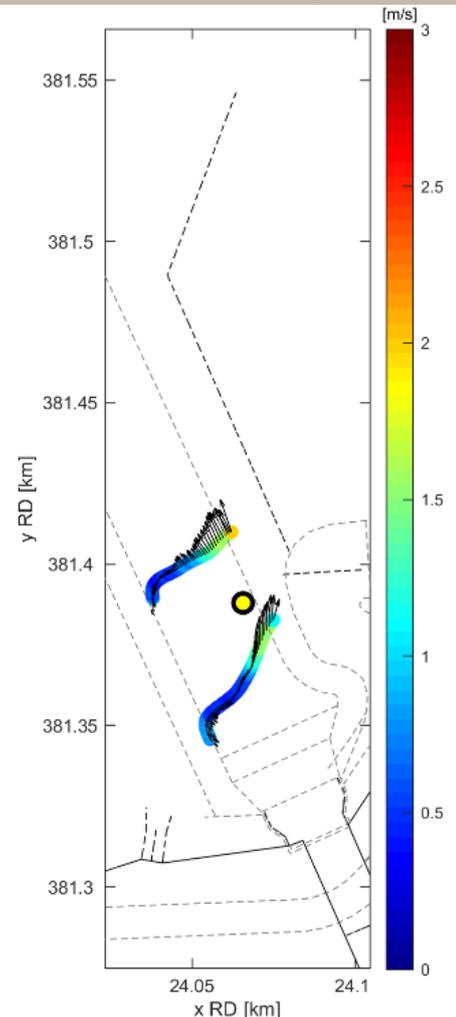
Waterdunen, Zeeuws-Vlaanderen,
The Netherlands

DATE

2019-2020

SERVICES

Supervising monitoring campaign
Analysing flow measurements
Assessment bottom protection



SVASEK
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