

Environmental and sediment monitoring immersed tunnel (Oosterweel Connection)



Country: Belgium
Year: 2023 - 2026
Client: TM COTU

Context

For the realization of the Oosterweel connection, IMDC supported TM COTU for the construction of a new immersed tunnel in the river Scheldt - North of the city of Antwerp, where individual tunnel elements were placed in a pre-dredged trench.

Description of the project

For this project, IMDC developed a monitoring plan to acquire data on the hydrodynamic and environmental conditions in the immediate vicinity of the works, as well as to collect data for the validation of the related numerical models. IMDC performed a 1y baseline survey to assess the reference site conditions, followed by a long-term monitoring during the execution of the works.

During the tunnel installation phase IMDC performed integrated sediment measurements in the tunnel trench during multiple campaigns. Acquired datasets served as input for analysis on sedimentation and sedimentation processes governing the tunnel trench in the complex morphologic and hydrodynamic context of the river Scheldt, in order to assess the risks related to installation of the tunnel elements.

Supplied services

IMDC performed the following tasks for the Environmental Monitoring:

- Develop a fully integrated monitoring approach, measuring currents, turbidities, sediment transport, dissolved oxygen, etc.
- Baseline survey (1y) via bottom frame
- Long-term monitoring (3y) via custom-made floating monitoring platforms
- Near real-time provision of validated measurement data

IMDC performed the following tasks for the Sediment Monitoring in the dredged tunnel trench:

- In-situ density measurements (DensX)
- Turbidity & conductivity profiling (SiltProfiler)
- Mobile ADCP-measurements
- Data analysis and assessment of the sedimentation processes

