

SHIEELD

Assessing the value of eelgrass in nature-based coastal defence

Coasts worldwide are experiencing ever-increasing **flood risk and coastal erosion**. Since traditional solutions for coastal protection are ecologically and economically unsustainable in the long term, **nature-based solutions** are a promising alternative for a sustainable management of coasts.

In this context, **eelgrass canopies** have the potential to contribute to **coastal defence by attenuating waves and stabilizing sediments**, so that coastal erosion is reduced, while promoting biodiversity and storing carbon. The goal of the **SHIEELD project** is to assess the protective value of eelgrass canopies in coastal defence.

To achieve this goal SHIEELD will investigate:

- **The flow resistance and wave attenuation of eelgrass canopies** in oscillatory flows and combined wave-current flows with laboratory experiments in an open-channel facility and using eelgrass surrogates that mimic the behaviour of natural eelgrass species;
- **The effects of eelgrass below and aboveground biomass on sediment mobility thresholds** with a dedicated field campaign using an innovative portable flume. The field campaign will be undertaken with the support of the Royal Netherlands Institute for Sea Research (NIOZ) in several locations across Europe.

The project will develop novel tools to estimate eelgrass contribution to coastal defence in a range of hydraulic conditions.

Findings of SHIEELD will be translated towards a **policy brief** so that policymakers and water managers can include eelgrass contribution to coastal defence in coastal policies and management plans and take more informed decisions.



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PROJECT DURATION

24 months
(from 01/02/2022 to 31/01/2024)

HOST INSTITUTION

Politecnico di Torino - DIATI (IT)

SECONDMENT INSTITUTION

Royal Netherlands Institute for Sea Research (NIOZ) (NL)

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BUDGET

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