

## Field measurements on scour by propeller jets

### Background

Propeller jets can generate strong jets that influence structures such as quays or locks but can also cause erosion of bed materials (scouring). In extreme case this can even cause a structure to fail. Guidelines exist for protective measures. However, the influence of jets on their surroundings is far from known fully, particularly in complex flow conditions and geometries. This includes confined areas and propeller jets close to quay walls. In addition, with increasing sizes of vessels, also the sizes and engine powers of bow thrusters and propellers have increased. This means that present guidelines may be no longer be applicable.

### Project description

In the summer of 2019 a field measurement campaign will be conducted in the Port of Rotterdam investigating propeller scour. The student will perform and analyse the field measurements in close cooperation with experts of Rijkswaterstaat, Port of Rotterdam and Deltares. This study aims to verify design guidelines and to contribute to filling in the knowledge gaps that exist within this field. The outcome of this study will be used to update design guidelines and the student will be involved in defining future research objectives.



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The objective of the Port of Rotterdam Authority is to enhance the port's competitive position as a logistics hub and world-class industrial complex. The core tasks of the Port Authority are to develop, manage and exploit the port in a sustainable way and to deliver speedy and safe services for shipping.