

# Breakwaters and revetments

## ► Construction and repair of piers, breakwaters and revetments in ports all over Northern Europe.

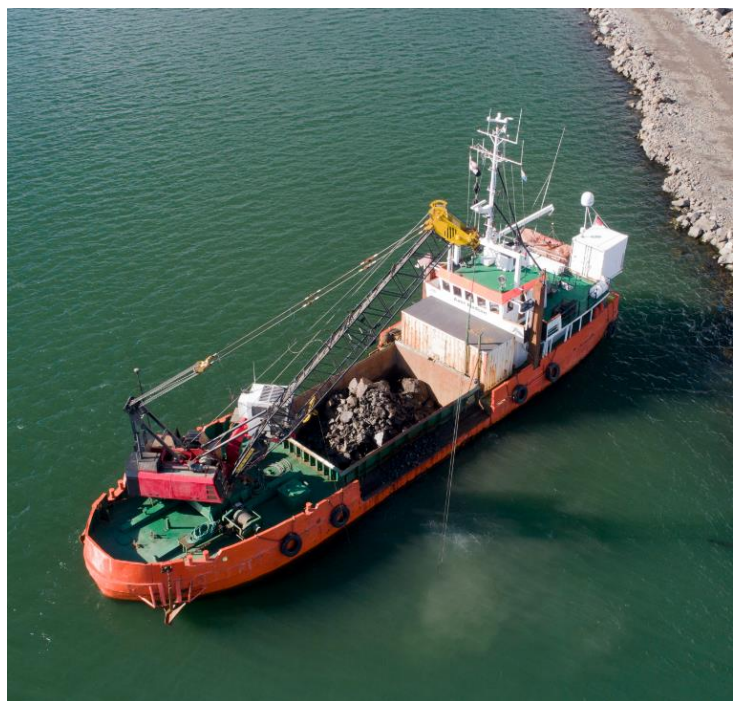
Peter Madsen Marine Contractors have been involved in the construction and repair of breakwaters, revetments and piers for decades.

Using our fleet of six vessels, we are able to carefully place, or remove, rock materials from gravel size up to 9 tonne individual blocks in marine structures in or outside ports. Our vessels are equipped with either backhoe hydraulic excavators or wire excavators with grabs, all suitable for these activities.

The vessels have fixed holds for transportation of materials and can self load and unload. The PDS2000 guidance system enables us to accurately place rock either en-mass, as separate layers or as separate blocks.

Placement and validation is supported by our own multibeam survey package, including in-house equipment, surveyors and processing.

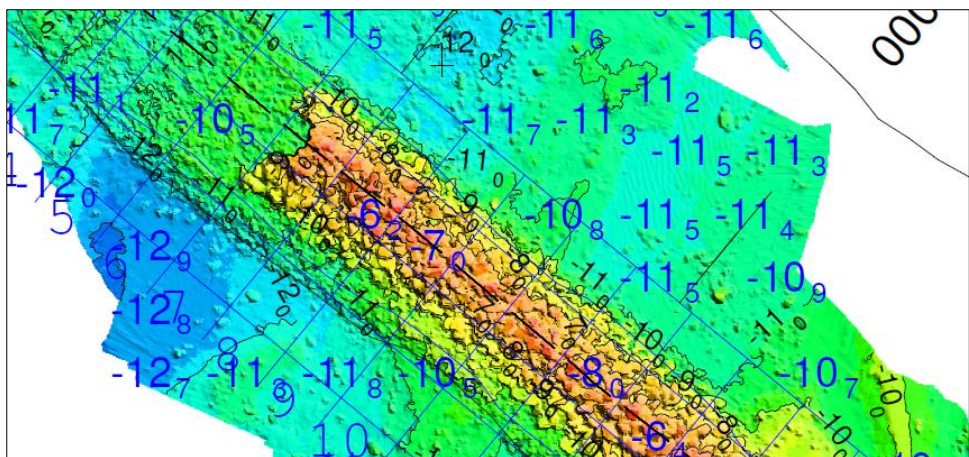
We can handle the entire project from in-survey, material load-out and placement as well as validation survey and final documentation.



- Own vessels and crew
- Stone loading, unloading and placement capability
- Accurate stone placement with RTK GPS
- Multibeam survey validation
- In-house Engineering and QA documentation
- Port and offshore locations constructed
- Ship to ship stone transfer
- Removal of stones and seabed restoration
- Cost effective and highly flexible solutions
- Recovery of stones from existing structures

### Key projects:

- Rønne (DK), 30,000 m<sup>3</sup>  
Construction of parts of new breakwater, rocks up to 9mt
- Thorshavn (FO), 105,000 m<sup>3</sup>  
Recovery of stones from old revetment to new breakwater
- Ystad (SE), 30,000 m<sup>3</sup>  
Installation of two sizes of rocks in new breakwater.



### Get in touch:

Tel: +45 8629 0100  
info@peter-madsen.dk  
www.peter-madsen.dk



**Peter Madsen**  
Marine Contractors