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Maritime Innovations in Green Technologies

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# Nr. 11 Optimizing Vessel Condition and Condition Based Maintenance

Background:

The strong economic pressure requires shipping companies to operate with ships that are as efficient as possible. In order to achieve this, it is necessary to record the ship operation in detail in order to be able to optimize the condition and maintenance of the ship.

Ship efficiency is a key factor in reducing the carbon footprint as well as other emissions caused by shipping in the future. In order to operate existing ships at the highest possible efficiency, several factors need to be taken into account.

Content:

The project focused on trim optimization, the effect of fouling on the hull and propeller, and on maintaining a good operating condition of the vessel in a smart way. All „meaningful" loading conditions and ballast plans that lead to a minimum fuel consumption have been taken into account. In addition, boundary conditions such as sufficient stability of the ship or the avoidance of stern immersion were taken into consideration. In the course of the subsequent validation of the concept within the framework of test runs, it was also examined whether the data obtained could also be used for predicting roughness caused by fouling on the hull. In the project, a concept regarding Condition Based Maintenance was elaborated which describes the different framework conditions for different ship types as well as the necessary parameters and possible threshold values. The concept considers the shipowner's view as well as the repair yard's view.

Leadpartner:

MARIKO

Co-partner:

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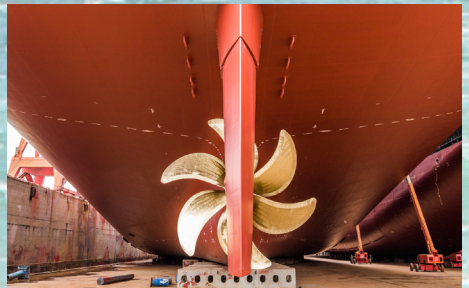
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Results:

A concept was developed with the following specifications*:

- Trim optimization concept
- Concept for Condition Based Maintenance
- Forecast model to optimize the roughness of the hull
- Prognosis model for the propeller condition

*all details with reservation

Advantages:

- **Reduction of costs**
- **Improvement of the operational efficiency of a vessel**
- **Improvement of the communication between shipowner and shipyard**

Condition based maintenance can help make shipping even more efficient in the future.

Partners:

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