

# Blue INNOship

## **Project name:**

*Dynamic Propeller Shaft Speed Control*

## **Project participants:**

Maersk, Propelco, Wärtsilä Lyngsø  
Marine, DTU M, DTU E

# Short project description

Develop, test and implement a solution that is dynamically adjusting the propeller shaft speed in accordance with the time-varying water inflow to the propeller when sailing in waves.

Technology Readiness Level								
1	2	3	4	5	6	7	8	9
						x		

# Key features & findings

*What key features or findings would you like to highlight from your project work until now?*

1. Project has concluded that significant inflow variations to propeller occur in waves, also in beam seas (perpendicular to heading of vessel).
2. Project has developed and implemented a control system to regulate propeller shaft speed dynamically to counteract efficiency losses due to inflow variations in waves. This has been proven in 1st seatrial.
3. Project has through the 1st seatrial concluded that there is a saving potential that can be reliably verified

# Project challenges and solutions

*What challenges have the project team experienced and solved ?*

- 1. You can never plan a sea trial well enough** – you have to be prepared for the unexpected! The simplest issue at home can seem almost impossible to solve when you are out on the sea. It is therefore important to bring a well-functioning team that can solve challenges together, on the spot.
- 2. Your solution might have interdependencies with hardware/software that you have limited access to**, you might be dependent on other system's data which you might have issues extracting, but these issues need to be solved in order for your solution to work properly on the vessel.
- 3. For this particular case**, the actual route the vessel is operating was adamant for the assessments and analyses to be made. Therefore it caused significant disturbance to the project when the trading route was suddenly shifted, and predictions and calculations had to be made all over again.

# Why should you buy our solution?

*What makes your solution the preferable one compared to other available solutions?*

1. With this device, you can adjust the shaft propeller speed to accommodate for the inflow variations to the propeller. By doing this, an extra fuel saving of  $>0.7\%$  \* can be accomplished, for a Pacific voyage.
2. This solution is currently applicable for vessels operating with Lyngsoe Marine governor system.

\* *Very preliminary results*