

Venturing Beyond Our Borders

Author: David Mizzi

From the packages you receive to the groceries you buy, chances are these came by sea. Every day hundreds of vessels trawl the ocean, burning fuel and spewing carbon dioxide, so it should come as no surprise that the EU is aiming to make the maritime industry more sustainable. The trick is to make sea vessels more efficient so they use less fuel.

'It's not just the shape of the ship or the propeller, but it's a mix of everything,' Prof. Ing. Claire De Marco explains. 'You have to optimise everything to make it more efficient.'

To achieve this, University of Malta (UM) is forging ahead with Project VENTuRE (a Virtual and physical

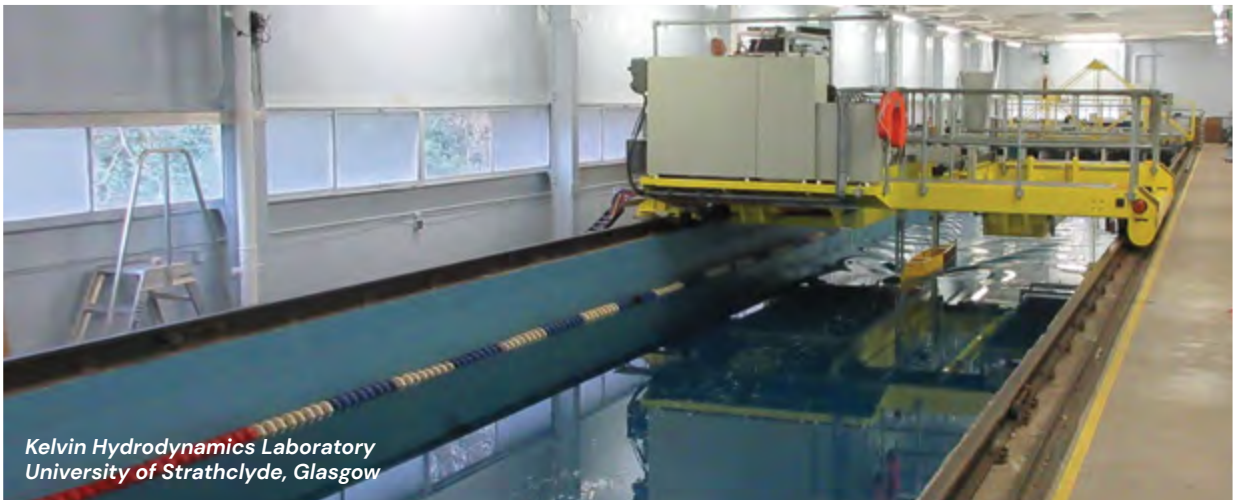
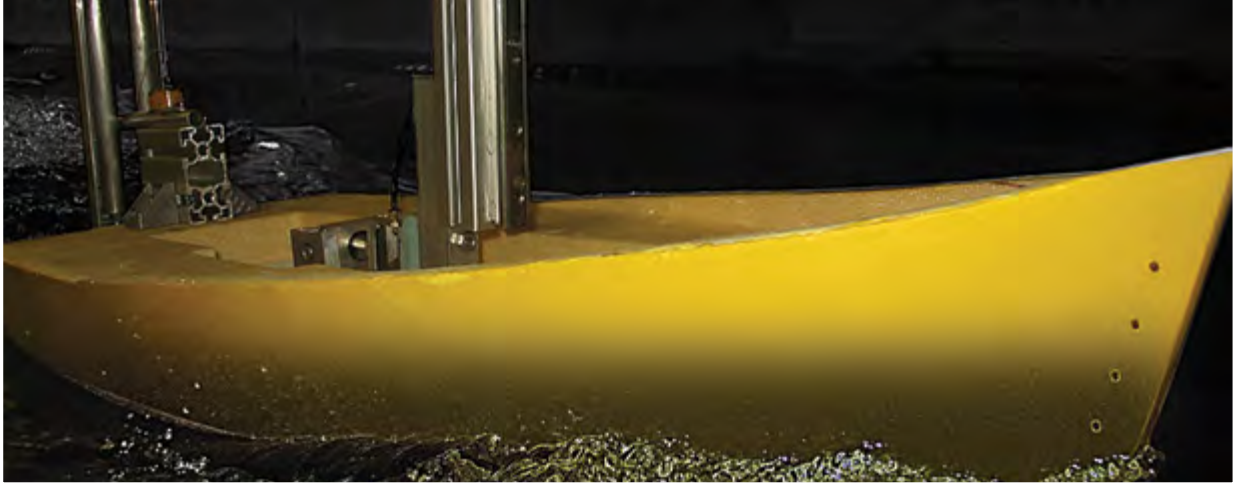
ExperimeNtal Towing centre for the design of eneRgy Efficient sea-faring vessels) in collaboration with two other universities and a local industry partner. The project is led by Prof. Ing. Claire De Marco (Project Leader), alongside Prof. Ing. Tonio Sant , and Dr Ing. Simon Mizzi, and Dr Mitchell Borg, from the Department of Mechanical Engineering, UM. The planned facilities are fundamental for the design of energy-efficient sea-faring vessels.

Building and modifying full-sized vessels is a costly endeavour, hence it is important to test new designs through simulations and scaled experiments before building the full-sized model. Besides computer

simulations (the virtual side), tow-tanks are used for experimentation. But what is a tow-tank?

Think of a tow-tank as a long and narrow canal. On the front side, you have paddles which generate waves. The waves themselves can be 'customised' in order to replicate particular scenarios, while on the far end is the 'beach' which absorbs the waves. Hanging above the tank there is also a moving carriage, to which the scaled ship model is connected allowing it to move along the length of the tank at a chosen test speed with the tow carriage.

While building such a tank is no small feat of engineering, the long-term use of such facilities requires




the appropriate expertise. This is where the twinning aspect of Project VENTuRE comes into play.

Twinning projects are aimed at helping so-called Widening Countries (countries with developing infrastructure, such as Malta) strengthen a defined field of research. As part of the project's Twinning Action, two internationally-leading research institutions in the field, the University of Strathclyde and the University of Genoa, as well as a local industrial partner, NAS (Naval Architecture Services Ltd) allow for international collaboration between leading research institutions and industry professionals.

Short specialist courses, schools, and partner visits allow academics, researchers, and laboratory technicians to be upskilled. International conferences ensure the transfer of ideas and provide networking possibilities. Student exchanges, mentoring, joint supervisions, and industrial secondments give the researchers the opportunity to broaden their experiences and take their first steps in international research and the industry. The partnership will be taken to another level for possible future collaborations by preparing joint proposals at national and international levels, as well as frameworks for further academic programmes. These

types of events and activities lay the groundwork for future long-term collaborations and the sustainability of VENTuRE's aims and objectives.

In fact, Claire believes that having clear and open communication is critical for the success of a project. 'The project just fell into place. We are four partners who already collaborated and knew each other before the start of the project, and, despite all the Covid-related problems we encountered, we were still successful with our goals!' 

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