Case Study

Alyona Naberezhnykh

EPSRC & NERC InDustrial CDT for Offshore Renewable Energy

www.idcore.ac.uk

About Alyona

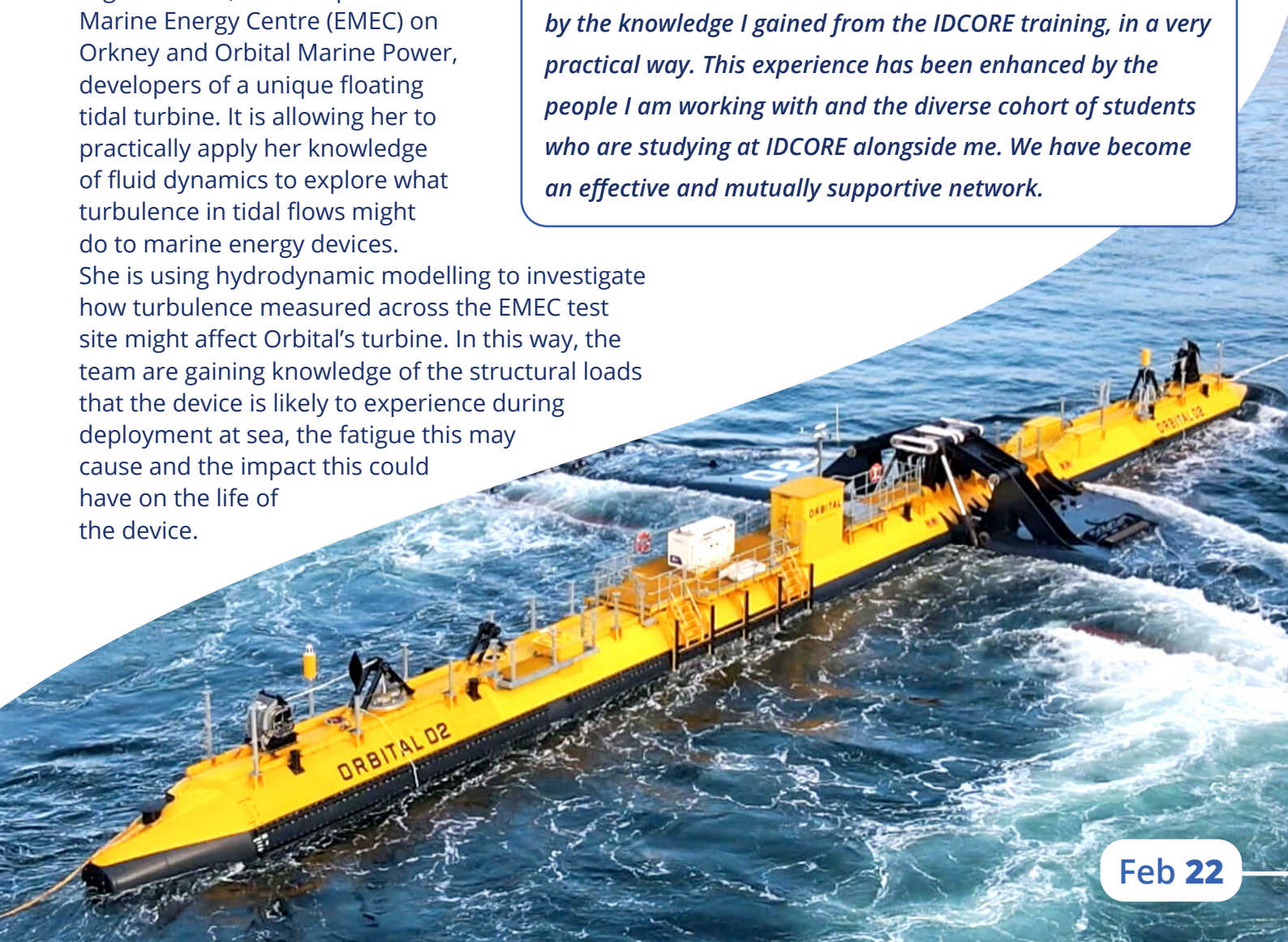
Alyona came to IDCORE to pursue an interest in offshore renewables, after having spent a period in banking following the completion of a Civil Engineering degree. She was attracted to IDCORE by the nature of the EngD qualification and the training it offered, alongside the opportunity to undertake an industry-based research project.

It was the opportunity to work at EMEC that first attracted Alyona to this project, an organisation devoted to the development of offshore renewable energy. It has taken time to get on top of the literature and to establish a detailed specification for the work, but she is finding the work enjoyable and her analysis of turbulence in tidal flows is already delivering value to both organisations.

Alyona's Project

Her project involves two organisations, the European Marine Energy Centre (EMEC) on Orkney and Orbital Marine Power, developers of a unique floating tidal turbine. It is allowing her to practically apply her knowledge of fluid dynamics to explore what turbulence in tidal flows might do to marine energy devices.
She is using hydrodynamic modelling to investigate how turbulence measured across the EMEC test site might affect Orbital's turbine. In this way, the team are gaining knowledge of the structural loads that the device is likely to experience during deployment at sea, the fatigue this may cause and the impact this could have on the life of the device.

> ***I am really enjoying the research project. It is allowing me to apply my engineering skills, which have been supplemented by the knowledge I gained from the IDCORE training, in a very practical way. This experience has been enhanced by the people I am working with and the diverse cohort of students who are studying at IDCORE alongside me. We have become an effective and mutually supportive network.***



The approach IDCORE offers has brought with it a number of benefits for Alyona. Undertaking the training prior to selecting a project opened her eyes to the research opportunities working with wave and tidal energy devices. She is now realising these opportunities in a project that is giving her time to explore the engineering detail in an area that she knows is relevant to the offshore renewables industry.

ORBITAL
MARINE POWER

EMEC
THE EUROPEAN MARINE ENERGY CENTRE LTD

The project is also benefitting both of Alyona's sponsors. They seem very happy with her work and want to be involved in the publication of the papers Alyona is aiming to write before the end of her project. It gives them access to leading academic capability and support, allowing them to explore important topics for the industry that they wouldn't otherwise have the time or resource to investigate. It is proving highly cost effective, and EMEC's sponsorship of multiple IDCORE students is also delivering continuity of benefit.

THE UNIVERSITY of EDINBURGH

UNIVERSITY OF EXETER

University of Strathclyde Glasgow

UKRI Natural Environment Research Council

SAMS Scottish Association for Marine Science

UKRI Engineering and Physical Sciences Research Council