

Execute your last year MSc project at DHI in Denmark 2014 – Hydraulic Structures in Industrial Plants

DHI is looking for an enthusiastic, skilled and highly motivated MSc student within marine/offshore engineering for an exciting internship project on CFD modelling of Industrial cooling water intakes and outfalls.

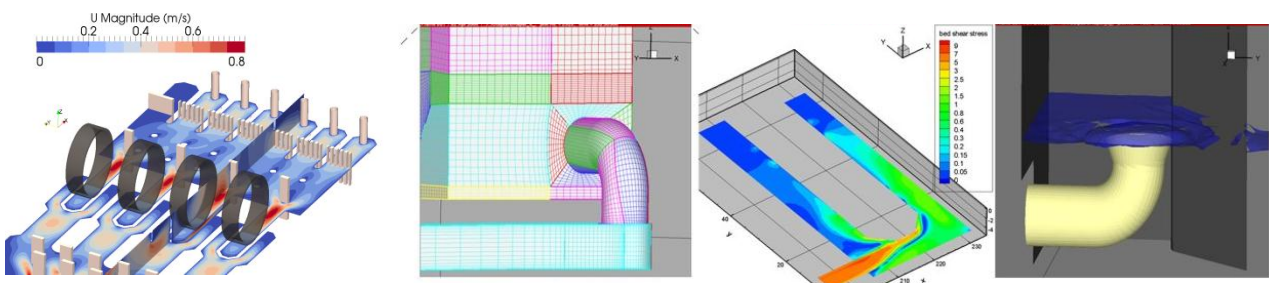
Background

Industrial plants typically require the intake of cooling water and the discharge of warmer water to and from the surrounding environment. Testing the design of a cooling water intake system typically determines the performance of the intake velocity caps, intake pipelines and the housing containing the intake pumps. Assessments of the flow characteristics within the pump house is of particular interest especially to determine the likelihood of pre-swirl / vortex formation near the pumps resulting in increased 'wear and tear'. On the other hand, the outfall structure will discharge warmer water used in the industrial process to the surrounding waters. The dispersion of the discharge plume is of interest with regards to the impact on the environment as well as the possibility of recirculation to the plant intake.

DHI have performed numerous numerical and physical model studies for industrial plant cooling water intakes and outfalls worldwide. As the technology of CFD modelling evolves we see a benefit in further utilising its ability to assess and optimize such hydraulic designs with greater accuracy.

Project Purpose

This project will use the open-source CFD toolbox OpenFOAM® to investigate and further validate its ability to model flow in cooling water intake pump houses especially in the vicinity of the intake pumps. The successful candidate will assess CFD models with varying complexity and compare results against industry standards and physical model experiments. Similar assessments will be envisaged for the outfall plume modelling. The work will be used to help determine the commercial feasibility of applying various CFD methods in assessing the performance of such hydraulic structures.



Qualifications

- Completed courses in numerical modelling and fluid mechanics
- Ideally has experience with OpenFOAM® or CFD modeling
- Basic computer programming skills. Ability to code in MATLAB or Python. C/C++ will be beneficial.

Personal skills

- Self-motivated and able to work on your own under supervision
- Curious and dedicated to obtaining results
- Speaks English

Office location

Hørsholm, 25 km north of Copenhagen. See

<http://www.dhigroup.com/Contact/DHIOffices/HowToReachDHI.aspx>

Your next step

For more information please contact Research Engineer Xerxes Mandviwalla at xem@dhigroup.com or Henrik Kofoed-Hansen, Head of Ports and Offshore Technology, hkh@dhigroup.com