

Master thesis project

The Hydrodynamics of Trawl Kite

Background:

Trawling is a fishing method that involves pulling a fishing net through the water behind a fishing vessel. Usually trawl doors are attached to the ends of the fishing net to keep the net open while fishing. The traditional trawl doors are made of stainless steel and thus they are heavy. Towing heavy fishing gear over the seabed can cause large-scale destruction on the ocean bottom. A soft trawl kite, similar to surfing kites, may be replaced by the traditional trawl doors. Since trawl kite fly in water it will not have contact with seabed and therefore the environmental impact on the seabed are diminished. Moreover, such a design will be much lighter than the traditional trawl doors which makes it cheaper and easier to transport.

Objective:

The aim of the project is to investigate the hydrodynamics of trawl kite in different operating scenarios to make sure that the trawl kite holds the trawl apart without bottom contact.

Methodology:

In this master thesis we will study the effects of the shape and size of trawl kite on the hydrodynamics of the kite using computational fluid dynamics. The primary computational tool to be used in this project is STAR-CCM+, however, the students are encouraged to employ other tools and methods which allow the analysis of the hydrodynamics of a deformable kite.

Prerequisites:

Background in Mechanical Engineering, Naval Architecture, or similar
Knowledge and interest in computational fluid dynamics

Miscellaneous:

This project is part of a larger project at Blue Systems funded by The Swedish Board of Agriculture. The students will be paid by Blue Systems for the work performed within this project.

Contact

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Figure 1: Trawl doors onboard



Figure 2: Kite-surfing

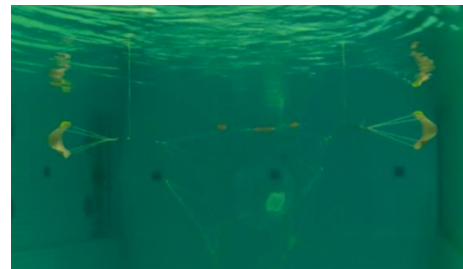


Figure 3: Trawl Kite