CFD validation of different propeller ducts on open water condition.

Trawlers account for the largest percentage of fishing vessels in Galicia. This kind of ships needs to provide high thrust at low advance ratios (it's usual operating velocities are around 3.5kn when the ship is towing the fishing net); because of this fact generally their propulsion units consist on ducted propellers.

This paper summarizes some of the CFD calculations performed as starting point for trawler ducted propeller studies and highlights the capabilities of CFD as a valuable tool for the prediction of propulsive factors for ducted propellers. The calculations have been performed for a controllable pitch propeller with two different nozzle geometries. For all the calculations the mathematical model employed is Reynolds Averaged Navier Stokes based, coupled with wall laws and a two equations turbulence model. A Finite Volume method has been employed for the solution of the model.