Contribution ID: **72** Type: **Paper**

A methodology for the hull forms design of a passenger catamaran for the Venice Lagoon

Wednesday, 15 June 2022 15:30 (20 minutes)

The proper definition of the main geometric coefficients and the hull forms of a passenger catamaran must be carried out since the early stage design, due to its strong impact on the resistance, propulsion and the generated wave pattern. This is a primary concern especially in fragile environments, such as the Venice Lagoon, where waves increase erosion phenomena. In this work, a two-phase methodology for the definition of the hull forms of a passenger catamaran, based on both a parametric and CFD analysis, is presented. In the first phase, systematic series data are used to parametrically evaluate possible combinations of main hull dimensions (breadth of the demi-hull, deadrise angle), selecting the best one to fit a specific operative scenario (minimisation of required energy). Then, after the validation of mesh parameters with a benchmark hull, the best hull forms are assessed through CFD simulations. In order to study the interference between the two hulls and select the proper configuration two different distances of the demi-hulls are investigated. The methodology has been applied to the preliminary design of a 10.2 m passenger catamaran for the Venice Lagoon. Routes from the city centre to Marco Polo Airport or Torcello Island have been considered.

Primary authors: BRAIDOTTI, Luca (University of Trieste); Mr ZANIN, Mattia (University of trieste); BERTAGNA, Serena (Università degli Studi di Trieste); Mr PADOLECCHIA, Donato (University of Trieste); MARINÒ, Alberto (University of Trieste); BUCCI, Vittorio (University of Trieste)

Presenter: Mr PADOLECCHIA, Donato (University of Trieste)

Session Classification: 2C

Track Classification: Conceptual and practical ship design