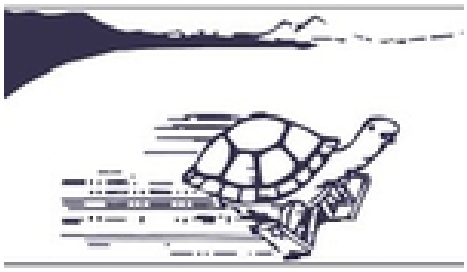

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Innovative use of hybrid propulsion system in fast passenger ferries over 300 passengers and 20 knots.

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The passenger transportation among Islands or coastal locations is usually realized by High speed ferries. These vessels use traditionally powerful high speed diesel engines, but this transportation has the characteristic of being subject to season, weather condition, period of the years, causing often an underutilization of the power installed onboard, by the fact that the displacement varies significantly and also the amount of runs scheduled per day.
In consideration also of the need to reduce the impact of waves generated by the hull, especially considering the historical or naturalistic scenarios where these vessels operate, the authors investigated the possibility to adopt an hybrid propulsion on an high speed hull, using tank test at a wider range of speed, to optimize usage. This use of hybrid propulsion is innovative, because usually the hybrid propulsion is used for slow, traditional vessels, according to the limited request of power for propulsion.
In the study proposed there is a “dual use” , that can be obtained navigating in “peak touristic season” using traditional propulsion, with diesel engines, at 22-24 knot, and in “low season” performing the entire trip or part of it, using only batteries or hybrid. With the use of this system the authors studied a solution capable to carry over 300 passengers, verifying also that the weight of the batteries, actually traditional Li-Po batteries, doesn’t impact too much on the total displacement, but also investigating the aspect of the firefighting system on hybrid vessel, aspect that it s innovative, due to the tendency of Li-Po batteries at overheating and exploding in case of fire

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