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Life Cycle Assessment in the naval sector: between certification and new materials

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In recent years, the maritime sector has become increasingly interested in environmental sustainability issues, leading to the development of innovative technologies and materials. Seldom these solutions were analyzed with a life cycle approach and, when this has been done, the studies have been carried out without a reproducible methodology.
The lack of a standardized methodology based on Life Cycle Assessment prevents a fair comparison between studies carried out on different vessels or technological solutions. As a result, determining whether the new solution or the new material employed is more sustainable than the prior one is difficult.
The aim of the project was to develop a Product Category Rules (PCR), i.e. the standard that defines the rules for the publication of environmental labels based on Life Cycle Assessment (LCA) studies, based on ISO 14044 and ISO 14025, that could be used on a wide variety of vessel categories. This work presents the approach adopted for the development of the PCR, in order to produce comparable outcomes among different investigations.
This article also includes an LCA analysis of a boat that represents one of the standard's field of application's extremes, in order to confirm and verify our approach's applicability.
Indeed, we conducted a through investigation of a racing sailing boat built in composite material, whose components are all made by recyclable and recycled materials, i.e., a thermoplastic matrix filled with linen natural fibers.

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