

High speed catamarans and multihulls: Technology, performance, and applications

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Abstrak

High speed catamaran and multihull high speed marine vessel have become very popular in the last two decades. The catamaran has become the vessel of choice for the majority of high speed ferry operators worldwide. There have been significant advances in structural materials, and structural design has been combined with higher power density and fuel efficient engines to deliver ferries of increasing size. The multihull has proven itself to be a suitable configuration for active power projection across oceans as well as for coastal patrol and protection, operating at high speed for insertion or retrieval with a low energy capability. At present there is no easily accessible material covering the combination of hydrodynamics, aerodynamics, and design issues including structures, powering and propulsion for these vehicles. Coverage in High Speed Catamarans and Multihulls includes an introduction to the history, evolution, and development of catamarans, followed by a theoretical calculation of wave resistance in shallow and deep water, as well as the drag components of the multihull. A discussion of vessel concept design describing design characteristics, empirical regression for determination of principal dimensions in preliminary design, general arrangement, and methods is also included. The book concludes with a discussion of experimental future vehicles currently in development including the small waterplane twin hull vessels, wave piercing catamarans, planing catamarans, tunnel planing catamarans and other multihull vessels.