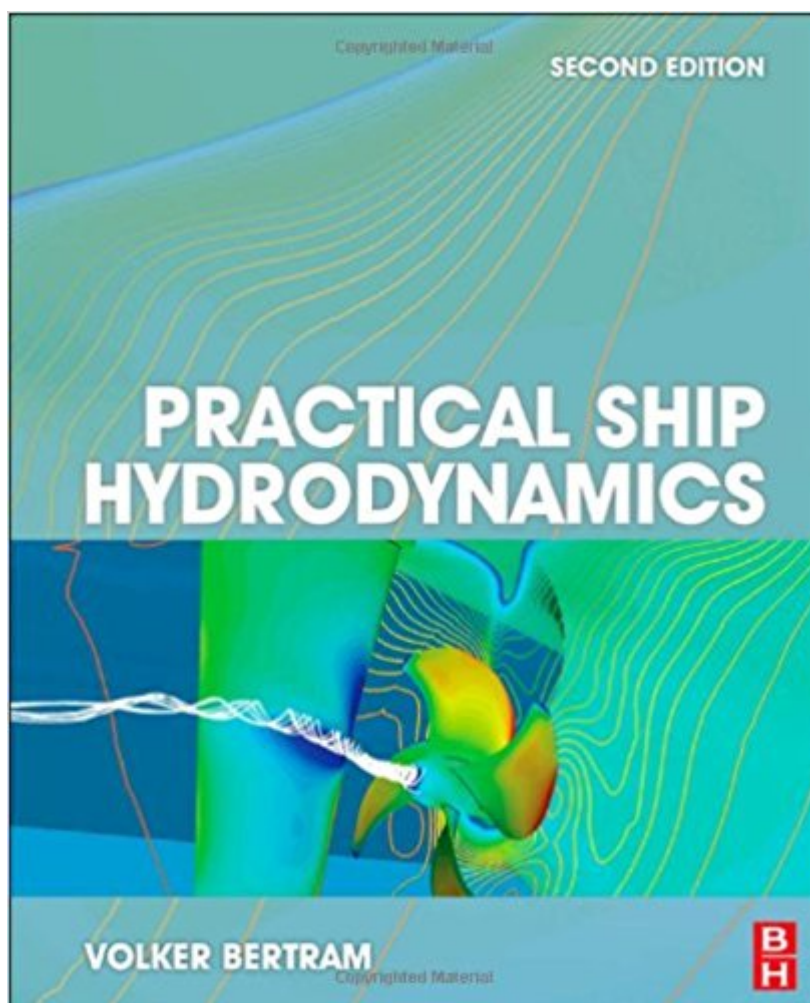


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# Practical Ship Hydrodynamics, Second Edition



## Synopsis

Practical Ship Hydrodynamics, Second Edition, introduces the reader to modern ship hydrodynamics. It describes experimental and numerical methods for ship resistance and propulsion, maneuvering, seakeeping, hydrodynamic aspects of ship vibrations, and hydrodynamic options for fuel efficiency, as well as new developments in computational methods and model testing techniques relating to marine design and development. Organized into six chapters, the book begins with an overview of problems and approaches, including the basics of modeling and full-scale testing, prediction of ship hydrodynamic performance, and viscous flow computations. It proceeds with a discussion of the marine applications of computational fluid dynamics and boundary element methods, factors affecting ship hydrodynamics, and simple design estimates of hydrodynamic quantities such as resistance and wake fraction. Seakeeping of ships is investigated with respect to issues such as maximum speed in a seaway, route optimization (routing), structural design of the ship with respect to loads in seaways, and habitation comfort and safety of people on board. Exercises and solutions, formula derivations, and texts are included to support teaching or self-studies. This book is suitable for marine engineering students in design and hydrodynamics courses, professors teaching a course in general fluid dynamics, practicing marine engineers and naval architects, and consulting marine engineers. Combines otherwise disparate information on the factors affecting ship hydrodynamics into one practical, go-to resource for successful design, development and construction. Updated throughout to cover the developments in computational methods and modeling techniques since the first edition published more than 10 years ago. New chapters on hydrodynamic aspects of ship vibrations and hydrodynamic options for fuel efficiency, and increased coverage of simple design estimates of hydrodynamic quantities such as resistance and wake fraction.

## Book Information

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## Customer Reviews

Praise for previous edition: "Highly useful for graduate and post-graduate students, the book is also a professional reference work for naval architects and consulting engineers."--Maritime Journal "The book combines otherwise disparate information on the factors affecting ship hydrodynamics into one practical, go-to resource. It is aimed at senior undergraduates and post graduate students. It will be useful for the practising naval architect, especially design/hydrodynamics technical specialists, and marine engineer as a reference work and as a means of updating their knowledge on how these important ship performance characteristics are, and can be, assessed."--Ship and Boat International, March/April 2012, page 48

The book provides a global overview of experimental and numerical methods for ship resistance and propulsion, manoeuvring and seakeeping. As boundary element techniques are now in standard use, these are covered in sufficient detail for independent code development. --This text refers to an out of print or unavailable edition of this title.

I found this book very helpful. It is updated to the latest developments. It is well written, so that it is easy to read and understandable even by people new to the field.

### EXCELLENT

"Practical Ship Hydrodynamics" is an outstanding book encompassing all the new developments in hydrodynamics, yet keeping a didactic style that makes the book an excellent support for those involved in teaching. The book's approach to resistance and propulsion, seakeeping and manoeuvring is sound and solid, first reviewing standard methods and later introducing most recent available CFD techniques. The author is surely familiar with problems encountered in teaching as this is reflected in the examples and exercises given for each topic. As a university lecturer working in a Spanish-speaking country I would like to see this book translated. My congratulations to the author. He did what the book title says: hydrodynamics with a practical view. Marcos Salas, Ph.D.

This book is what I would have liked to have earlier for my lectures. In spite of being comprehensive, it gives not only a good overview about the physics and current computational methods of the various fields of ship-related hydrodynamics, but contains also a host of valuable ideas which are not well known, and it concentrates on the important aspects within each field. Many exercises show how to apply the facts and methods to practical problems. A difficulty relates to viscous flow computations: Here specific methods for naval architecture are hardly required; thus this field is handled superficially only. For all other topics I know of no other book of comparable quality.

Quite often, in the field of ship design "practical" means oversimplification of the problem, bounding ship design to a sort of empirical art. This is not the case! This book, lively written with a nice balance between the description of the relevant physics and the rigorous mathematical foundation of the problems, leads the reader to approach ship design by sophisticated, though still feasible, methods. I think it is a wonderful teaching tool! PhD students will find a large number of useful references. Finally, not of minor importance, it can be used by well trained naval architects to get quickly a basic understanding of modern CFD tools, their importance and limits.

This book tells you almost everything you need to know about ship hydrodynamics, but you can't really shrink this argument into 300 pages!! The book is mainly descriptive, if you're looking for an insight in the mathematical (painful) aspect of fluid dynamics, this book is not for you. Anyway, there are few codes, written by the author, you can download. Mainly the book talks about the flow about a ship, the ship manoeuvring and the propeller. For each argument the main problems are addressed. At the end of the book there is a part dedicated to the developing of a panel code. Good book, maybe overpriced.

I found this book really helpful in my research. Especially sections devoted to CFD basic techniques and manoeuvring topics provided me very useful information. In my opinion this reference covers a broad range of ship hydrodynamics subjects and is a great source of information not only for researchers but also for naval architecture students and industry engineers engaged in ship hydrodynamics. Web support with source codes and solutions to exercises is an excellent idea.

I'm a mechanical engineer specialized in FE analysis, I know a little of hydrodynamic theory and of

applications to ships. I was looking for a book on which I could find practical hydrodynamics, without much theory and practical applications to ships. This book is exactly what I was looking for. I suggest it to everybody is doing CFD analysis in every field (expecially ships).

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