

Book Review

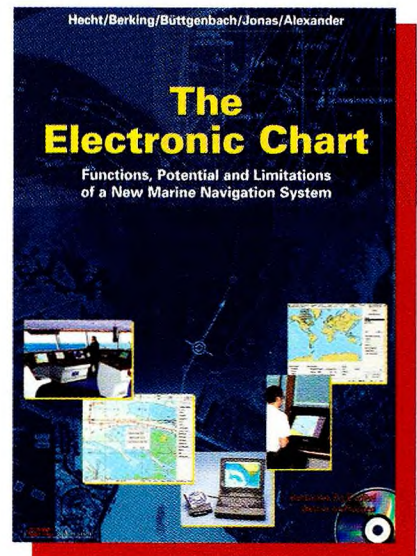
The Electronic Chart

Function, Potential and Limitations of a New Marine Navigation System

By Horst Hecht, Bernhard, Gert Büttgenbach, Mathias Jonas & Lee Alexander, published by GITC bv, P.O. Box 112, 8530 AC Lemmer, www.gitc.nl, The Netherlands

The Electronic Chart is an exciting new and up-to-date publication. The five authors, all renowned in their respective fields and all with detailed knowledge of the Electronic Chart development have combined to produce a book that is well planned, well researched and excellently presented. A striking feature is the attention to detail that extends from discussing the underlying philosophy, to the basic principles, to the operational aspects of the various systems. Some ideas are also provided on how the Electronic Chart will continue to evolve in terms of technology, in terms of interfacing with other systems and in terms of distribution and updating. The publication has a definite focus on Electronic Navigational Chart (ENC) and Electronic Chart Display and Information Systems (ECDIS) development but is objective in its treatment of other Electronic Chart Systems (ECS) including Raster Chart Display Systems (RCDS).

The book is designed to build upon topics and ideas discussed in earlier chapters. Nevertheless, it can be used in a selective mode allowing the reader to go to a specific topic area and obtain comprehensive information. The text is supported by a large number of excellent illustrations and tables including screen captures depicting ENC and RNC development and use in various parts of the world. A superb



glossary, a first-rate reference list, a subject index and a TryECDIS CD ROM that is intuitive and informative, are included.

The first chapter develops an appropriate mindset by taking the reader on an imaginary voyage where the potential and complexity of an ECDIS are discussed and in the second chapter the reader is introduced to the components of an Electronic Chart System and some of the variations among systems. While the first two chapters are an easy read, Chapter 3 starts to focus on defining the IMO role in this development and comparing the systems, ECDIS, ECS and RCDS, providing paper

chart comparisons, and introducing the System Electronic Navigational Chart (SENC).

Chapter 4 is on data and on how data are used in the various systems with many references to the paper chart and to every day situations. Chapter 5 examines hydrographic data and issues associated with chart updating as well as horizontal and vertical datums. Chapter 6 continues with the data discussion and introduces data from other sources, e.g. Automatic Radar Plotting Aids (ARPA).

Chapter 7 on Navigational Functions of the Electronic Chart is an example of how the book may be used in the selective mode. A very complete explanation of the navigational functions is provided with suitable cautionary statements. The importance of integrating the Electronic Chart with other sensors is discussed in Chapter 8. This includes the classical sensors such as gyro, log, and positioning sensors, as well as radar and ARPA overlays. Automatic Identification Systems (AIS) are also discussed.

Chapters 9 discusses distribution including the World-wide Electronic Navigational Chart Data Base (WEND), Regional ENC Co-ordinating Centres (RENC) and the National Imagery and Mapping

Agency (NIMA) DNC data service while Chapter 10 discusses updating. Safety Issues are discussed in Chapter 11 and factors related to the economic aspects of installing ECDIS are examined in Chapter 12. In Chapter 13, not only are the regulatory and legal implications discussed for ECDIS, but type approval and certification are also examined.

Training is briefly discussed in Chapter 14 and it is this reviewer's hope that this text with its clear definitions and completeness will find its way into many classrooms. Chapter 15 presents a status on global coverage for raster and S57 charts. This development has been much more difficult than was initially anticipated and even today, the number of vessels using approved ECDIS systems is not impressive. With any luck, this publication will inspire mariners to ensure that whenever approved products are available, they are used.

This book will appeal to many persons in the marine transportation community including mariners, hydrographers, cartographers and equipment manufacturers. The authors are to be congratulated for their seminal publication.

Reviewed by Stephen B. MacPhee