(v) problems of non-stationary adjustment of flow fields to atmospheric disturbance and (vi) formation of thermocline in the ocean, are discussed.

The last chapter (chapter 5) is devoted to the performance of determined algorithms for the calculation of stationary and seasonal currents in various parts of the world ocean. Diagnostic calculations at one degree grids have been done for world ocean using temperature and salinity as input data. The maps of horizontal and vertical currents at various levels for all 4 seasons as well as sea surface topography are presented in the monograph. The results obtained are compared with available maps and atlases of currents and the realistic character of the results obtained is brought out in this chapter.

The present monograph is a very important reference volume for all those engaged in mathematical modelling and modelling of oceanic and atmospheric processes. In general, the monograph is well written. Many more monographs and research papers in oceanography, written by Soviet authors, should be published in English for the benefit of oceanographic community the world over.

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As the title suggests, the book provides a comprehensive review on the fate, distribution and effects of pollutants in the North Sea which is a shallow water body (av. depth 60 m), dominated by S7-tides and open to the Atlantic Ocean at both the ends.

The contents of the book, presented in 4 parts, include a total of 40 contributions from well known scientists who have given a very comprehensive coverage of the up-to-date scientific data and analysis on the status of the North Sea.

A lot of careful thought has gone into the layout of the book; specially the flow of the topics which are: 'The North Sea system: physics, chemistry, biology'—this is covered in 10 contributions in part I. Part II, covers 'input and behaviour of pollutants'. In this part the behaviour of all types of pollutants including sewage, radioactive substances, etc. is discussed along with the application of mathematical modelling for assessment and prediction of pollution. Par III consisting of 9 contributions, deals with 'impacts on selected areas and by human activities' and finally the last part—part IV—rightly deals with 'biological effects of monitoring'. In short, the sequence of topics is well set—the topics progressing logically from fundamental to practical aspects.

All the contributions in the book have been written in simple English and the reading has been made light and enjoyable. For example, while pointing out to the lack of primary papers on North Sea nutrients after 1975, the author remarks—"with the advance of automated analyses it seems that thinking has come to a halt"—such remarks, besides making the reading light, call upon the scientists to come out with fresh contributions in the field.

The book embodies a wealth of background information for future work in the North Sea. Besides including all the up-to-date information on the topics in relation to the North Sea, scope and need for further research have also been listed wherever possible. Thus the book is a useful link between the earlier, the present and the future work in the North Sea. The book should at the same time be a valuable addition to the library of oceanographic institutions at large. It also provides good guidelines for future applications of similar type for other seas of the world.

The topics of special interest are: geobiological effects on the mobility of contaminants in marine sediments, 'distribution and fate of heavy metals in the North Sea' and the discussion of analytical quality of data and data evaluation in the topic 'accumulation of pollutants by fish'. This discussion clearly mentions how a biologist has to be careful about the validity of the pollutant data before interpreting its effects on a species.

Organised oceanographic research globally was initiated in this water body towards the end of the last century leading to the founding of the International Council for the Exploration of the Seas (ICES) in 1901. ICES has always been promoting cooperative research in the North Sea. With the advancement of industrialization in the surrounding countries and the discovery of oil under it, problems of pollution are becoming more and more acute in the North Sea. Studies in this area are the best example of cooperative effort to keep the environment clean and suggest periodic remedial measures using high-quality data obtained by repeated and continuing inter-calibration exercises.

This book should be a useful source of information and guideline to all the scientists involved in marine pollution studies all over the globe.
We warmly recommend this to all the marine laboratories everywhere.

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Papers in the volume provide latest developments in the computer applications in the area of ships and offshore structures. The hardware developments which have taken place in micro computer technology during the second half of the eighties enable implementation of sophisticated computer-aided systems in the inexpensive micro computers. Many papers in this volume highlight the use of smaller computer for a wide variety of applications in the analysis, design and simulation studies. This would be a good reference book to get a state of the art on different aspects of computer applications for analysis, design and production of ship and offshore structural components.

The papers are grouped and presented in 2 sections, (A) ships and (B) offshore applications. The 6 subsections for applications of computers to ships are: A(i) ship hydrodynamics and ship resistance, A(ii) computer-aided ship design, A(iii) ship structures, A(iv) ship motion stability and seakeeping, A(v) ship propulsion and A(vi) ship simulation and shipbuilding education.

The offshore computer application has 3 subsections: B(i) computer-aided offshore design, B(ii) motion and stability and B(iii) offshore operations.

The sub-section A(i) deals with the computer model for wave resistance and far field ship wave calculations, computational hydrodynamics, calculation of hydrodynamic properties of floating bodies by super computers and prediction of force and moment for submerged bodies. This sub-section also contains papers on numerical calculation of the tubular flow field around bodies of revolution zero incidence, simulation of real computer radar images using ship wake numerical models and computer simulation of self propulsion test of axisymmetric body.

The sub-section A(ii) mainly deals with application of CAD for ship design. The papers contain CAD system for the design of ships, computer hull representation, preliminary ship design using micro computers and computer aided preliminary ship design, a PC based hull surface design program, application of computer aided drawing package, a review of hull form design and recent advances in fairing technology. This sub-section also contains papers on modelling of ship using B surface spline, computer assisted surface design, and a concept design system for ships with production consideration. The discussion on topics like establishment of database of experimental results, interactive deadwork design, illustrated applications of gensurf systems, hydrodynamic analysis and surface definition, climatic design of ships and yachts and concept design system for interactive optimization of specialized vessels are also presented.

The sub-section A(iii) contains papers on computer aided optimum structural design of actual oil tankers, and ship structure analysis using semimoment theory of shells and cross-sectional compatibility treatment. A discussion on quality assurance of a large scale finite element models of naval structure and a comparison of deterministic and empirical modelling during lifting of large steel structures are also presented.

The sub-section A(iv) contains papers on the effect of hull form and size on seakeeping, a new method for developing hull forms with superior seakeeping quality and computer aided prediction of stabilising tank moment. Sub-section A(v) computer aided propeller performance calculations using a nonlinear lifting surface theory, and propeller design and analysis based on numerical lifting surface calculations are discussed. The sub-section A(vi) consists of papers on maneuvering simulation advisor, liquid cargo operation simulations and CAD in shipbuilding education.

In the section-B, the first sub-section B(i) contains papers dealing with micro computers based system for design and analysis of offshore structures, optimum design of columns using AI techniques, nonlinear dynamic substructure analysis using direct integration of steady state solution and computer graphics for offshore engineering.

In sub-section B(ii), applications of wave theories of deterministic dynamic response analysis of offshore structures, damping controlled response of a deepwater tripod tower, an efficient surface panel method for the calculation of added fluid mass matrices for discretised structures and simulation of a flexible