ADVANCES IN ECOLOGICAL RESEARCH

29

Estuaries

EDITED BY

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SERIES EDITORS: A. H. FITTER D. G. RAFFAELLI

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Preface

The importance and ecological significance of estuaries as an interface between the land and sea has long been appreciated, with a considerable history of scientific examination of the physicochemical characteristics of estuaries and of the structure and function of estuarine biological communities. Recently, concern with increased nutrient loads to estuaries, and consequent eutrophication, has focused the attention of both ecologists and legislators. Trends towards a holistic, multidisciplinary approach to the ecology of the coastal zone has emphasized the interaction between the river catchment, the estuary and the coastal sea in terms of element fluxes. This has been epitomized, at least in Europe, by the imminent adoption of the Water Framework Directive by the European Community, which will require integrated management of water resources across the entire system of river basin, estuary and coastal sea.

In the last few years there has been increased research activity focused in estuaries, and there have been significant advances in understanding of at least certain aspects of estuarine ecology. However, much remains to be done before the complete framework of scientific background and understanding necessary for the integrated management strategy envisaged by legislation is in place. Without attempting to cover all aspects of estuarine ecology, this volume aims to provide overviews of a number of the important areas of estuarine research where there have been significant improvements in scientific understanding. This ranges from the macroscale in terms of how differences in river basins influence the loads of nutrients to estuaries (Hessen), through the impacts and fates of nutrient loads in estuaries (Nedwell *et al.*), to how both phytoplanktonic and benthic estuarine primary production are regulated (Underwood and Kromkamp). Paterson considers the influence of benthic microbial communities, while Herman *et al.* discuss the interactions between benthic animals and sediments. Many of the key factors influencing the outcome of management decisions for estuaries may not be ecological at all but result from economic, social or political pressures. Crooks and Turner review these aspects from the point of sustainability of estuarine resources.

We hope that this volume will provide both the specialist in estuarine ecology and the interested newcomer with new insights into the ecology of estuaries.

Dave Nedwell
Dave Raffaelli

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S. CROOKS AND R.K. TURNER