

BOOK REVIEW

Plankton Dynamics of the Southern California Bight

Edited by R W Eppley

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This book is basically concerned with the work done from 1974 through 1982 by the Food Chain Research Group (FCRG) of Institute of Marine Resources, Scripps Institution of Oceanography. Dr J.D.H. Strickland, for whose memory this book is dedicated, founded this research group (FCRG) in 1963. Despite the less ambitious title of the book it covers many topics of oceanography and marine biology of Southern California Bight. K.O. Emery would be amazed to learn about the changed, deepened and expanded views on the study area within few years of research work, since the publication of his book 'The Sea off Southern California' in 1960.

The Southern California Bight (SCB) is one of the most studied coastal regions of the United States of America, apart from Puget Sound, New York Bight and Chesapeake Bay. This book consists of eight chapters contributed by the workers of the FCRG. Chapter 1, by A.F. Carlucci *et al.*, introduces the geology, bottom topography and climate of the Bight and its significance as a habitat for plankton. This chapter is mostly of descriptive nature. Upwelling events in SCB are usually of short duration, e.g. a week or less, and they generally occur less frequently and less intensely as has been discussed elaborately by G.A. Jackson in Chapter 2 on the physical oceanography of the SCB. In Chapter 3, which deals with the chemistry of the dissolved and particulate phases in the water column from surface to a depth of 2500m, P.M. Williams made a commendable attempt not only in discussing the distribution of various chemical parameters but in defining and categorising the dissolved and particulate phases also. Chapter 4, the lengthiest of all chapters, by J.R. Beers considers studies on the biology and ecology of various taxonomic groups of organisms which are pertinent to defining their role in the food web structure. The significance of detritus in the marine food web is also emphasised. Attention has been laid on recent outcrops like bacterioplankton and protozooplank-

ton wherein the latter appear to be the chief grazers of bacteria and picoplanktonic and nanoplanktonic autotrophs and are important components of the so called 'microbial loop'. While concluding this chapter the author observes, 'between expanding study of food web components already under investigation to determine more details of their interactions and extending study down to smaller and smaller forms, there is much new and exciting that can be expected to be forthcoming from plankton study in the years and decades ahead.' Chapter 5, by R.W. Eppley and O. Holm-Hansen, concerns with the main factors influencing the magnitude of primary production while shedding some light on future work. In Chapter 6, M.M. Mullin reviews the work carried out on the variability of plankton in both time and space and the relevant important processes. The studies on remineralisation of nutrients form the central theme to the better understanding of marine productivity and the fluxes of material and energy in the oceanic ecosystem. The rates of mineralisation of sinking particles are of great interest in modelling the distributional patterns of biogenic organic matter as well as of surface derived pollutants in the sea. These studies are dealt with in Chapter 7 by F. Azam emphasising the organic fluxes through the microbial food web. With Chapter 8, R.W. Eppley concludes the text but presents 'not so heavy' reading while dealing with the 'unpleasant' problems of possible deleterious effects of human activity on the plankton. This chapter provides a brief overview of the practical aspects of the work and how they are related to the environmental concerns.

As expected occasionally with new books, this also carries some minor shortcomings. It would have been more informative if a colour satellite image was given, on page 6, instead of a black and white one. In Chapter 3, the author considered the cycling of nitrogenous nutrients, phosphate and silicate in the euphotic zone only with concise discussion which

should have been more elaborate. We tend to point out the omission of the Ph.D. work by K.K. Liu (1979) on the inorganic nitrogen compounds in the Santa Barbara Basin. We also wonder why the editor did not think of including sediments as a potential compartment, atleast in the shallow areas of the SCB, for food web cycling of nutrients, despite his reference to the article by Fanning *et al.* (1982) in Chapter 5. There are also some minor errors crept in, for example Ra 222 for Rn 222 (page 30) and Pd for Pb (page 53).

As the editor claimed, 'this is a technical book it will be a heavy going for readers.' However, the material will be of immense interest to advanced students, researchers and practitioners in Biological and Chemical Oceanography as well as to those concerned with environmental problems.

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