

Reviews

Long term changes in marine fish populations

T. Wyatt and M. G. Larreneta (Eds)

1988. Luis Ansorena, Eduardo Cabello 6. 36028
Vigo, Spain. 554 pp. 8000 Spanish pesetas. ISBN 84-
404-3487-1

This collection of 27 papers is the proceedings of a symposium, held in Vigo in November 1986, on what must be a topic of importance to fisheries scientists and managers. The contributions are diverse, they are world-wide, and only half the studies of fisheries are about exclusively pelagic stocks.

The strengths of the contributions lie in the diversity of the fisheries described, and the demonstration of the major effects that occur in association with environmental events. Most of the presentations are of rather short time scales, i.e. less than 40 years, but others attempt to describe events over two or three centuries. The latter include descriptions of the French herring fishery by Binet, and the Northwest Atlantic cod fishery by Cushing, and by Buch and Hansen. Shackleton also describes depositions of fossil scales in muds, 500–600 years old, off Manibia.

The main weakness of the collection is in the inability to define the mechanisms that are responsible for specific changes in populations from changes in the environment; are the fish physically excluded, are predators favoured somehow, are the feeding conditions of the young worsened, are the young transported away? In less than half the studies are mechanisms discussed, with a fair proportion simply presenting correlations of catches and environmental variables. A notable contrast to this is the paper by Southward and Boalch, being much the most impressive of the collection. It describes, in some detail, the monthly and annual samples of plankton, fish eggs and larvae, production, nutrients, and temperatures from off Plymouth, that were the basis for the recognition of the Russell "cycle". A cycle it is not, but major changes in the composition of fish species are seen, and these are discussed in relation to changes in production, prey, and predator species. It is of interest that they, following Russell, dismiss the idea that changes are directly caused by changes in water temperature, although the two are correlated. They recognize that the data are of significant scientific importance, but note that the purpose of the collections is to predict ecological changes of significance to fisheries. Unfortunately, predictions are absent, and the interaction between these studies and fisheries management is in practice meagre, and worse, the collection

of this unique series may cease. The detailed presentation by Kondo, of Japanese fisheries and the environment is also rewarding.

Perhaps reflecting the paucity and complexity of concepts about biological mechanisms, the few models presented are unedifying. One contribution devoted exclusively to ideas on changes in the ecosystem is by Margalef. As always he has produced an article worth the time to read, and complex questions are addressed. Unfortunately they appeared to be answered with illusion rather than precision, and with equations used to decorate rather than clarify. An aside to the study seems to be the acceptance of mathematically chaotic dynamics in the ocean, and Margalef says "The appearance of irregular fluctuations suggests chaos". Chaos cannot be excluded, but it is most misleading to say that it is more than a possibility, given that such fluctuations are observed in marine data sets characterized by irregular, poor and short sampling, and with at least equally plausible dynamics caused by irregular inputs and non-linear, frequency-changing, internal components.

We must be grateful to the editors for having made the publication available in a relatively short time. Unfortunately, this has been at a cost of presentation. The book is of camera-ready copy, and is inelegant, but readable. The importance of the subject should warrant the book being bought by educational and fisheries institutes.

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Fishing and stock fluctuations

T. Laevastu and F. Favorite

1988. Fishing News Books, Farnham, Surrey,
England. 239 pp. £25.00.

In the authors' words the book "is an attempt to summarize the present state of knowledge of the effects of fishing on the fluctuations in abundance of fish stocks, and to evaluate whether intensive fishing can be the main cause of diminishing catches from some fish stock, as is often assumed". The last qualifier hints at the authors' own view of the matter.

The first five chapters of the book describe the diversity of fishing operations, the role of the marine environment in determining fluctuations in fisheries, the various gear used for catching fish and the effects of fishing on fish stocks. Fluctuations in catches and stocks, and the multitude of possible causes are described. The import-