

Pauly, D. 1982. Review of 'Fisheries Management' (R.T. Lackey and N.A. Nielsen, eds) and Resources Management and Environmental Uncertainty (M.H. Glantz and J.D. Thompson, eds.). *Berichte der Deutschen Wissenschaftlichen Kommission für Meeresforschung* 29(4): 279-281.

LACKEY, R.T.; NIELSEN, L.A. (eds): **Fisheries Management**. Oxford: Blackwell Scientific Publication Ltd. 1981. 432 pp. 99 ill. £ 25.—.

GLANTZ, M.H.; THOMPSON, J.D. (eds): **Resources Management and Environmental Uncertainty — Lessons from coastal Upwelling Fisheries**. New York: J. Wiley and Sons 1981. 491 pp. \$42.50.

Undoubtedly, fishery science has matured and in doing so, returned to its origins as a science at the interface between a fishery (= people) and a stock (= fish). This review deals with two books which give equal emphasis to both sides. Some earlier reviewers of these books — notably of the second — seem to think that a fishery, somehow, has to do more with fish than with people, and who question the need to include this or that aspect of "politics" when looking at fisheries. The books reviewed here show, however, that not including the "people" side of things (= politics) must prevent one from understanding even fishery biology.

"Fisheries management" consists of 16 chapters, grouped under three headings:

- Characteristics of Fisheries (6 chapters)
- Principles of Management (5 chapters)
- Management of Fisheries (5 chapters)

The first of these headings addresses the "components of a fishery", and includes chapters such as "The Biology of Fishes", "The Dynamics of Fished Stocks" and "The Human Dimension". Under the second heading are included chapters on fisheries management *sensu stricto* i.e. "Planning and Policy Analysis", "Fishery Economics" and "Objectives of Management". The third heading, deals with the management of the fisheries in specific habitats, e.g., lakes, reservoirs and streams, or the coastal and offshore regions of the oceans. Included in this section is — somehow surprisingly — a chapter on aquaculture. All contributions in the book are well-written and well edited, with clear graphs wherever they are needed. It is remarkable how well all 17 contributors have managed to review their field in the few pages that were allotted to them, without conceding on the substance of the field they covered. Thus, for example, TYLER and GALLUCCI present in their contribution ("Dynamics of Fished Stocks") a concise review of fish population dynamics which culminates in the flowchart of a "self-generating" model of an exploited fish population which most readers will understand.

The only negative thing about this book is that it is very parochial. The fish, the fisheries, the problems and the solutions are with only a few exceptions North American, and this to the extent that it is difficult to conceive using this book for a course with students from any other part of the world, temperate or tropical. The editors aimed at a book "for use by students as a textbook and by professionals as a reference". They have certainly achieved their aim as far as students and professionals in the USA and Canada are concerned.

"Resource Management and Environmental Uncertainty", the other book reviewed here, aims at bringing together material which could help elucidate the complex fabric of oceanographic, biological and socioeconomic features which determine the evolution of upwelling fisheries, particularly the anchoveta fishery off Peru.

The 16 contributions in this book are grouped under 4 uneven headings named:

- Background (6 contributions)
- Scientific Aspects of El Niño (3 contributions)
- Societal Implications of El Niño (5 contributions)
- The Future (2 contributions)

with each of these headings including socioeconomic and oceanographic/biological contributions.

This arrangement is not without problems, and it may have been better to use a more straightforward approach such as grouping together the papers on physical oceanography, those on biological oceanography/fishery biology and the socioeconomic papers.

The 3 papers on physical oceanography review what is known of the El Niño phenomenon, including the prospect for predictions. The latter seems at present rather bleak — a situation similar to that of longer-term meteorological forecasts. Also, as the concluding chapter by M.H. GLANTZ emphasizes, under the societal conditions that prevailed in Peru in 1972 (and under the conditions that prevail throughout most of the world) very little could have been done with such forecasts, had they been available.

The papers on biological oceanography/fishery biology (*sensu lato*) include reviews of three non-Peruvian stocks, the Chilean pelagic stocks (which were negatively affected both by the 1973 El Niño and the open-for-grabs policy which succeeded the 1973 military coup), the California sardine (the classical collapse following overfishing) and the South African pelagic fisheries off Namibia in which "despite strenuous work and scientific initiatives, the hidden political, administrative, legal and economic factors outweighed scientific arguments and led to the decline of the fishery".

The "biological" papers also include 2 papers that were reprinted. The first of these, a 1954 classic by R.C. MURPHY argues *against* exploitation of the anchoveta, and *for* exploitation of the guano produced by the anchoveta-feeding birds. For those who feel that this leads to energetic losses, it may be recalled that the anchoveta was used for feed e.g. Dutch pigs and Danish trouts — quite an indirect route, especially as far as food production e.g., for Peruvians, is concerned.

The other reprinted article is the late PAULIK'S well-known "Anchovies, Bird and Fishermen in the Peru Current", which was published just prior to the collapse and which culminated in the rethorical question: "destruction of the world's greatest single-species fishery is unthinkable. Could it really occur?". In this context, it is a pity that G.I. MURPHY'S Geoforum article (Vol. 11: 63-71 1972) was not also reprinted here, since MURPHY, whose paper was also published just prior to the collapse presented data which made its imminence quite evident — so evident that MURPHY could write that "a 20% increase in total effort will drive the stock to extinction and it is not hard to imagine nature providing this increase or its equivalent, either through a negative perturbation of reproductive success, an increase in predation or some combination of these". As we know, it is El Niño which did the job.

All this being known — why did not the Peruvian government take measures to reduce fishing effort in time?

The explicitly socioeconomic papers included make up only 25% of the whole book. Amongst the societal factors which prevented fishing effort from being reduced to a safe level, the following are discussed in various contributions:

- the export orientation of the Peruvian fishery, and the effects of an insatiable international market for fish meal,
- the staggering overcapitalization of the fishery sector, from the capture to the processing side,
- the Peruvian government's various responses to the crisis of the fishery, and
- the "external" factors which shaped and altered these responses.

This book is one of the first to address such issues as related to the fishery of a developing country, and the matters touched upon are bound to generate controversies, the stand taken by the various authors will thus have to be "ideological", either explicitly so, such as in the case of TOMCZAK'S contribution, or implicitly, such as the cases where authors lament the failure of market forces "to make an adjustment to restore equilibrium" (p. 376) — as if market forces, left on their own, ever had contributed, anywhere, to anything but the devastation of fisheries (see C. CLARK'S Bioeconomics 1976, Wiley Interscience). The point is that whether one's economy is planned or not, governments *do* have to regulate fisheries either to prevent the economic rent from being completely dissipated, or — and this is even more sadening — to prevent fisheries from destroying their own resource base.

Factors preventing governments from regulating fisheries, and preserving national resources are plenty, and addressing them is the most "political" of all fields related to fisheries management. Two contributions, by L.A. HAMEGREN ("Peruvian Political and Administrative Responses to El Niño: Organizational, Ideological and Political Constraints on Policy Changes") and by M. TOMCZAK address this issue with regard to the Peruvian Government. The editors make no apologies for including the first of these two contributions, and indeed they have no reason to, for it is a fairly pedestrian account, with only bits of criticism here and there. TOMCZAK'S contribution ("Prediction of environmental changes and the struggle of the Third World for national independence: the case of the Peruvian fisheries) is something else. TOMCZAK, as often before, uses roaring Maoese to state his views. Why he keeps doing that is intriguing, given that his main points e.g., the need for Third World countries to conduct land reforms and to acquire control over their resources (inclusive of their fisheries resources) will not be contested by the majority of his readers.

Altogether, "Resource Management and Environmental Uncertainty" is an excellent book, which will help us get back to where fishery science should always have been — where real people catch fish to eke out a decent living or to make lots of money as fast as possible, and where fish stocks simply can't comply with all these demands.

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