

Reviews

Erratum: The price quoted for the book *James Cook Maritime Scientist*, reviewed in *Arctic* 32(4), should have been in pounds sterling rather than in dollars. The correct price is £3.95.

AQUATIC RESOURCES IN THE NORTHWEST TERRITORIES. By P. J. McCART and J. DEN BESTE. 1979. (Science Advisory Board of the Northwest Territories.) 55 pages. \$5.00.

This monograph fills a long-standing gap of review studies on the aquatic resources of northern Canada. There has been a plethora of so-called "impact studies" done in association with industrial development plans for the north and there are a number of reviews of northern aquatic ecology, but there are few review papers on the present status of aquatic resources (and associated research programs) in the Northwest Territories. The authors address themselves to the difficult task of producing a readable document of use to scientists, environmental managers and northern residents. Throughout the monograph they succeed admirably in reaching those audiences and at the same time they have produced a succinct review of dilemmas surrounding the northern Canadian fishery.

The monograph, prepared for the Science Advisory Board (SAB) of the Northwest Territories, is the result of two major studies done by the Board subsequent to recommendations published by the Berger Pipeline Enquiry.

The Science Advisory Board was interested in documenting the impacts on renewable resources near northern population centres should options be exercised there to further develop a renewable resource economy. Obviously, such an approach entails an investigation of the viability of that option. Their first step was to assess the existing renewable resources of the Northwest Territories (wildlife and fisheries populations) and management strategies for maintaining them. A series of monographs was prepared on the marine mammals, terrestrial wildlife and the aquatic resources of the Northwest Territories, the latter of which is reviewed here. A second series of monographs, dealing with human demography and northern nutrition, is in preparation and will conclude the SAB study.

The particular monograph reviewed here combines considerations of aquatic productivity of northern fresh waters, including data on domestic, commercial and sport fisheries, with specific data on the distribution and use of the major coastal and inland fish species. Key sections, however, deal with the regulation of the northern fishery and critically review the possible future development of it.

In the beginning, the authors wrestle with the problem of providing a succinct review of the comparatively sparse limnological data avail-

able in the literature while, at the same time, providing a link with the broader issues involved in documenting the characteristics of the fisheries resources for the important species.

The second section, dealing with the domestic, commercial and sport fisheries, provides the reader with a valuable overview of activities in the Northwest Territories, particularly since much of the data are extracted from government reports published only as technical or occasional papers.

The section on the distribution, life history and use of major fish species contains a wealth of summarized data on commercial, domestic and sport fisheries gleaned from published technical reports, scientific papers and, perhaps most usefully, from unpublished data which have, unfortunately, until now largely remained only in government files. The authors bring their considerable northern research and field experience to bear on fundamental problems of fish population size, productivity, recruitment and mortality and provide the reader with a critical, yet balanced, overview of the fish resources in this vast territory. Furthermore, they focus on specific problems, such as those associated with commercial fishery development (examples being the Rankin Inlet Cannery, which closed in 1977, and the viable Cambridge Bay community freezer operation for anadromous Arctic char and lake trout), and provide a valuable insight into the factors which have contributed to the fate of these northern enterprises.

The section on regulation of fisheries presents a refreshingly objective review of factors which must be considered in any aquatic resource management strategy. In particular the discussion of the concept of sustainable yield presents the reader with a fine appraisal of the gulf which presently separates the objectives for resource management, as stated by government regulatory agencies, and the methods which are, indeed, employed. The authors discuss the literature pertaining to the concept of "maximum sustainable yield" and point out the complexities that vex attempts to establish quotas which reflect the biological realities of the resource. Existing definitional deficiencies are discussed and lead the reader to question, perhaps, why government research agencies in the north have not devoted more energies and resources to experimental resolution of the biotic factors which determine the ultimate ceiling on fishing effort. The case of the overexploitation of Arctic char stocks in the Sylvania Grinnel River stands as an example of the growing need for a scientific resolution of the problem and better enforcement of fishing regulations. The authors further underscore this theme by stressing the regrettable lack of quantitative data on fish habitat and

fisheries potential of many of the fresh waters of the Northwest Territories. The fact that the recommendations of the 1972 Federal-Territorial Task Force on this matter have largely gone unheeded is a sad comment on Canadian attitudes toward our northern freshwater fishery resources, particularly when one recognizes that existing government agencies and institutions have been assigned the responsibility for such necessary research. The authors of the monograph are left with the dubious honour of being forced to quote verbatim from the 1972 Task Force recommendations.

In the section discussing possible future expansion of the fishery, the reader is alerted to the fact that, even after intensive studies in areas like the MacKenzie Valley and delta, serious deficiencies still remain in our understanding of vital aspects of fishery management. As the authors point out, our ignorance of conditions in most other areas considered for new fisheries or industrial development is, by definition, even greater.

The final and concluding chapter of recommendations presents a fair, lucid appraisal of strategies which could help to resolve the problems or deficiencies discussed. The authors take advantage of the most recent data in formulating their recommendations. Throughout there is the well-justified sentiment that objective attempts to plan for, and manage, northern fishery resources are frustrated by a lack of data on those resources. The authors perhaps overstate the point (in bold face type) that, for instance, all too often detailed studies of projects end at the preliminary impact assessment stage and we therefore have little verification of impact predictions. This view, however, has been expressed elsewhere (Stirling *et al.*, 1979), and most resource managers and aquatic scientists working in the north would surely agree with the sentiment, however strongly it may be expressed.

One of the principal values of the review is that it allows the reader quickly to assess problems of existing data deficiencies and current practices of northern aquatic resource management. The monograph demonstrates that serious problems do, indeed, exist and must be resolved before wider resource developments may be objectively attempted. In particular, the recommendation that local residents could be trained in the Northwest Territories and employed to upgrade information on domestic fisheries seems worthy of serious consideration. The recommendations concerning sport fishing, local marketing of fish protein and the development of commercial fishing strategies are also perceptive.

One cannot help but be touched by the authors' final comment regarding the lack of orga-

nization and difficulty in accessing the data necessary for the review. This difficulty was encountered, apparently, notwithstanding the existence of major institutions established to maintain and facilitate the dissemination of just such material.

In general the monograph is free of formal or typographical errors and is well-written and highly readable. While suffering somewhat from a clear delineation of sections and sub-sections, which probably could have been aided by a numbering of chapters, this does not detract from the overall value of the review.

The Science Advisory Board deserves congratulations and support for taking the initiative in commissioning this work. At very least it will serve as a readable overview of much of the published and unpublished data on northern aquatic resources. Perhaps it is not too much to hope that it will reach audiences wider than scientists and resource managers, who must continue to labour with the serious difficulties noted in the monograph. May it bring about a change for the better in the attention presently devoted to studying the aquatic resources of the Canadian Arctic.

REFERENCE

STIRLING, I.R., WALLACE, R.R. and GLAZIER, G.T. 1979. An environmental research and management strategy for the eastern arctic region: A discussion. *Northern Perspectives* VII (6): 4-9.

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LE PERGELISOL AU QUEBEC-LABRADOR. SPECIAL ISSUE OF GÉOGRAPHIE PHYSIQUE ET QUATERNAIRE, Vol. 33 (3/4), 1979.

Le pergélisol au Québec-Labrador is a collection of 12 papers written in English or French, with abstracts in English, French and German. Topics range from a regional discussion on a proposed history of permafrost development (Ives), to such site specific topics as a description of permafrost and the active layer in the forest-tundra zone (Gray *et al.*). For the convenience of the readers, the contributions of various articles in this special issue are summarized in an introduction by Gray.

In his paper on permafrost distribution in Québec and Labrador, Brown raised the important question of what permafrost is contemporary and what is relic; and whether the present