

New NMFS Scientific and Technical Reports Published

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NOAA Technical Report NMFS Circular 436. Uchida, Richard N. "Synopsis of biological data on frigate tuna, *Auxis thazard*, and bullet tuna, *A. rochei*." January 1981.

Abstract

This circular contains biological and fisheries data on the frigate and bullet tunas from over 200 published and unpublished reports, up to and including those published in 1978. Information is presented on identity, distribution, bioeconomics, life history, population, and exploitation. (This report is also listed as FAO Fisheries Synopsis 124.)

NOAA Technical Memorandum NMFS F/SEC-17. Zuboy, J.R., and A. C. Jones. "Everything you always wanted to know about MSY and OY (but were afraid to ask)." June 1980. 19 p. (Available from the Southeast

Fisheries Center, NMFS, NOAA, 75 Virginia Beach Drive, Miami, FL 33149.)

Abstract

The eight fishery management councils established by the Fishery Conservation and Management Act of 1976 are mandated to manage U.S. marine fisheries resources occurring in the fishery conservation zone based on the concepts of maximum sustainable yield and optimum yield. Fulfilling the mandate requires a thorough understanding of these concepts. It is the purpose of this paper to present a nontechnical discussion of maximum sustainable yield and optimum yield to facilitate understanding by the councils, which are composed largely of laypersons, so that they may carry out their duties under the Act.

A Basic Guide to Mussel Farming

With interest rising in mussel culture, the New Zealand Fishing Industry Board has published "Mussel Cultivation in the Marlborough Sounds" by Technical Officer R.J. Jenkins, whose main task for the past 8 years has been the development of mussel farming there.

Since 1972, mussel culture in the Marlborough Sounds has developed from the "idea stage" to the establishment of 50 marine farms, application for 150 more, and an annual production of 600-1,000 t of mussels. This volume is a record of that progress in research and development of mussel culture. As such, it constitutes a fine guide to mussel farming practices and provides a wealth of related information.

In New Zealand, the more widely

available green-lipped mussel, *Perna canaliculus*, has been most harvested and cultured, although the blue mussel, *Mytilus edulis aoteanus*, a more southerly subspecies, is now being more readily exploited.

Taxonomy and anatomy and biology of the mussels are amply described and illustrated. Culture methods, also well illustrated, are detailed, including spatfall forecasting, settlement monitoring, larvae monitoring, hatchery seed production, etc. Seed catching procedures are listed, and seed handling and maintenance is discussed. Mussel culture problems (fouling organisms, diseases, and parasites) are described.

Mussel farming equipment and techniques are also explored and illustrated. Best conditions for mussel farming areas are listed.

Finally, the author outlines mussel production that can be expected, along with means of determining readiness for harvesting and harvesting techniques. A glossary is also included.

The hardbound, 75-page book, likely to be of great interest to mussel farmers far beyond New Zealand, is available only from the New Zealand Fishing Industry Board, Private Bag, Manners St. P.O., Wellington, New Zealand, for NZ \$8.00 (surface mail cost to the United States is NZ \$1.25; second class airmail fee is NZ \$5.05).

A Symposium on the Living Coelacanth

The coelacanth, *Latimeria chalumnae*, a primitive species once believed extinct, may be as hard to catch as to define. "The Biology and Physiology of the Living Coelacanth," edited by John E. McCosker and Michael D. Lagios, presents 11 papers from a AAAS symposium in June 1977 ranging widely from "My story of the first Coelacanth" by M. Courtenay-Latimer, to the species' natural history, its influence on African ichthyology, its anatomy and physiology, and its taxonomic classification.

McCosker, inferring the natural history of the living coelacanth, reports that it "behaves like a large, reef-associated piscivorous grouper." However, most of the papers attempt to pin down the systematics of *Latimeria*. Michael D. Lagios, "The coelacanth and the Chondrichthyes as sister groups" points out perceived relationships between the coelacanth and the sharks. Other papers rebut that view: "Coelacanths: Shark relatives or bony fishes?" by L. J. V. Compagno; "Ventral gill arch muscles and the phylogenetic relationships of *Latimeria*" by E. O. Wiley; "Mechanisms of osmoregulation in the coelacanth: Evolutionary implications" by R. W. Griffith and P. K. T. Pang; and "Chordate cytogenetic studies: An analysis of their phylogenetic implications with particular reference to fishes and the living Coelacanth" by G. Dingerkus. Additional papers discuss the species' mineralized tissue structures, ventricular and notochordal fluids, growth hormone studies, creatine kinase isozyme evolution, and amino acids and taurine in intracellular osmoregulation.

The 175-page softcover volume is available from the California Academy of Sciences, San Francisco, CA 94118 (Attn: "Coelacanth Volume") for \$10.00, tax and postage included.

The Future of the Pacific Salmon

Publication of "**Pacific Salmon, Scenarios for the Future**" by Peter Larkin has been announced by the University of Washington in Seattle. The author, dean of the graduate school at the University of British Columbia, is an internationally known fisheries biologist. His appearance as the first of the Donald McKernan Lecturers at the University of Washington forms the basis for this thoughtful booklet.

The author begins with an overview of the probable state-of-the-art of salmon management in the year 2020 and forecasts various aspects for long-

range environmental predictions, better techniques of racial identification, possibilities in genetic engineering, and improved facilities for salmon hatcheries and aquacultural pursuits.

Next, he presents scenarios about the conduct of both commercial and sport fishermen of the 21st century, the altered roles of politicians and resource management agencies in 2020, and future social attitudes toward salmon harvesting. Finally, he predicts that the next two decades "will be characterized by new and exciting investigations that will bring our knowledge of Pacific salmon and of the North Pacific Ocean to levels of understanding that would be enriching to all mankind." The 23-page essay (WSG 80-3) is available at \$3.00 per copy from the University of Washington, Washington Sea Grant, 3716 Brooklyn Ave. N.E., Seattle, WA 98105.

Handling Methods and Quality of Fresh Squid

"**Handling Methods and Quality Evaluation of Fresh Canadian Atlantic Squid**," Technical Report 898, has been published by Canada's Fisheries and Oceans Department. A physical quality examination of *Illex illecebrosus* based on skin color, texture, mantle condition, and odor has been developed and described for routine quality grading in the field. An organoleptic test procedure is also presented. Simplified guidelines for a three-grade system based on each procedure have reportedly been applied satisfactorily in various squid studies.

Using the proposed guidelines, the keeping times of squid using various handling methods and chilled seawater (CSW) and noncontact icing (NCI), have been estimated. NCI can preserve squid quality slightly better than CSW storage. A modified NCI method, with some seawater added, gave the longest squid keeping time. Both NCI and CSW, with various containers, can be used for holding squid for at least 2 days with excellent

quality and skin color, and for more than 3 days with acceptable quality. The report is available from the Research Section, Inspection Division, Field Services Branch, Fisheries and Oceans, P.O. Box 550, Halifax, Nova Scotia, Canada B3J 2S7.

FAO, UNESCO Fisheries Publications Available

The availability of several FAO fisheries publications has been announced by UNIPUB, 345 Park Ave. South, New York, NY 10010. Among them are the following items.

Two additional FAO Fisheries Synopses have been published: No. 120, **Synopsis of Biological Data on the Mrigal, *Cirrhinus mrigala* (Hamilton, 1822)**" by V. G. Jhingran and H. A. Khan of the Central Inland Fisheries Research in West Bengal, India; and, No. 125, Vol. 1, an FAO Species Catalog, "**Shrimps and Prawns of the World, An Annotated Catalogue of Species of Interest to Fisheries**," by L. B. Holthuis of the Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands. It includes all species known to the author to be used for human consumption, sold for bait and as subproducts, and species not commercially caught, but considered by experts to be of potential commercial value. This 271-page synopsis costs \$15.50; No. 120, 78 pages, costs \$7.50.

Other FAO volumes available include "**World List of Aquatic Sciences and Fisheries Serial Titles**" (FAO Fish. Tech. Pap. 147, Supplement 4) (\$7.00), which provides data on another 429 titles since the supplement in 1978; "**Evaluation of the Fishery Resources of the Eastern Central Atlantic**" (FAO Fish. Rep. 220; \$11.00), a report of the fourth session of the Working Party on Resource Evaluation of the Fishery Committee for the Eastern Central Atlantic (CECAF); and CIFA Tech. Pap. 6, "**Role of Fishery Technology in the Management and Development of Freshwater Fisheries in Africa**." This 67-page booklet costs \$7.50.